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Env. Document Type: Solid Waste Correspondence

January 30, 2004

Mr. Larry F. Cook, Jr.
Solid Waste Field Supervisor
Knoxville Environmental Field Office
Division of Solid Waste Management
Tennessee Department of Environment
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2700 Middlebrook Pike, Suite 220
Knoxville, Tennessee 37921-5602

TENNESSEE VALLEY AUTHORITY (TVA) - KINGSTON FOSSIL PLANT – ASH DISPOSAL AREA – IDL 73-0094 – DECEMBER 2003 BASELINE GROUNDWATER MONITORING REPORT

Dear Mr. Cook:

Please find enclosed the quarterly baseline groundwater monitoring report for samples collected December 29, 2003 at designated compliance wells surrounding the subject facility. If you have questions regarding the report, please contact Amos Smith at (423) 751-3522 or Linda Campbell at (865) 717-2157.

I certify this information was prepared by a system designed to ensure qualified personnel properly gathered and evaluated the information submitted. The information submitted is to the best of my knowledge and belief true, accurate, and complete.

Gordon G. Park
Manager of Permitted Programs
Environmental Affairs
5D Lookout Place

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Prepared by J. Mark Boggs, reviewed by Amos L. Smith

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Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

January 30, 2004

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I certify this information was prepared by a system designed to ensure qualified personnel properly gathered and evaluated the information submitted. The information submitted is to the best of my knowledge and belief true, accurate, and complete.

Gordon G. Park
Manager of Permitted Programs
Environmental Affairs
5D Lookout Place

Enclosures

Tennessee Valley Authority
Kingston Fossil Plant
Ash Disposal Area (IDL 73-0094)

GROUNDWATER MONITORING REPORT
DECEMBER 2003 SAMPLING EVENT

Prepared by

Tennessee Valley Authority
Chattanooga, Tennessee

January 30, 2004

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LIST OF FIGURES

INTRODUCTION

This report contains quarterly baseline monitoring results for groundwater samples collected on December 29, 2003 from the four designated compliance monitoring wells surrounding the Kingston Fossil Plant (BRF) ash disposal area. These data represent the third set of quarterly baseline monitoring data for the facility which began in June 2003. Groundwater samples were analyzed by the TVA Environmental Chemistry Laboratory, an EPA-certified laboratory. Sample collection, laboratory analysis, and statistical evaluation of the analytical data were performed in accordance with Tennessee Department of Conservation and Environment (TDEC) Rule 1200-1-7-.04 and the facility groundwater monitoring plan approved by TDEC (August 1996).

GROUNDWATER SAMPLING

Groundwater sampling was conducted by TVA staff on December 29, 2003, at facility compliance wells 4B, 6A, 13B, and 16A.[1] A Grundfos Rediflow submersible pump was used for purging and sampling wells 13B and 16A, whereas wells 4B and 6A were purged until dry with the submersible pump and sampled with disposable bailers following recovery. Duplicate samples were collected from well 13B, and an equipment blank was collected after sampling well 4B. Field parameters (i.e., temperature, specific conductance, pH, dissolved oxygen, and oxidation-reduction potential) were monitored during well purging using a flow-through cell and calibrated instruments. Each well was considered properly evacuated when field parameters remained stable during purging or the well was purged to dryness. Field data sheets are included in Appendix A.

Please note that no samples of leachate were collected from the disposal facility. As described in the Facility Operations Manual, engineering measures incorporated in the facility design should result in minimal ash leachate production. Therefore, leachate sampling is not included in the approved

[1] Note that an additional well (KSW-22) was also sampled during this sampling event. Well 22 is associated with an unrelated groundwater monitoring initiative of TVA. Reference to this well appears on the sample custody form (Appendix B) and the laboratory data sheets (Appendix C).

groundwater sampling plan.

Immediately following collection, samples were transferred to new sample bottles provided by the laboratory with appropriate preservatives, where applicable. The samples were then sealed, labeled, recorded on a custody form, and placed in an iced cooler for transport. Samples were delivered to the TVA Environmental Chemistry Laboratory on December 30. A copy of the sample custody record is given in Appendix B.

