



UCAR CARBON COMPANY INC.

32N30.6W49 MSH
KIM MSH

P.O. Box 887, Niagara Falls, NY 14302-0887

January 11, 1999

RECEIVED

Mr. Mark Hans, PE
Regional Solid Materials Engineer
NYS Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

JAN 12 1999 32N/03

NYSDEC - REG. 9
FOIL
☒ REL ☐ UNREL

Subject: Quarterly Reports of Groundwater Analysis
Republic Solid Waste Management Facility
Post-Closure Monitoring Program

Dear Mr. Hans,

Please find enclosed copies of the forty-second (42) and forty-third (43) quarter's groundwater analysis from the closed Republic Waste Management Facility.

We have not utilized the test results from the forty-second (42) quarter Amended Quarterly Report in our analytical parameter summary as the results produced false positives. The Narrative in the report provides an objective explanation for the false positives.

The attached table summarizes the positive organic parameters from BW-4.

Carbon disulfide was detected for the first time in BW-4 at 22 ppb (quant. limit 20 ppb) and in BW-6 at 28 ppb.

If you have any questions, please contact me at 278-3275.

Very truly yours,

A.C. Ogg
Site Manager

A.C. Ogg
nm
Attachments

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

43rd QUARTER

POSITIVE ORGANIC PARAMETERS FROM BW-4

CONTAMINATE	43rd Quarter ppb	Mean Conc. ppb	Range ppb
1,2-Dichlorethene (Total)	330	287	200 - 570
Trichloroethene	570	290	30 - 740
Tetrachloroethene	601	230	72 - 601
Hexachlobutadiene	93	50	10 - 160
Vinyl Chloride	280	100	29 - 300
Carbon disulfide	22	22	22

CC: Mr. Jim Devald, Dir. of Environmental Health
Niagara County Health Department
Environmental Division
5467 Upper Mountain Road
Lockport, New York 14094-1899

Handwritten notes:
Buck... 12/9/01
... 8/9/02
... 12/10/01

32NO3.6W49

UCAR CARBON COMPANY, INCORPORATED

REPUBLIC WASTE MANAGEMENT FACILITY

POST CLOSURE MONITORING PROGRAM

AMENDED QUARTERLY REPORT

SAMPLE DATE: 08/28/98

Prepared By

ADVANCED
ENVIRONMENTAL SERVICES, INC.

"A Company Dedicated to Honesty, Quality and Service"

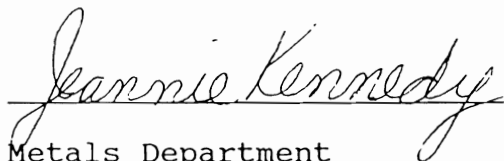
Due to a laboratory accident (bottle breakage) the volatiles fraction of the blind field duplicate sample could not be completed. Mary McIntosh at the DEC Region #9 was contacted; she waived the need for these results for this round of sampling. There was, of course, no charge for this analysis.

Narrative

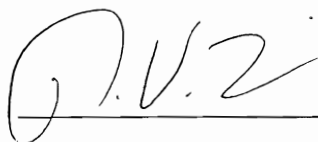
AES subcontracted volatiles analysis to Upstate Laboratories. AES normally analyzes these volatiles by method 8260. Due to instrument malfunction, volatiles were analyzed by Upstate Laboratories by method 8021. Method 8021 is more susceptible to interference than method 8260 which may account for unusually high results.

QA/QC VERIFICATION FOR PROJECT ID 82AW

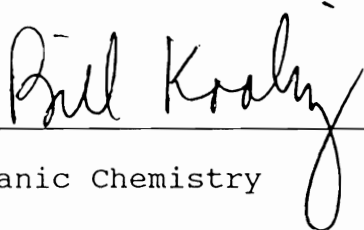
The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.



Metals Department



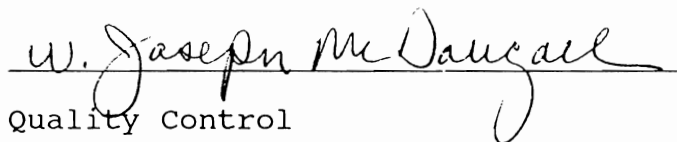
Inorganic Chemistry



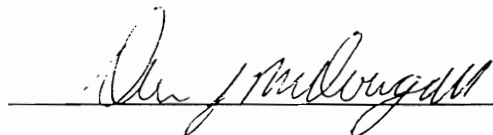
Organic Chemistry



Field Services



Quality Control



Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

Advanced Environmental Services, Inc.

2186 Liberty Drive
Niagara Falls, New York 14304
(716) 283-3120

QUARTERLY GROUNDWATER MONITORING - WELL INFORMATION

August 27/28 1998

UCAR CARBON COMPANY, INC.

Hyde Park Boulevard
Niagara Falls, New York

AES Code: CTC

Project I.D. # 82AW

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	8/27/98	610.72	4	19.95	590.77	28.80	5.78	8.6	C
BW-2	8/27/98	608.43	2	16.80	591.63	26.53	1.59	18.7	C
BW-3	8/27/98	604.72	4	16.30	588.42	24.90	5.61	16.5	C
BW-4	8/27/98	607.08	4	16.20	590.88	22.66	4.22	12.5	C
BW-5	8/27/98	603.33	4	14.75	588.58	28.80	9.17	27.0	C
BW-6	8/27/98	607.04	4	13.06	593.98	25.00	7.79	23.0	C
MW-1	8/27/98	609.43	2	13.72	595.71	23.20	1.55	1.60 (Dry)	S
MW-2	8/27/98	607.54	3	24.30	583.24	24.61	0.11	0 (Dry)	VS
MW-3	8/27/98	601.61	2	15.00	586.61	15.85	0.14	0 (Dry)	S
OW-1 SOUTH	8/27/98	608.81	2	8.70	600.11	NR	NR	NR	N/A
OW-2 NORTH	8/27/98	607.06	2	9.70	597.36	NR	NR	NR	N/A

Abbreviations:

VS = Very Slow ----- Recharge Rate longer than 24 hr period.

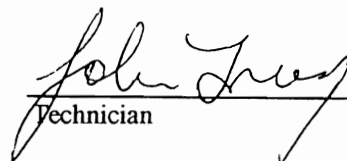
S = Slow ----- Recharge Rate within 24 hr period.

R = Rapid ----- Recharge Rate within 1 hr period.

C = Continuous ---- Recharge Rate immediate.

NR = Not Required

N/A = Not Applicable

 9/23/98
Technician Date

Advanced Environmental Services, Inc.

2186 Liberty Drive
Niagara Falls, New York 14304
(716) 283-3120

QUARTERLY GROUNDWATER MONITORING - FIELD PARAMETER INFORMATION

August 27/28 1998

UCAR CARBON COMPANY, INC.

Hyde Park Boulevard
Niagara Falls, New York

AES Code: CTC

Project I.D. # 82AW

Monitoring Well I.D.	Sampling Date	Sampling Time	Water Level (ft.)	Turbidity (NTU)	Filter Time	Field Comments/Observations
BW-1	8/28/98	9:35 AM	19.95	178.0	3:30 PM	Slightly brown
BW-2	8/28/98	1:15 PM	16.78	59.1	4:10 PM	Clear
BW-3	8/28/98	12:30 PM	16.33	21.30	4:05 PM	Clear.
BW-4	8/28/98	12:00 PM	16.15	109.00	4:00 PM	Brown/Oily sheen
BW-5	8/28/98	11:02:20 AM	14.77	9.2	3:40 PM	Clear,SO2 Odor
BW-6	8/28/98	11:15 AM	13.00	9.7	3:55 PM	Slightly brown
MW-1	8/28/98	9:50 AM	14.30	5.8	3:35 PM	Clear/Musty Odor
MW-2	8/28/98	1:00 PM	24.30	303.0	NA	Black solids,no sample taken
MW-3	8/28/98	10:45 AM	10.45	877.0	3:45 PM	Dirty brown
OW-1 South	8/27/98	11:30 AM	8.70(Dry)	NA	NA	Required to take water elevation only.
OW-2 North	8/27/98	2:20 PM	9.70(Dry)	NA	NA	Required to take water elevation only.
Blind Dup	8/28/98	12:00 PM	16.15	112.0	4:00 PM	Brown/Oily sheen
Trip Blank	8/28/98	2:00 PM	NA	0.13	NA	Deionized Water

The Blind Duplicate site was BW-4.