ANALYTICAL RESULTS

Groundwater samples were analyzed for the 17 required inorganic constituents specified in Appendix I of TDEC Rule 1200-1-7. Laboratory results completed on January 26, 2004 are summarized in Table 1. The laboratory report presented in Appendix C includes analytical methods and detection limits for each constituent. As indicated in Table 1, none of the constituent concentrations observed in any of the samples exceed drinking water maximum contaminant limits (MCL).

All analytical testing was conducted within recommended sample holding times. There were no detections of the required 17 inorganic constituents in the equipment blank. Trace amounts of aluminum, calcium and magnesium were found in the equipment blank. Sampling protocols, particularly equipment decontamination procedures, will be re-examined prior to the next sampling event to assure elimination of artificial sources of sample contamination.

HYDROGEOLOGIC CONDITIONS

Groundwater levels measured in site monitoring wells prior to sample collection are given in Table 2. The groundwater potentiometric surface derived from these

Table 2. Groundwater Levels Measured on 12/29/03

Well No.	Well Depth (m)	Depth to Water (m)	Top of Casing Elevation (m)	Water Elevation (m)
4B	12.79	4.60	230.72	226.12
6A	8.89	4.19	230.13	225.94
13B	25.70	3.03	234.85	231.82
16A	20.20	0.00	234.26	234.26

measurements is presented on Figure 1. Groundwater generally flows eastward across the ash disposal area toward the reservoir. An average hydraulic gradient of approximately 0.014 is estimated between the western and eastern boundaries of the disposal area using the 12/29/03 water level data. The shallow alluvial aquifer underlying the ash disposal area exhibits a mean horizontal hydraulic conductivity of 0.006 m/d. The local Darcy flux is therefore estimated to be approximately 8.4×10^{-5} m/d.

Figure 1. Groundwater Potentiometric Surface on 12/29/03

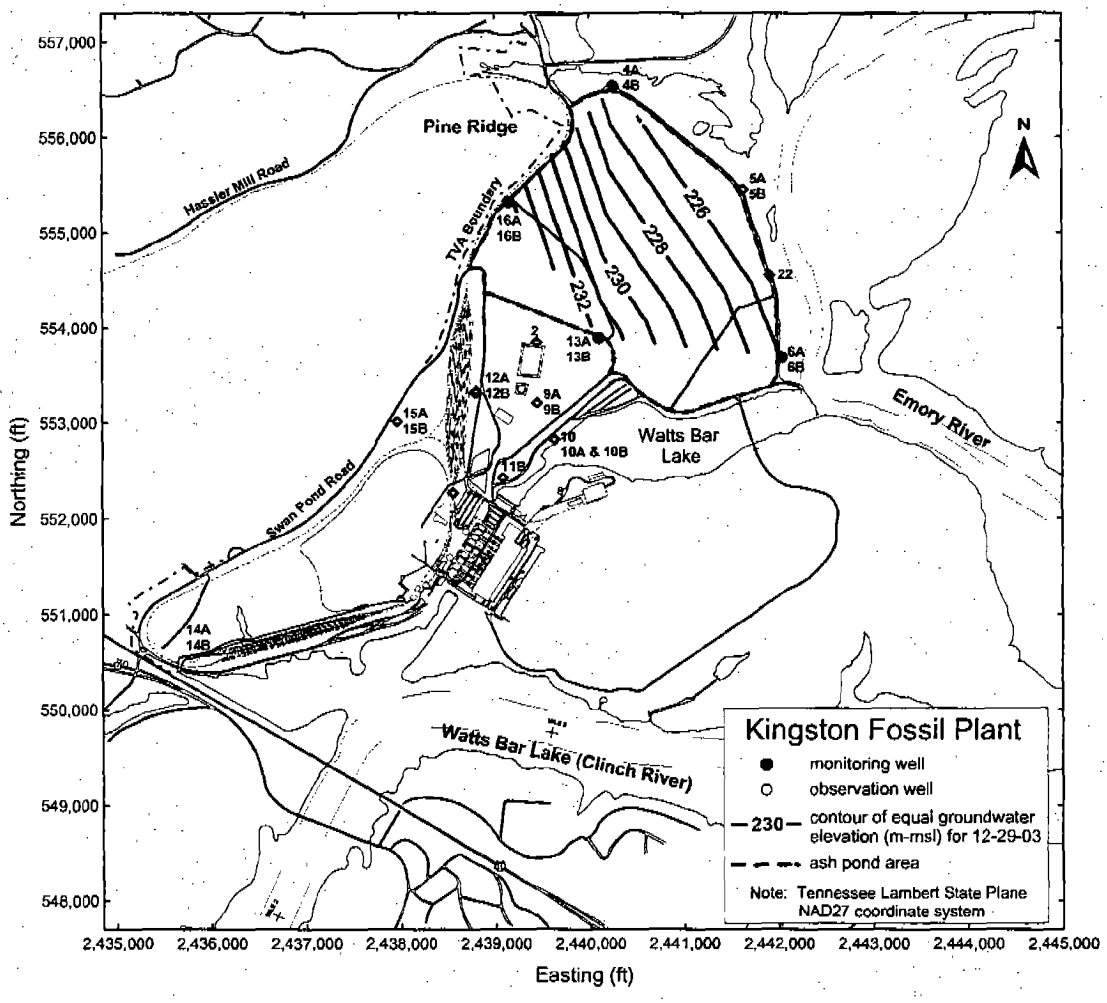

Table 1. December 29, 2003 Baseline Groundwater Monitoring Data

Analytical Results for Appendix I Inorganic Constituents						MCL	Comparison to MCL[b]			
Constituent	Units	Well No.					Well No.			
		4B downgradient	6A downgradient	13B[a] downgradient	16A upgradient		4B	6A	13B	16A
Antimony	µg/L	<0.6	<0.6	<0.6	<0.6	6	L	L	L	L
Arsenic	µg/L	0.4	5	<0.1	0.6	50	L	L	L	L
Barium	µg/L	40	80	315	50	2,000	L	L	L	L
Beryllium	µg/L	<1	<1	<1	<1	4	L	L	L	L
Cadmium	µg/L	0.29	0.46	<0.05	0.09	5	L	L	L	L
Chromium	µg/L	2.3	<0.5	<0.1	<0.5	100	L	L	L	L
Cobalt	µg/L	1.9	6.6	1.1	2.3	--	--	--	--	--
Copper	µg/L	<10	<10	<10	<10	1,000	L	L	L	L
Fluoride	µg/L	180	<100	180	390	4,000	L	L	L	L
Lead	µg/L	1.2	1.2	<0.1	0.5	50	L	L	L	L
Mercury	µg/L	<0.1	<0.1	<0.1	<0.1	2	L	L	L	L
Nickel	µg/L	7.9	6.7	0.45	1.4	--	--	--	--	--
Selenium	µg/L	0.3	1.4	<0.2	<0.2	50	L	L	L	L
Silver	µg/L	<10	70	<10	<10	100	L	L	L	L
Thallium	µg/L	0.1	<0.1	<0.1	<0.1	2	L	L	L	L
Vanadium	µg/L	<10	40	<10	<10	--	--	--	--	--
Zinc	µg/L	<10	<10	<10	<10	5,000	L	L	L	L

[a] *reported concentrations are averages of duplicate samples.*

[b] *"L" = less than or equal to MCL, "G" = greater than MCL.*

CONCLUSIONS

Groundwater analytical data for the December 29, 2003, baseline sampling event show no evidence of groundwater contamination from the ash disposal area. Concentrations of the 17 Appendix I inorganic constituents are below MCLs in all samples.

APPENDIX A

FIELD DATA SHEETS

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
KINGSTON	4B 84068		03	12	29

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
4.60 4185	12.75 4184	102 4188	JES	SAG

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter Type and Size:
12.37 4191	To	12.82 4190	KSW-4B-122903	☑ Unfiltered ☐ Filtered ☐ Both

[Bottom of Well - Depth to Water] x Volume Factor =	Well Volume (L)	Target Purge Volume (L)	Actual Purge Volume (L)
[(12.75)m - (4.6)m] x (8.107 L/m =	66.07	132.14	80 4186

Purge Pump: ☐ Bladder ☐ Centrifugal ☐ Peristatic ☐ Dedicated Other (list): Redi Flo

Sample Pump: ☐ Bladder ☐ Centrifugal ☐ Peristatic ☐ Dedicated Other (list): ~~Redi Flo~~ BAILER