Field Technician

9/23/98
Date

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: MW-1
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-1

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	5.8	NTU	0.1	EPA 180.1
Ammonia	5.6	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	4.9	mg/L	0.8	EPA 351.3
Total Iron	2.67	mg/L	0.060	EPA 200.7
Soluble Iron	ND	mg/L	0.060	EPA 200.7
Total Potassium	36	mg/L	1.8	EPA 200.7
Soluble Potassium	40 **	mg/L	1.8	EPA 200.7
Total Zinc	0.032	mg/L	0.016	EPA 200.7
Soluble Zinc	ND	mg/L	0.016	EPA 200.7

* Analysis performed in the field.

** The soluble value is slightly higher than the total value for this element. The difference is statistically insignificant.

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: MW-3
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-2

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	877	NTU	0.1	EPA 180.1
Ammonia	ND	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	0.9	mg/L	0.8	EPA 351.3
Total Iron	58.7	mg/L	0.060	EPA 200.7
Soluble Iron	ND	mg/L	0.060	EPA 200.7
Total Potassium	7.1	mg/L	1.8	EPA 200.7
Soluble Potassium	1.8	mg/L	1.8	EPA 200.7
Total Zinc	0.478	mg/L	0.016	EPA 200.7
Soluble Zinc	ND	mg/L	0.016	EPA 200.7

* Analysis performed in the field.

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: BW-1
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-3

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	178	NTU	0.1	EPA 180.1
Ammonia	ND	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	1.5 D	mg/L	0.8	EPA 351.3
Total Iron	14.8	mg/L	0.060	EPA 200.7
Soluble Iron	0.122	mg/L	0.060	EPA 200.7
Total Potassium	10	mg/L	1.8	EPA 200.7
Soluble Potassium	13 **	mg/L	1.8	EPA 200.7
Total Zinc	13.4	mg/L	0.016	EPA 200.7
Soluble Zinc	4.67	mg/L	0.016	EPA 200.7

* Analysis performed in the field.

** The soluble value is slightly higher than the total value for this element. The difference is statistically insignificant.

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: BW-2
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-4

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	59.1	NTU	0.1	EPA 180.1
Ammonia	0.5	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	1.0 D	mg/L	0.8	EPA 351.3
Total Iron	8.25	mg/L	0.060	EPA 200.7
Soluble Iron	3.52	mg/L	0.060	EPA 200.7
Total Potassium	3.3	mg/L	1.8	EPA 200.7
Soluble Potassium	4.5	mg/L	1.8	EPA 200.7
Total Zinc	4.37	mg/L	0.016	EPA 200.7
Soluble Zinc	0.246	mg/L	0.016	EPA 200.7

* Analysis performed in the field.

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: BW-3
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-5

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	21.3	NTU	0.1	EPA 180.1
Ammonia	0.5	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	1.2 D	mg/L	0.8	EPA 351.3
Total Iron	2.18	mg/L	0.060	EPA 200.7
Soluble Iron	0.250	mg/L	0.060	EPA 200.7
Total Potassium	3.4	mg/L	1.8	EPA 200.7
Soluble Potassium	5.1	mg/L	1.8	EPA 200.7
Total Zinc	0.655	mg/L	0.016	EPA 200.7
Soluble Zinc	0.109	mg/L	0.016	EPA 200.7

* Analysis performed in the field.

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BW-4
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-6

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	109	NTU	0.1	EPA 180.1
Ammonia	3.8	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	5.3 D	mg/L	0.8	EPA 351.3
Total Iron	55	mg/L	0.060	EPA 200.7
Soluble Iron	0.084	mg/L	0.060	EPA 200.7
Total Potassium	22	mg/L	1.8	EPA 200.7
Soluble Potassium	24 **	mg/L	1.8	EPA 200.7
Total Zinc	4.18	mg/L	0.016	EPA 200.7
Soluble Zinc	0.062	mg/L	0.016	EPA 200.7
Chloromethane	ND	µg/L	5	EPA 8021 ***
Bromomethane	ND	µg/L	5	EPA 8021
Vinyl chloride	290 ✓	µg/L	5	EPA 8021
Chloroethane	ND	µg/L	5	EPA 8021
Methylene chloride	ND	µg/L	5	EPA 8021
1,1-Dichloroethene	ND	µg/L	5	EPA 8021
1,1-Dichloroethane	ND	µg/L	5	EPA 8021
1,2-Dichloroethene (total)	700 ✓	µg/L	5	EPA 8021
Chloroform	ND	µg/L	5	EPA 8021
1,2-Dichloroethane	ND	µg/L	5	EPA 8021
1,1,1-Trichloroethane	44 ✓	µg/L	5	EPA 8021
Carbon tetrachloride	14 ✓	µg/L	5	EPA 8021
Bromodichloromethane	ND	µg/L	5	EPA 8021
1,2-Dichloropropane	ND	µg/L	5	EPA 8021
cis-1,3-Dichloropropene	ND	µg/L	5	EPA 8021
Trichloroethene	1100 ✓	µg/L	5	EPA 8021
Chlorodibromomethane	ND	µg/L	5	EPA 8021

* Analysis performed in the field.

** The soluble value is slightly higher than the total value for this element. The difference is statistically insignificant.

*** Method EPA 8021 was subcontracted to Upstate Laboratories, Inc.

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BW-4
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-6

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
1,1,2-Trichloroethane	ND	µg/L	5	EPA 8021
Benzene	ND	µg/L	5	EPA 8021
trans-1,3-Dichloropropene	ND	µg/L	5	EPA 8021
Bromoform	ND	µg/L	5	EPA 8021
Tetrachloroethene	980 ✓	µg/L	5	EPA 8021
Toluene	ND	µg/L	5	EPA 8021
1,1,2,2-Tetrachloroethane	ND	µg/L	5	EPA 8021
Chlorobenzene	ND	µg/L	5	EPA 8021
Ethylbenzene	ND	µg/L	5	EPA 8021
Styrene	ND	µg/L	5	EPA 8021
m/p-Xylene	ND	µg/L	5	EPA 8021
o-Xylene	ND	µg/L	5	EPA 8021
Aniline	ND	µg/L	10	SW 846 8270
Benzoic acid	ND	µg/L	10	SW 846 8270
Benzyl alcohol	ND	µg/L	10	SW 846 8270
Phenol	ND	µg/L	10	SW 846 8270
bis(2-chloroethyl)ether	ND	µg/L	10	SW 846 8270
2-Chlorophenol	ND	µg/L	10	SW 846 8270
1,3-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,4-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,2-Dichlorobenzene	ND	µg/L	10	SW 846 8270
2-Methylphenol	ND	µg/L	10	SW 846 8270
bis(2-chloroisopropyl)ether	ND	µg/L	10	SW 846 8270
4-Methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodi-n-propylamine	ND	µg/L	10	SW 846 8270
Hexachloroethane	ND	µg/L	10	SW 846 8270
Nitrobenzene	ND	µg/L	10	SW 846 8270
Isophorone	ND	µg/L	10	SW 846 8270
2-Nitrophenol	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BW-4
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-6

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
2,4-Dimethylphenol	ND	µg/L	10	SW 846 8270
bis(2-chloroethoxy)methane	ND	µg/L	10	SW 846 8270
2,4-Dichlorophenol	ND	µg/L	10	SW 846 8270
1,2,4-Trichlorobenzene	ND	µg/L	10	SW 846 8270
Naphthalene	ND	µg/L	10	SW 846 8270
4-Chloroaniline	ND	µg/L	10	SW 846 8270
Hexachlorobutadiene	63.2	µg/L	10	SW 846 8270
4-Chloro-3-methylphenol	ND	µg/L	10	SW 846 8270
2-Methylnaphthalene	ND	µg/L	10	SW 846 8270
Hexachlorocyclopentadiene	ND	µg/L	10	SW 846 8270
2,4,6-Trichlorophenol	ND	µg/L	10	SW 846 8270
2,4,5-Trichlorophenol	ND	µg/L	10	SW 846 8270
2-Chloronaphthalene	ND	µg/L	10	SW 846 8270
2-Nitroaniline	ND	µg/L	10	SW 846 8270
Dimethyl phthalate	ND	µg/L	10	SW 846 8270
Acenaphthylene	ND	µg/L	10	SW 846 8270
2,6-Dinitrotoluene	ND	µg/L	10	SW 846 8270
3-Nitroaniline	ND	µg/L	10	SW 846 8270
Acenaphthene	ND	µg/L	10	SW 846 8270
2,4-Dinitrophenol	ND	µg/L	10	SW 846 8270
4-Nitrophenol	ND	µg/L	10	SW 846 8270
Dibenzofuran	ND	µg/L	10	SW 846 8270
2,4-Dinitrotoluene	ND	µg/L	10	SW 846 8270
Diethyl phthalate	ND	µg/L	10	SW 846 8270
4-Chlorophenyl phenyl ether	ND	µg/L	10	SW 846 8270
Fluorene	ND	µg/L	10	SW 846 8270
4-Nitroaniline	ND	µg/L	10	SW 846 8270
4,6-Dinitro-2-methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodiphenylamine	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: BW-4
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-6

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
4-Bromophenyl phenyl ether	ND	µg/L	10	SW 846 8270
Hexachlorobenzene	ND	µg/L	10	SW 846 8270
Pentachlorophenol	ND	µg/L	10	SW 846 8270
Phenanthrene	ND	µg/L	10	SW 846 8270
Anthracene	ND	µg/L	10	SW 846 8270
Carbazole	ND	µg/L	10	SW 846 8270
di-n-Butylphthalate	ND	µg/L	10	SW 846 8270
Fluoranthene	ND	µg/L	10	SW 846 8270
Pyrene	ND	µg/L	10	SW 846 8270
Butyl benzyl phthalate	ND	µg/L	10	SW 846 8270
3,3'-Dichlorobenzidine	ND	µg/L	10	SW 846 8270
Benzo(a)anthracene	ND	µg/L	10	SW 846 8270
bis(2ethylhexyl)phthalate	ND	µg/L	10	SW 846 8270
di-n-Octylphthalate	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: BW-5
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-7

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	9.2	NTU	0.1	EPA 180.1
Ammonia	ND	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	ND	mg/L	0.8	EPA 351.3
Total Iron	2.48	mg/L	0.060	EPA 200.7
Soluble Iron	0.221	mg/L	0.060	EPA 200.7
Total Potassium	2.2	mg/L	1.8	EPA 200.7
Soluble Potassium	3.8	mg/L	1.8	EPA 200.7
Total Zinc	0.610	mg/L	0.016	EPA 200.7
Soluble Zinc	0.036	mg/L	0.016	EPA 200.7

* Analysis performed in the field.

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BW-6
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-8

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	275	NTU	0.1	EPA 180.1
Ammonia	ND	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	0.9 D	mg/L	0.8	EPA 351.3
Total Iron	45.0	mg/L	0.060	EPA 200.7
Soluble Iron	ND	mg/L	0.060	EPA 200.7
Total Potassium	1.8	mg/L	1.8	EPA 200.7
Soluble Potassium	3.4	mg/L	1.8	EPA 200.7
Total Zinc	0.622	mg/L	0.016	EPA 200.7
Soluble Zinc	0.075	mg/L	0.016	EPA 200.7
Chloromethane	ND	µg/L	5	EPA 8021 ***
Bromomethane	ND	µg/L	5	EPA 8021
Vinyl chloride	ND	µg/L	5	EPA 8021
Chloroethane	ND	µg/L	5	EPA 8021
Methylene chloride	ND	µg/L	5	EPA 8021
1,1-Dichloroethene	ND	µg/L	5	EPA 8021
1,1-Dichloroethane	ND	µg/L	5	EPA 8021
1,2-Dichloroethene (total)	ND	µg/L	5	EPA 8021
Chloroform	ND	µg/L	5	EPA 8021
1,2-Dichloroethane	ND	µg/L	5	EPA 8021
1,1,1-Trichloroethane	ND	µg/L	5	EPA 8021
Carbon tetrachloride	ND	µg/L	5	EPA 8021
Bromodichloromethane	ND	µg/L	5	EPA 8021
1,2-Dichloropropane	ND	µg/L	5	EPA 8021
cis-1,3-Dichloropropene	ND	µg/L	5	EPA 8021
Trichloroethene	ND	µg/L	5	EPA 8021
Chlorodibromomethane	ND	µg/L	5	EPA 8021
1,1,2-Trichloroethane	ND	µg/L	5	EPA 8021

* Analysis performed in the field.

*** Method EPA 8021 was subcontracted to Upstate Laboratories, Inc.

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BW-6
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-8

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Benzene	ND	µg/L	5	EPA 8021
trans-1,3-Dichloropropene	ND	µg/L	5	EPA 8021
Bromoform	ND	µg/L	5	EPA 8021
Tetrachloroethene	ND	µg/L	5	EPA 8021
Toluene	ND	µg/L	5	EPA 8021
1,1,2,2-Tetrachloroethane	ND	µg/L	5	EPA 8021
Chlorobenzene	ND	µg/L	5	EPA 8021
Ethylbenzene	ND	µg/L	5	EPA 8021
Styrene	ND	µg/L	5	EPA 8021
m/p-Xylene	ND	µg/L	5	EPA 8021
o-Xylene	ND	µg/L	5	EPA 8021
Aniline	ND	µg/L	10	SW 846 8270
Benzoic acid	ND	µg/L	10	SW 846 8270
Benzyl alcohol	ND	µg/L	10	SW 846 8270
Phenol	ND	µg/L	10	SW 846 8270
bis(2-chloroethyl)ether	ND	µg/L	10	SW 846 8270
2-Chlorophenol	ND	µg/L	10	SW 846 8270
1,3-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,4-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,2-Dichlorobenzene	ND	µg/L	10	SW 846 8270
2-Methylphenol	ND	µg/L	10	SW 846 8270
bis(2-chloroisopropyl)ether	ND	µg/L	10	SW 846 8270
4-Methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodi-n-propylamine	ND	µg/L	10	SW 846 8270
Hexachloroethane	ND	µg/L	10	SW 846 8270
Nitrobenzene	ND	µg/L	10	SW 846 8270
Isophorone	ND	µg/L	10	SW 846 8270
2-Nitrophenol	ND	µg/L	10	SW 846 8270
2,4-Dimethylphenol	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BW-6
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-8