Notes and WQ Observations	Time ET	Time CT	Pump Rate (L/min)	Depth to Water (m)	Pump Depth (m)	Temp °C	pH (s.u.)	DO (mg/L)	COND (umhos/cm)	(+/-) ORP (mV)	Turbidity (NTU)
Begin Purge 140HZ	1121		7.5	4.6	12.5						
15	1123		6.8	5.8	12.5	16.0	6.3	8.2	1099	527	
12@1124 20.6	1125		6.0	7.85	12.5	15.9	6.3	8.0	1099	534	
40.6	1127		5.0		12.5	15.9	6.4	7.8	1099	538	
50.6	1129		4.6	9.5	12.5	15.8	6.4	7.6	1098	537	
59.8	1131		4.2	10.43	12.5	15.8	6.4	7.3	1098	536	
64.0	1132		3.6	11.10	12.5	15.8	6.4	7.1	1098	535	
71.2	1134		3.1	11.72	12.5	15.8	6.4	7.0	1098	534	
77.4	1136		2.6	12.10	12.5	15.9	6.4	6.7	1078	534	
80.0	1137		—	12.48	12.5	OUT OF WATER				—	
	1435			4.70		14.8	6.6	6.6	1119	340	

Remarks: _____

Reviewed By: _____ Survey Leader 12/30/03 Date _____ Project Leader 12/31/03 Date

Sample Collector: SAG/JES

Sample Date			Time
Year	Month	Day	
03	12	29	1435 ☑ CT

Pump Duration 16 min 72004

"999" = 2 days

Sample Readings

Analysis Time ☑ CT	Pump Rate (L/min)	Depth to Water (m)	Pump Depth (m)	Temp °C	pH (s.u.)	DO (mg/L)	COND (umhos/cm)	(+/-) ORP (mV)	Turbidity (NTU)
1435	BAILED	4.7	BAILED	14.8	6.6	6.6	1119	340	
	4193		4192	10	400	300	94	90	
	Pump Rate (L/min)	Depth to Water (m)	Pump Depth (m)	Temp °C EPA 170.1	pH (s.u.) EPA 150.1	DO (mg/L) EPA 360.1	COND (umhos/cm) EPA 120.1	(+/-) ORP (mV) SM 2580B	Turbidity (NTU) EPA 180.1

Additional Sample Data

Analyst: SAG

Date Analyzed: Year 03 Month 12 Day 30

Turbidity 1350: ☑ Clear ☐ Turbid ☐ Slightly Turbid ☐ Highly Turbid

Color: —

Odor: —

415 Phenol Alkalinity mg/L (EPA 310.1)	431 Total Alk. mg/L (EPA 310.1)	436 Mineral Acidity mg/L (EPA 305.1)	437 CO_2 Acidity mg/L (EPA 305.1)
~~252~~	252		91
Time: 0945	Time: 0945	Time:	Time: 1030
Initial: SAG	Initial: SAG	Initial:	Initial: SAG

Well Diameter (mm)		Vol. Factor (L/m)
12.7	(0.5 in)	0.127
51	(2 in)	2.027
76	(3 in)	4.560
102	(4 in)	8.107
127	(5 in)	12.668
153	(6 in)	18.228

Bottles Required: ☐ Ferrous ☐ Mineral ☐ Phenol Others (list): F

☐ BOD ☐ TOC ☐ Metals ☐ Dis. Mineral ☐ Filt TIC

☐ COD ☐ TIC ☐ Dis. Metals ☐ Nutrient ☐ TSS/TDS

Distribution: (1) Original - Data Mgmt. (2) Pink - Survey Leader (3) Blue - Project Manager (4) Green - Customer (5) Yellow - ERS Files

TVA 30066A (9-1999)

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
KINGSTON	GA 84088		03	12	29

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
4.19 4195	8.89 4194	102 4188	JES	SAG

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter Type and Size:
8.47 4191		8.92 4190	KSW-6A-122903	☑ Unfiltered ☐ Filtered ☐ Both

[Bottom of Well	- Depth to Water]	x Volume Factor	=	Well Volume	Target Purge Volume	Actual Purge Volume
(8.89)m	- (4.19)m] x	(8.107)L/m=		38.1 (L)	76.2 (L)	351.6 (L) 4186

Purge Pump: ☐ Bladder ☐ Centrifugal ☐ Peristaltic ☐ Dedicated Other (list): Redi-Flo