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
bis(2-chloroethoxy)methane	ND	µg/L	10	SW 846 8270
2,4-Dichlorophenol	ND	µg/L	10	SW 846 8270
1,2,4-Trichlorobenzene	ND	µg/L	10	SW 846 8270
Naphthalene	ND	µg/L	10	SW 846 8270
4-Chloroaniline	ND	µg/L	10	SW 846 8270
Hexachlorobutadiene	ND	µg/L	10	SW 846 8270
4-Chloro-3-methylphenol	ND	µg/L	10	SW 846 8270
2-Methylnaphthalene	ND	µg/L	10	SW 846 8270
Hexachlorocyclopentadiene	ND	µg/L	10	SW 846 8270
2,4,6-Trichlorophenol	ND	µg/L	10	SW 846 8270
2,4,5-Trichlorophenol	ND	µg/L	10	SW 846 8270
2-Chloronaphthalene	ND	µg/L	10	SW 846 8270
2-Nitroaniline	ND	µg/L	10	SW 846 8270
Dimethyl phthalate	ND	µg/L	10	SW 846 8270
Acenaphthylene	ND	µg/L	10	SW 846 8270
2,6-Dinitrotoluene	ND	µg/L	10	SW 846 8270
3-Nitroaniline	ND	µg/L	10	SW 846 8270
Acenaphthene	ND	µg/L	10	SW 846 8270
2,4-Dinitrophenol	ND	µg/L	10	SW 846 8270
4-Nitrophenol	ND	µg/L	10	SW 846 8270
Dibenzofuran	ND	µg/L	10	SW 846 8270
2,4-Dinitrotoluene	ND	µg/L	10	SW 846 8270
Diethyl phthalate	52.9	µg/L	10	SW 846 8270
4-Chlorophenyl phenyl ether	ND	µg/L	10	SW 846 8270
Fluorene	ND	µg/L	10	SW 846 8270
4-Nitroaniline	ND	µg/L	10	SW 846 8270
4,6-Dinitro-2-methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodiphenylamine	ND	µg/L	10	SW 846 8270
4-Bromophenyl phenyl ether	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: BW-6
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-8

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Hexachlorobenzene	ND	µg/L	10	SW 846 8270
Pentachlorophenol	ND	µg/L	10	SW 846 8270
Phenanthrene	ND	µg/L	10	SW 846 8270
Anthracene	ND	µg/L	10	SW 846 8270
Carbazole	ND	µg/L	10	SW 846 8270
di-n-Butylphthalate	ND	µg/L	10	SW 846 8270
Fluoranthene	ND	µg/L	10	SW 846 8270
Pyrene	ND	µg/L	10	SW 846 8270
Butyl benzyl phthalate	ND	µg/L	10	SW 846 8270
3,3'-Dichlorobenzidine	ND	µg/L	10	SW 846 8270
Benzo(a)anthracene	ND	µg/L	10	SW 846 8270
bis(2ethylhexyl)phthalate	ND	µg/L	10	SW 846 8270
di-n-Octylphthalate	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BLIND DUPLICATE
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-9

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	112	NTU	0.1	EPA 180.1
Ammonia	4.0	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	4.6 D	mg/L	0.8	EPA 351.3
Total Iron	45.1	mg/L	0.060	EPA 200.7
Soluble Iron	ND	mg/L	0.060	EPA 200.7
Total Potassium	21	mg/L	1.8	EPA 200.7
Soluble Potassium	25 **	mg/L	1.8	EPA 200.7
Total Zinc	3.82	mg/L	0.016	EPA 200.7
Soluble Zinc	0.059	mg/L	0.016	EPA 200.7
Aniline	ND	µg/L	10	SW 846 8270
Benzoic acid	ND	µg/L	10	SW 846 8270
Benzyl alcohol	ND	µg/L	10	SW 846 8270
Phenol	ND	µg/L	10	SW 846 8270
bis(2-chloroethyl)ether	ND	µg/L	10	SW 846 8270
2-Chlorophenol	ND	µg/L	10	SW 846 8270
1,3-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,4-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,2-Dichlorobenzene	ND	µg/L	10	SW 846 8270
2-Methylphenol	ND	µg/L	10	SW 846 8270
bis(2-chloroisopropyl)ether	ND	µg/L	10	SW 846 8270
4-Methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodi-n-propylamine	ND	µg/L	10	SW 846 8270
Hexachloroethane	ND	µg/L	10	SW 846 8270
Nitrobenzene	ND	µg/L	10	SW 846 8270
Isophorone	ND	µg/L	10	SW 846 8270
2-Nitrophenol	ND	µg/L	10	SW 846 8270

* Analysis performed in the field.

** The soluble value is slightly higher than the total value for this element. The difference is statistically insignificant.

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BLIND DUPLICATE
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-9

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
2,4-Dimethylphenol	ND	µg/L	10	SW 846 8270
bis(2-chloroethoxy)methane	ND	µg/L	10	SW 846 8270
2,4-Dichlorophenol	ND	µg/L	10	SW 846 8270
1,2,4-Trichlorobenzene	ND	µg/L	10	SW 846 8270
Naphthalene	ND	µg/L	10	SW 846 8270
4-Chloroaniline	ND	µg/L	10	SW 846 8270
Hexachlorobutadiene	69.4	µg/L	10	SW 846 8270
4-Chloro-3-methylphenol	ND	µg/L	10	SW 846 8270
2-Methylnaphthalene	ND	µg/L	10	SW 846 8270
Hexachlorocyclopentadiene	ND	µg/L	10	SW 846 8270
2,4,6-Trichlorophenol	ND	µg/L	10	SW 846 8270
2,4,5-Trichlorophenol	ND	µg/L	10	SW 846 8270
2-Chloronaphthalene	ND	µg/L	10	SW 846 8270
2-Nitroaniline	ND	µg/L	10	SW 846 8270
Dimethyl phthalate	ND	µg/L	10	SW 846 8270
Acenaphthylene	ND	µg/L	10	SW 846 8270
2,6-Dinitrotoluene	ND	µg/L	10	SW 846 8270
3-Nitroaniline	ND	µg/L	10	SW 846 8270
Acenaphthene	ND	µg/L	10	SW 846 8270
2,4-Dinitrophenol	ND	µg/L	10	SW 846 8270
4-Nitrophenol	ND	µg/L	10	SW 846 8270
Dibenzofuran	ND	µg/L	10	SW 846 8270
2,4-Dinitrotoluene	ND	µg/L	10	SW 846 8270
Diethyl phthalate	ND	µg/L	10	SW 846 8270
4-Chlorophenyl phenyl ether	ND	µg/L	10	SW 846 8270
Fluorene	ND	µg/L	10	SW 846 8270
4-Nitroaniline	ND	µg/L	10	SW 846 8270
4,6-Dinitro-2-methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodiphenylamine	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: BLIND DUPLICATE
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-9

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
4-Bromophenyl phenyl ether	ND	µg/L	10	SW 846 8270
Hexachlorobenzene	ND	µg/L	10	SW 846 8270
Pentachlorophenol	ND	µg/L	10	SW 846 8270
Phenanthrene	ND	µg/L	10	SW 846 8270
Anthracene	ND	µg/L	10	SW 846 8270
Carbazole	ND	µg/L	10	SW 846 8270
di-n-Butylphthalate	ND	µg/L	10	SW 846 8270
Fluoranthene	ND	µg/L	10	SW 846 8270
Pyrene	ND	µg/L	10	SW 846 8270
Butyl benzyl phthalate	ND	µg/L	10	SW 846 8270
3,3'-Dichlorobenzidine	ND	µg/L	10	SW 846 8270
Benzo(a)anthracene	ND	µg/L	10	SW 846 8270
bis(2ethylhexyl)phthalate	ND	µg/L	10	SW 846 8270
di-n-Octylphthalate	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: TRIP BLANK
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: BAKER WATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-10

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	0.13	NTU	0.1	EPA 180.1
Ammonia	ND	mg/L	0.4	EPA 350.3
Nitrite	ND	mg/L	0.04	HACH 8507
Total Kjeldahl Nitrogen	ND	mg/L	0.8	EPA 351.3
Total Iron	0.062	mg/L	0.060	EPA 200.7
Total Potassium	ND	mg/L	1.8	EPA 200.7
Total Zinc	ND	mg/L	0.016	EPA 200.7
Chloromethane	ND	µg/L	0.5	EPA 8021 ***
Bromomethane	ND	µg/L	0.5	EPA 8021
Vinyl chloride	ND	µg/L	0.5	EPA 8021
Chloroethane	ND	µg/L	0.5	EPA 8021
Methylene chloride	ND	µg/L	0.5	EPA 8021
1,1-Dichloroethene	ND	µg/L	0.5	EPA 8021
1,1-Dichloroethane	ND	µg/L	0.5	EPA 8021
1,2-Dichloroethene (total)	ND	µg/L	0.5	EPA 8021
Chloroform	ND	µg/L	0.5	EPA 8021
1,2-Dichloroethane	ND	µg/L	0.5	EPA 8021
1,1,1-Trichloroethane	ND	µg/L	0.5	EPA 8021
Carbon tetrachloride	ND	µg/L	0.5	EPA 8021
Bromodichloromethane	ND	µg/L	0.5	EPA 8021
1,2-Dichloropropane	ND	µg/L	0.5	EPA 8021
cis-1,3-Dichloropropene	ND	µg/L	0.5	EPA 8021
Trichloroethene	ND	µg/L	0.5	EPA 8021
Chlorodibromomethane	ND	µg/L	0.5	EPA 8021
1,1,2-Trichloroethane	ND	µg/L	0.5	EPA 8021
Benzene	ND	µg/L	0.5	EPA 8021
trans-1,3-Dichloropropene	ND	µg/L	0.5	EPA 8021
Bromoform	ND	µg/L	0.5	EPA 8021

* Analysis performed in the field.

*** Method EPA 8021 was subcontracted to Upstate Laboratories, Inc.

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: TRIP BLANK
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: BAKER WATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-10

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Tetrachloroethene	ND	µg/L	0.5	EPA 8021
Toluene	ND	µg/L	0.5	EPA 8021
1,1,2,2-Tetrachloroethane	ND	µg/L	0.5	EPA 8021
Chlorobenzene	ND	µg/L	0.5	EPA 8021
Ethylbenzene	ND	µg/L	0.5	EPA 8021
Styrene	ND	µg/L	0.5	EPA 8021
m/p-Xylene	ND	µg/L	0.5	EPA 8021
o-Xylene	ND	µg/L	0.5	EPA 8021
Aniline	ND	µg/L	10	SW 846 8270
Benzoic acid	ND	µg/L	10	SW 846 8270
Benzyl alcohol	ND	µg/L	10	SW 846 8270
Phenol	ND	µg/L	10	SW 846 8270
bis(2-chloroethyl)ether	ND	µg/L	10	SW 846 8270
2-Chlorophenol	ND	µg/L	10	SW 846 8270
1,3-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,4-Dichlorobenzene	ND	µg/L	10	SW 846 8270
1,2-Dichlorobenzene	ND	µg/L	10	SW 846 8270
2-Methylphenol	ND	µg/L	10	SW 846 8270
bis(2-chloroisopropyl)ether	ND	µg/L	10	SW 846 8270
4-Methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodi-n-propylamine	ND	µg/L	10	SW 846 8270
Hexachloroethane	ND	µg/L	10	SW 846 8270
Nitrobenzene	ND	µg/L	10	SW 846 8270
Isophorone	ND	µg/L	10	SW 846 8270
2-Nitrophenol	ND	µg/L	10	SW 846 8270
2,4-Dimethylphenol	ND	µg/L	10	SW 846 8270
bis(2-chloroethoxy)methane	ND	µg/L	10	SW 846 8270
2,4-Dichlorophenol	ND	µg/L	10	SW 846 8270
1,2,4-Trichlorobenzene	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
 SAMPLE ID: TRIP BLANK
 COLLECTION METHOD: GRAB
 COLLECTION DATE(S): 08/28/98
 SAMPLE TYPE: BAKER WATER

AES CLIENT ID: CTC
 AES SAMPLE ID: 82AW-10

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Naphthalene	ND	µg/L	10	SW 846 8270
4-Chloroaniline	ND	µg/L	10	SW 846 8270
Hexachlorobutadiene	ND	µg/L	10	SW 846 8270
4-Chloro-3-methylphenol	ND	µg/L	10	SW 846 8270
2-Methylnaphthalene	ND	µg/L	10	SW 846 8270
Hexachlorocyclopentadiene	ND	µg/L	10	SW 846 8270
2,4,6-Trichlorophenol	ND	µg/L	10	SW 846 8270
2,4,5-Trichlorophenol	ND	µg/L	10	SW 846 8270
2-Chloronaphthalene	ND	µg/L	10	SW 846 8270
2-Nitroaniline	ND	µg/L	10	SW 846 8270
Dimethyl phthalate	ND	µg/L	10	SW 846 8270
Acenaphthylene	ND	µg/L	10	SW 846 8270
2,6-Dinitrotoluene	ND	µg/L	10	SW 846 8270
3-Nitroaniline	ND	µg/L	10	SW 846 8270
Acenaphthene	ND	µg/L	10	SW 846 8270
2,4-Dinitrophenol	ND	µg/L	10	SW 846 8270
4-Nitrophenol	ND	µg/L	10	SW 846 8270
Dibenzofuran	ND	µg/L	10	SW 846 8270
2,4-Dinitrotoluene	ND	µg/L	10	SW 846 8270
Diethyl phthalate	ND	µg/L	10	SW 846 8270
4-Chlorophenyl phenyl ether	ND	µg/L	10	SW 846 8270
Fluorene	ND	µg/L	10	SW 846 8270
4-Nitroaniline	ND	µg/L	10	SW 846 8270
4,6-Dinitro-2-methylphenol	ND	µg/L	10	SW 846 8270
n-Nitrosodiphenylamine	ND	µg/L	10	SW 846 8270
4-Bromophenyl phenyl ether	ND	µg/L	10	SW 846 8270
Hexachlorobenzene	ND	µg/L	10	SW 846 8270
Pentachlorophenol	ND	µg/L	10	SW 846 8270
Phenanthrene	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: TRIP BLANK
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: BAKER WATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-10

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Anthracene	ND	µg/L	10	SW 846 8270
Carbazole	ND	µg/L	10	SW 846 8270
di-n-Butylphthalate	ND	µg/L	10	SW 846 8270
Fluoranthene	ND	µg/L	10	SW 846 8270
Pyrene	ND	µg/L	10	SW 846 8270
Butyl benzyl phthalate	ND	µg/L	10	SW 846 8270
3,3'-Dichlorobenzidine	ND	µg/L	10	SW 846 8270
Benzo(a)anthracene	ND	µg/L	10	SW 846 8270
bis(2ethylhexyl)phthalate	ND	µg/L	10	SW 846 8270
di-n-Octylphthalate	ND	µg/L	10	SW 846 8270

CLIENT: Ucar Carbon Company, Incorporated
SAMPLE ID: MW-2
COLLECTION METHOD: GRAB
COLLECTION DATE(S): 08/28/98
SAMPLE TYPE: GROUNDWATER

AES CLIENT ID: CTC
AES SAMPLE ID: 82AW-11

PROJECT ID: 82AW

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Turbidity *	303	NTU	0.1	EPA 180.1
Ammonia	0.7	mg/L	0.4	EPA 350.3
Nitrite	**	mg/L	0.2	HACH 8507
Total Kjeldahl Nitrogen	4.1 D	mg/L	0.8	EPA 351.3
Total Iron	760 D	mg/L	0.060	EPA 200.7
Soluble Iron	**	mg/L	0.060	EPA 200.7
Total Potassium	3.3	mg/L	1.8	EPA 200.7
Soluble Potassium	**	mg/L	1.8	EPA 200.7
Total Zinc	47 D	mg/L	0.016	EPA 200.7
Soluble Zinc	**	mg/L	0.016	EPA 200.7

* Analysis performed in the field.