Sample Pump: ☐ Bladder ☐ Centrifugal ☐ Peristaltic ☐ Dedicated Other (list): ~~Redi-Flo~~ BAILER

Notes and WQ Observations	Time ET	Time CT	Pump Rate (L/min)	Depth to Water (m)	Pump Depth (m)	Temp °C	pH (s.u.)	DO (mg/L)	COND (umhos/cm)	(+/-) ORP (mV)	Turbidity (NTU)
Begin Purge 120HZ	1029		5.0	4.19	8.6						
	1030		5.0	~~6.78~~	8.6	16.6	6.0	1.3	4710	205	
16	1032		4.5	6.10	8.6	17.6	6.0	0.4	4680	164	
24	1034		3.8	7.20	8.6	17.8	5.9	0.3	4516	173	
31.6	1036		3.5	8.40	8.6	17.8	5.8	0.4	3407	226	
35.1 ~~35.6~~	1037			8.6	8.6	OUT	OF WATER				
	1414			5.93		17.5	5.9	3.2	3066	270	

Remarks: ANTS IN WATER

Reviewed By: [signature] Survey Leader 12/30/03 Date [signature] Project Leader 12/31/03 Date

Sample Collector: JES/SAG

Sample Date			Time
Year	Month	Day	1414 ET CT
03	12	29	

Pump Duration 8 min 72004

"999" = 2 days

Sample Readings

1414	BAILED 4193	5.93	BAILED 4192	17.5	5.9	3.2	3066	270	
Analysis Time ET CT	Pump Rate (L/min)	Depth to Water (m)	Pump Depth (m)	Temp °C 10 EPA 170.1	pH (s.u.) 400 EPA 150.1	DO (mg/L) 300 EPA 360.1	COND (umhos/cm) 94 EPA 120.1	(+/-) ORP (mV) 90 SM 2580B	Turbidity (NTU) EPA 180.1

Additional Sample Data

Analyst: SAG

Date Analyzed		
Year	Month	Day
03	12	30

Turbidity 1350: ☐ Clear ☐ Turbid ☑ Slightly Turbid ☐ Highly Turbid

Color: Brown

Odor: ANTS IN WATER

415 Phenol Alkalinity mg/L (EPA 310.1)	431 Total Alk. mg/L (EPA 310.1)	436 Mineral Acidity mg/L (EPA 305.1)	437 CO_2 Acidity mg/L (EPA 305.1)
Time:	Time: 09:52	Time:	Time: 1037
Initial:	Initial: SAG	Initial:	Initial: SAG

Well Diameter (mm)		Vol. Factor (L/m)
12.7	(0.5 in)	0.127
51	(2 in)	2.027
76	(3 in)	4.560
102	(4 in)	8.107
127	(5 in)	12.668
153	(6 in)	18.228

Bottles Required: ☐ Ferrous ☐ Mineral ☐ Phenol Others (list): F

☐ BOD ☐ TOC ☐ Metals ☐ Dis. Mineral ☐ Filt TIC

☐ COD ☐ TIC ☐ Dis. Metals ☐ Nutrient ☐ TSS/TDS

Distribution: (1) Original - Data Mgmt. (2) Pink - Survey Leader (3) Blue - Project Manager (4) Green - Customer (5) Yellow - ERS Files

TVA 30066A (9-1999)

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
KINGSTON	13B 84068		03	12	29

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
3.03 4195	25.8 4194	51 4188	JES	SAG

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter Type and Size:
22.29 4191	To	25.34 4190	KSW-13B-122903 KSW-13B-122903Dup	☑ Unfiltered ☐ Filtered ☐ Both

[Bottom of Well - Depth to Water] x Volume Factor =	Well Volume	Target Purge Volume	Actual Purge Volume
[(25.8)m - (3.03)m] x (2.027)L/m=	46.2 (L)	92.4 (L)	95 (L) 4186

Purge Pump: ☐ Bladder ☐ Centrifugal ☐ Peristaltic ☐ Dedicated Other (list): Rocking

Sample Pump: ☐ Bladder ☐ Centrifugal ☐ Peristaltic ☐ Dedicated Other (list): Rocking