** Insufficient sample.

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT

PAGE 1

CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Ammonia	EPA 350.3	82AW-8	Matrix Spike	96
Nitrite	HACH 8507	82AW-8	Matrix Spike	96
Total Kjeldahl Nitrogen	EPA 351.3	82AW-8	Matrix Spike	76
Total Iron	EPA 200.7	82AW-8	Matrix Spike	114
Soluble Iron	EPA 200.7	82AW-8	Matrix Spike	100
Total Potassium	EPA 200.7	82AW-8	Matrix Spike	91
Soluble Potassium	EPA 200.7	82AW-8	Matrix Spike	106
Total Zinc	EPA 200.7	82AW-8	Matrix Spike	82
Soluble Zinc	EPA 200.7	82AW-8	Matrix Spike	99
Chloromethane	EPA 8021	82AW-8	Matrix Spike	NA
Bromomethane	EPA 8021	82AW-8	Matrix Spike	NA
Vinyl chloride	EPA 8021	82AW-8	Matrix Spike	NA
Chloroethane	EPA 8021	82AW-8	Matrix Spike	NA
Methylene chloride	EPA 8021	82AW-8	Matrix Spike	100
1,1-Dichloroethene	EPA 8021	82AW-8	Matrix Spike	NA
1,1-Dichloroethane	EPA 8021	82AW-8	Matrix Spike	NA
1,2-Dichloroethene (total)	EPA 8021	82AW-8	Matrix Spike	NA
Chloroform	EPA 8021	82AW-8	Matrix Spike	NA
1,2-Dichloroethane	EPA 8021	82AW-8	Matrix Spike	NA
1,1,1-Trichloroethane	EPA 8021	82AW-8	Matrix Spike	NA
Carbon tetrachloride	EPA 8021	82AW-8	Matrix Spike	NA
Bromodichloromethane	EPA 8021	82AW-8	Matrix Spike	NA
1,2-Dichloropropane	EPA 8021	82AW-8	Matrix Spike	NA
cis-1,3-Dichloropropene	EPA 8021	82AW-8	Matrix Spike	NA
Trichloroethene	EPA 8021	82AW-8	Matrix Spike	110
Chlorodibromomethane	EPA 8021	82AW-8	Matrix Spike	NA
1,1,2-Trichloroethane	EPA 8021	82AW-8	Matrix Spike	110
Benzene	EPA 8021	82AW-8	Matrix Spike	NA
trans-1,3-Dichloropropene	EPA 8021	82AW-8	Matrix Spike	NA

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT

PAGE 2

CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Bromoform	EPA 8021	82AW-8	Matrix Spike	NA
Tetrachloroethene	EPA 8021	82AW-8	Matrix Spike	NA
Toluene	EPA 8021	82AW-8	Matrix Spike	NA
1,1,2,2-Tetrachloroethane	EPA 8021	82AW-8	Matrix Spike	NA
Chlorobenzene	EPA 8021	82AW-8	Matrix Spike	NA
Ethylbenzene	EPA 8021	82AW-8	Matrix Spike	NA
Styrene	EPA 8021	82AW-8	Matrix Spike	NA
m/p-Xylene	EPA 8021	82AW-8	Matrix Spike	NA
o-Xylene	EPA 8021	82AW-8	Matrix Spike	NA
Benzoic acid	SW 846 8270	82AW-8	Matrix Spike	30
Phenol	SW 846 8270	82AW-8	Matrix Spike	21
bis(2-chloroethyl)ether	SW 846 8270	82AW-8	Matrix Spike	45
2-Chlorophenol	SW 846 8270	82AW-8	Matrix Spike	38
1,3-Dichlorobenzene	SW 846 8270	82AW-8	Matrix Spike	34
1,4-Dichlorobenzene	SW 846 8270	82AW-8	Matrix Spike	34
1,2-Dichlorobenzene	SW 846 8270	82AW-8	Matrix Spike	38
2-Methylphenol	SW 846 8270	82AW-8	Matrix Spike	30
bis(2-chloroisopropyl)ether	SW 846 8270	82AW-8	Matrix Spike	52
4-Methylphenol	SW 846 8270	82AW-8	Matrix Spike	22
n-Nitrosodi-n-propylamine	SW 846 8270	82AW-8	Matrix Spike	74
Hexachloroethane	SW 846 8270	82AW-8	Matrix Spike	29
Nitrobenzene	SW 846 8270	82AW-8	Matrix Spike	47
Isophorone	SW 846 8270	82AW-8	Matrix Spike	47
2-Nitrophenol	SW 846 8270	82AW-8	Matrix Spike	49
2,4-Dimethylphenol	SW 846 8270	82AW-8	Matrix Spike	13
bis(2-chloroethoxy)methane	SW 846 8270	82AW-8	Matrix Spike	49
2,4-Dichlorophenol	SW 846 8270	82AW-8	Matrix Spike	43
1,2,4-Trichlorobenzene	SW 846 8270	82AW-8	Matrix Spike	41
Naphthalene	SW 846 8270	82AW-8	Matrix Spike	40

CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Hexachlorobutadiene	SW 846 8270	82AW-8	Matrix Spike	35
4-Chloro-3-methylphenol	SW 846 8270	82AW-8	Matrix Spike	44
2-Methylnaphthalene	SW 846 8270	82AW-8	Matrix Spike	45
Hexachlorocyclopentadiene	SW 846 8270	82AW-8	Matrix Spike	59
2,4,6-Trichlorophenol	SW 846 8270	82AW-8	Matrix Spike	50
2,4,5-Trichlorophenol	SW 846 8270	82AW-8	Matrix Spike	48
2-Chloronaphthalene	SW 846 8270	82AW-8	Matrix Spike	50
Dimethyl phthalate	SW 846 8270	82AW-8	Matrix Spike	46
Acenaphthylene	SW 846 8270	82AW-8	Matrix Spike	62
2,6-Dinitrotoluene	SW 846 8270	82AW-8	Matrix Spike	54
Acenaphthene	SW 846 8270	82AW-8	Matrix Spike	44
2,4-Dinitrophenol	SW 846 8270	82AW-8	Matrix Spike	65
4-Nitrophenol	SW 846 8270	82AW-8	Matrix Spike	27
Dibenzofuran	SW 846 8270	82AW-8	Matrix Spike	45
2,4-Dinitrotoluene	SW 846 8270	82AW-8	Matrix Spike	52
Diethyl phthalate	SW 846 8270	82AW-8	Matrix Spike	67
4-Chlorophenyl phenyl ether	SW 846 8270	82AW-8	Matrix Spike	47
Fluorene	SW 846 8270	82AW-8	Matrix Spike	36
4,6-Dinitro-2-methylphenol	SW 846 8270	82AW-8	Matrix Spike	65
4-Bromophenyl phenyl ether	SW 846 8270	82AW-8	Matrix Spike	51
Hexachlorobenzene	SW 846 8270	82AW-8	Matrix Spike	55
Pentachlorophenol	SW 846 8270	82AW-8	Matrix Spike	52
Phenanthrene	SW 846 8270	82AW-8	Matrix Spike	40
Anthracene	SW 846 8270	82AW-8	Matrix Spike	45
Carbazole	SW 846 8270	82AW-8	Matrix Spike	50
di-n-Butylphthalate	SW 846 8270	82AW-8	Matrix Spike	41
Fluoranthene	SW 846 8270	82AW-8	Matrix Spike	94
Pyrene	SW 846 8270	82AW-8	Matrix Spike	49
Butyl benzyl phthalate	SW 846 8270	82AW-8	Matrix Spike	43

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT

PAGE 4

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CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Benzo(a)anthracene	SW 846 8270	82AW-8	Matrix Spike	42
Chrysene	SW 846 8270	82AW-8	Matrix Spike	45
bis(2ethylhexyl)phthalate	SW 846 8270	82AW-8	Matrix Spike	45
di-n-Octylphthalate	SW 846 8270	82AW-8	Matrix Spike	47
Benzo(b)fluoranthene	SW 846 8270	82AW-8	Matrix Spike	20
Benzo(k)fluoranthene	SW 846 8270	82AW-8	Matrix Spike	33
Benzo(a)pyrene	SW 846 8270	82AW-8	Matrix Spike	22
Indeno(1,2,3-cd)pyrene	SW 846 8270	82AW-8	Matrix Spike	110
Dibenzo(a,h)anthracene	SW 846 8270	82AW-8	Matrix Spike	100
Benzo(g,h,i)perylene	SW 846 8270	82AW-8	Matrix Spike	95

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT

PAGE 1

CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

PRECISION

Analytical Parameter(s)	Method	Sample ID	Type	Relative % Difference
Ammonia	EPA 350.3	82AW-8	Duplicate	NA
Nitrite	HACH 8507	82AW-8	Duplicate	NA
Total Kjeldahl Nitrogen	EPA 351.3	82AW-8	Duplicate	1.2
Total Iron	EPA 200.7	82AW-8	Duplicate	6.2
Soluble Iron	EPA 200.7	82AW-8	Duplicate	NA
Total Potassium	EPA 200.7	82AW-8	Duplicate	NA
Soluble Potassium	EPA 200.7	82AW-8	Duplicate	2.9
Total Zinc	EPA 200.7	82AW-8	Duplicate	26
Soluble Zinc	EPA 200.7	82AW-8	Duplicate	3.0
Chloromethane	EPA 8021	82AW-8	Duplicate	NA
Bromomethane	EPA 8021	82AW-8	Duplicate	NA
Vinyl chloride	EPA 8021	82AW-8	Duplicate	NA
Chloroethane	EPA 8021	82AW-8	Duplicate	NA
Methylene chloride	EPA 8021	82AW-8	Duplicate	NA
1,1-Dichloroethene	EPA 8021	82AW-8	Duplicate	NA
1,1-Dichloroethane	EPA 8021	82AW-8	Duplicate	NA
1,2-Dichloroethene (total)	EPA 8021	82AW-8	Duplicate	NA
Chloroform	EPA 8021	82AW-8	Duplicate	NA
1,2-Dichloroethane	EPA 8021	82AW-8	Duplicate	NA
1,1,1-Trichloroethane	EPA 8021	82AW-8	Duplicate	NA
Carbon tetrachloride	EPA 8021	82AW-8	Duplicate	NA
Bromodichloromethane	EPA 8021	82AW-8	Duplicate	NA
1,2-Dichloropropane	EPA 8021	82AW-8	Duplicate	NA
cis-1,3-Dichloropropene	EPA 8021	82AW-8	Duplicate	NA
Trichloroethene	EPA 8021	82AW-8	Duplicate	NA
Chlorodibromomethane	EPA 8021	82AW-8	Duplicate	NA
1,1,2-Trichloroethane	EPA 8021	82AW-8	Duplicate	NA
Benzene	EPA 8021	82AW-8	Duplicate	NA

NA = NOT AVAILABLE - ORIGINAL AND/OR DUPLICATE RESULTS ARE BELOW REPORTED LIMITS

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT

PAGE 2

CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

PRECISION

Analytical Parameter(s)	Method	Sample ID	Type	Relative % Difference
trans-1,3-Dichloropropene	EPA 8021	82AW-8	Duplicate	NA
Bromoform	EPA 8021	82AW-8	Duplicate	NA
Tetrachloroethene	EPA 8021	82AW-8	Duplicate	NA
Toluene	EPA 8021	82AW-8	Duplicate	NA
1,1,2,2-Tetrachloroethane	EPA 8021	82AW-8	Duplicate	NA
Chlorobenzene	EPA 8021	82AW-8	Duplicate	NA
Ethylbenzene	EPA 8021	82AW-8	Duplicate	NA
Styrene	EPA 8021	82AW-8	Duplicate	NA
m/p-Xylene	EPA 8021	82AW-8	Duplicate	NA
o-Xylene	EPA 8021	82AW-8	Duplicate	NA
Aniline	SW 846 8270	82AW-8	Duplicate	NA
Benzoic acid	SW 846 8270	82AW-8	Duplicate	NA
Benzyl alcohol	SW 846 8270	82AW-8	Duplicate	NA
Phenol	SW 846 8270	82AW-8	Duplicate	NA
bis(2-chloroethyl)ether	SW 846 8270	82AW-8	Duplicate	NA
2-Chlorophenol	SW 846 8270	82AW-8	Duplicate	NA
1,3-Dichlorobenzene	SW 846 8270	82AW-8	Duplicate	NA
1,4-Dichlorobenzene	SW 846 8270	82AW-8	Duplicate	NA
1,2-Dichlorobenzene	SW 846 8270	82AW-8	Duplicate	NA
2-Methylphenol	SW 846 8270	82AW-8	Duplicate	NA
bis(2-chloroisopropyl)ether	SW 846 8270	82AW-8	Duplicate	NA
4-Methylphenol	SW 846 8270	82AW-8	Duplicate	NA
n-Nitrosodi-n-propylamine	SW 846 8270	82AW-8	Duplicate	NA
Hexachloroethane	SW 846 8270	82AW-8	Duplicate	NA
Nitrobenzene	SW 846 8270	82AW-8	Duplicate	NA
Isophorone	SW 846 8270	82AW-8	Duplicate	NA
2-Nitrophenol	SW 846 8270	82AW-8	Duplicate	NA
2,4-Dimethylphenol	SW 846 8270	82AW-8	Duplicate	NA

NA = NOT AVAILABLE - ORIGINAL AND/OR DUPLICATE RESULTS ARE BELOW REPORTED LIMITS

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT

PAGE 3

CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

PRECISION

Analytical Parameter(s)	Method	Sample ID	Type	Relative % Difference
bis(2-chloroethoxy)methane	SW 846 8270	82AW-8	Duplicate	NA
2,4-Dichlorophenol	SW 846 8270	82AW-8	Duplicate	NA
1,2,4-Trichlorobenzene	SW 846 8270	82AW-8	Duplicate	NA
Naphthalene	SW 846 8270	82AW-8	Duplicate	NA
4-Chloroaniline	SW 846 8270	82AW-8	Duplicate	NA
Hexachlorobutadiene	SW 846 8270	82AW-8	Duplicate	NA
4-Chloro-3-methylphenol	SW 846 8270	82AW-8	Duplicate	NA
2-Methylnaphthalene	SW 846 8270	82AW-8	Duplicate	NA
Hexachlorocyclopentadiene	SW 846 8270	82AW-8	Duplicate	NA
2,4,6-Trichlorophenol	SW 846 8270	82AW-8	Duplicate	NA
2,4,5-Trichlorophenol	SW 846 8270	82AW-8	Duplicate	NA
2-Chloronaphthalene	SW 846 8270	82AW-8	Duplicate	NA
2-Nitroaniline	SW 846 8270	82AW-8	Duplicate	NA
Dimethyl phthalate	SW 846 8270	82AW-8	Duplicate	NA
Acenaphthylene	SW 846 8270	82AW-8	Duplicate	NA
2,6-Dinitrotoluene	SW 846 8270	82AW-8	Duplicate	NA
3-Nitroaniline	SW 846 8270	82AW-8	Duplicate	NA
Acenaphthene	SW 846 8270	82AW-8	Duplicate	NA
2,4-Dinitrophenol	SW 846 8270	82AW-8	Duplicate	NA
4-Nitrophenol	SW 846 8270	82AW-8	Duplicate	NA
Dibenzofuran	SW 846 8270	82AW-8	Duplicate	NA
2,4-Dinitrotoluene	SW 846 8270	82AW-8	Duplicate	NA
Diethyl phthalate	SW 846 8270	82AW-8	Duplicate	2.2
4-Chlorophenyl phenyl ether	SW 846 8270	82AW-8	Duplicate	NA
Fluorene	SW 846 8270	82AW-8	Duplicate	NA
4-Nitroaniline	SW 846 8270	82AW-8	Duplicate	NA
4,6-Dinitro-2-methylphenol	SW 846 8270	82AW-8	Duplicate	NA
n-Nitrosodiphenylamine	SW 846 8270	82AW-8	Duplicate	NA

NA = NOT AVAILABLE - ORIGINAL AND/OR DUPLICATE RESULTS ARE BELOW REPORTED LIMITS

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CLIENT: Ucar Carbon Company, Incorporated

AES CLIENT ID: CTC
PROJECT ID: 82AW

PRECISION

Analytical Parameter(s)	Method	Sample ID	Type	Relative % Difference
4-Bromophenyl phenyl ether	SW 846 8270	82AW-8	Duplicate	NA
Hexachlorobenzene	SW 846 8270	82AW-8	Duplicate	NA
Pentachlorophenol	SW 846 8270	82AW-8	Duplicate	NA
Phenanthrene	SW 846 8270	82AW-8	Duplicate	NA
Anthracene	SW 846 8270	82AW-8	Duplicate	NA
Carbazole	SW 846 8270	82AW-8	Duplicate	NA
di-n-Butylphthalate	SW 846 8270	82AW-8	Duplicate	NA
Fluoranthene	SW 846 8270	82AW-8	Duplicate	NA
Pyrene	SW 846 8270	82AW-8	Duplicate	NA
Butyl benzyl phthalate	SW 846 8270	82AW-8	Duplicate	NA
3,3'-Dichlorobenzidine	SW 846 8270	82AW-8	Duplicate	NA
Benzo(a)anthracene	SW 846 8270	82AW-8	Duplicate	NA
Chrysene	SW 846 8270	82AW-8	Duplicate	NA
bis(2ethylhexyl)phthalate	SW 846 8270	82AW-8	Duplicate	NA
di-n-Octylphthalate	SW 846 8270	82AW-8	Duplicate	NA
Benzo(b)fluoranthene	SW 846 8270	82AW-8	Duplicate	NA
Benzo(k)fluoranthene	SW 846 8270	82AW-8	Duplicate	NA
Benzo(a)pyrene	SW 846 8270	82AW-8	Duplicate	NA
Indeno(1,2,3-cd)pyrene	SW 846 8270	82AW-8	Duplicate	NA
Dibenzo(a,h)anthracene	SW 846 8270	82AW-8	Duplicate	NA
Benzo(g,h,i)perylene	SW 846 8270	82AW-8	Duplicate	NA

NA = NOT AVAILABLE - ORIGINAL AND/OR DUPLICATE RESULTS ARE BELOW REPORTED LIMITS

Advanced Environmental Services, Inc
Sample Traceability Report

Project Identification CTC 824W

Sample #	Sample Collection	Group #	Run #	Prep Method	Prep Date	Analyst	Analytical Methodology	Analysis Date	Analyst
824W-6	8-28-98	-	-	³⁵¹⁰ 8270	9-4-98	BA	8270	9-8-98	BA
8		-	-						
-9		-	-						
-10		-	-						

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

Advanced Environmental Services, Inc
Sample Traceability Report

Project Identification CTC 82AW

Sample #	Sample Collection	Group #	Run #	Prep Method	Prep Date	Analyst	Analytical Methodology	Analysis Date	Analyst
82AW 1-11	8/28/98	—	—	9.3	9-3-98	RP	200.7	9-11-98	RP
82AW ¹⁻⁹ ₊₁₁	8/28/98	—	—	—	—	—	200.7	9-11-98	RP

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

Advanced Environmental Services, Inc
Sample Traceability Report

Project Identification CTC 82AW

Sample #	Sample Collection	Group #	Run #	Prep Method	Prep Date	Analyst	Analytical Methodology	Analysis Date	Analyst
82AW 1-10	8/28/98	2120	129	-	-	-	8507	8/28/98	LR
82AW 1-11	8/28/98	2005	123	-	-	-	3503	9/10/98	DB
82AW 1-3	8/28/98	2027	120	351.3	9/14/98	J/K	351.3	9/15/98	J/K
82AW 3-11	8/28/98	2027	121	351.3	9/15/98	J/K	351.3	9/16/98	J/K

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

CHAIN OF CUSTODY RECORD



ENVIRONMENTAL SERVICES, INC.
2186 Liberty Drive
Niagara Falls, NY 14304

(716) 283-3120
(800) 791-3120
Fax (716) 283-4727

CUSTOMER NAME: UCAR Carbon

PROJECT NAME: CTC

SAMPLER'S SIGNATURE: John Treacy

CONTAINER CLASSIFICATION									
UNPRESERVED	HNO ₃	H ₂ SO ₄	HCL	NaOH	VIAL (PRES.)	VIAL (UNPRES.)	OTHER	TOTAL	

PROJECT I.D.#: 82 AW

JOB CODE: CTC

DATE	TIME	SAMPLE IDENTIFICATION	GRAB	COMP	SAMPLE TYPE	UNPRESERVED	HNO ₃	H ₂ SO ₄	HCL	NaOH	VIAL (PRES.)	VIAL (UNPRES.)	OTHER	TOTAL	PARAMETERS / REMARKS
8/28/98	9:35am	BW1	✓			1	2	1						4	Metals (Tes) TKN Ammonia Nitrite
	9:50am	MW1	✓			1	2	1						4	Metals (Tes) TKN NH ₃ Nitrite
	10:20am	BW5	✓			1	2	1						4	Metals (Tes) TKN NH ₃ Nitrite
	10:45am	MW3	✓			1	2	1						4	Metals (Tes) TKN NH ₃ Nitrite
	11:15am	BW6	✓			2	2	1			2			7	TCLSV Metals (Tes) TKN NH ₃ Nitrite
	12:00pm	BW4	✓			2	2	1			2			7	TCLSV Metals (Tes) TKN NH ₃ Nitrite
	1:00pm	MW2 *	✓				1	1						2	*Metals Ammonia TKN
	1:15pm	BW2	✓			1	2	1						4	Metals (Tes) TKN, Amm. Nitrite
	12:30pm	BW3	✓			1	2	1						4	Metals (Tes) TKN Amm. Nitrite
8/28/98	-	Blind Duplicate	✓			2	2	1			2			7	TCLSV Metals (Tes) TKN NH ₃ Nitrite
-	11:15am	Q.C. Site BW6	✓			4	4	2			4			14	TCLSV Metals (Tes) TKN NH ₃ Nitrite
-	2:00pm	Trip Blanks	✓			3	1	1			2			7	TCLSV Metals (Tes) TKN NH ₃ Nitrite
															* MW2 - Very Small

TOTAL NUMBER OF CONTAINERS 68

Amounts for
NH₃, TKN, Metals

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: <u>John Treacy</u>	DATE <u>8/28/98</u>	TIME <u>3:05pm</u>	RECEIVED BY: <u>Jennifer J. Chiodi</u>
2. RELINQUISHED BY: _____	DATE _____	TIME _____	RECEIVED BY: _____
3. RELINQUISHED BY: _____	DATE _____	TIME _____	RECEIVED BY: _____