Notes and WQ Observations	Time ET	Time CT	Pump Rate (L/min)	Depth to Water (m)	Pump Depth (m)	Temp °C	pH (s.u.)	DO (mg/L)	COND (umhos/cm)	(+/-) ORP (mV)	Turbidity (NTU)
Begin Purge 140HZ		1251	6.5	3.0	10.0						
13		1253	5.5	7.7	10.0	16.4	7.7	0.1	372	419	
		1255		8.82	10.0	16.6	7.7	0.0	373	402	
35		1257	5.0		10.0	16.7	7.7	0.0	379	354	
45		1259	5.0	8.66	10.0	16.7	7.7	0.0	382	313	
		1301	5.0		10.0	16.7	7.8	0.0	380	271	
65		1303	~~4.9~~ 5.0	8.89	10.0	16.7	7.8	0.0	379	240	
75		1305	5.0	8.89	10.0	16.7	7.8	0.0	378	214	
85		1307	5.0	8.93	10.0	16.7	7.8	0.0	379	189	
		1309	5.0	8.95	10.0	16.7	7.8	0.0	378	178	

Remarks: Duplicate Sample

Reviewed By: [signature] 12/30/03 Survey Leader Date [signature] 12/31/03 Project Leader Date

Sample Collector: JES/SAG

Sample Date			Time
Year	Month	Day	1309 ET CT
03	12	29	

Pump Duration 18 min 72004

"999" = 2 days

Sample Readings

1309	5.0	8.95	10	16.7	7.8	0.0	378	178	
Analysis Time ET CT	4193 Pump Rate (L/min)	Depth to Water (m)	4192 Pump Depth (m)	10 Temp °C EPA 170.1	400 pH (s.u.) EPA 150.1	300 DO (mg/L) EPA 360.1	94 COND (umhos/cm) EPA 120.1	90 (+/-) ORP (mV) SM 2580B	Turbidity (NTU) EPA 180.1

Additional Sample Data

Analyst: SAG

Date Analyzed		
Year	Month	Day
03	12	30

Turbidity 1350: ☑ Clear ☐ Turbid ☐ Slightly Turbid ☐ Highly Turbid

Color: —

Odor: —

415 Phenol Alkalinity mg/L (EPA 310.1)	431 Total Alk. mg/L (EPA 310.1)		436 Mineral Acidity mg/L (EPA 305.1)	437 CO_2 Acidity mg/L (EPA 305.1)	
Time:	Time: 957	1000	Time:	Time: 1039	1042
Initial:	Initial: SAG	SAG	Initial:	Initial: SAG	SAG
	186	186		3	3

Well Diameter (mm)		Vol. Factor (L/m)
12.7	(0.5 in)	0.127
51	(2 in)	2.027
76	(3 in)	4.560
102	(4 in)	8.107
127	(5 in)	12.668
153	(6 in)	18.228

Bottles Required: ☐ BOD ☐ COD ☐ TOC ☐ TIC ☐ Ferrous ☐ Metals ☐ Dis. Metals ☐ Mineral ☐ Dis. Mineral ☐ Nutrient ☐ Phenol ☐ Filt TIC ☐ TSS/TDS Others (list): F

Distribution: (1) Original - Data Mgmt. (2) Pink - Survey Leader (3) Blue - Project Manager (4) Green - Customer (5) Yellow - ERS Files

TVA 30065A (9-1999)

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date Year	Month	Day
KINGSTON	16A 84068	03	12	29

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
0.0 4195	20.16 4194	51 4188	JES	SAG

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	☑ Unfiltered ☐ Filtered ☐ Both; Filter Type and Size:
16.98 4191	To	20.03 4190	KSW-16A-122903	

[Bottom of Well - Depth to Water] x Volume Factor = Well Volume (L), Target Purge Volume (L), Actual Purge Volume (L)

[(20.16)m - (0.0)m] x (2.027)L/m = 40.9 (L) | 81.8 (L) | 82.2 4186 (L)

Purge Pump: ☐ Bladder ☐ Centrifugal ☐ Peristaltic ☐ Dedicated Other (list): Redi-flo

Sample Pump: ☐ Bladder ☐ Centrifugal ☐ Peristaltic ☐ Dedicated Other (list): Redi-flo

Notes and WQ Observations	Time ET/CT	Pump Rate (L/min)	Depth to Water (m)	Pump Depth (m)	Temp °C	pH (s.u.)	DO (mg/L)	COND (umhos/cm)	(+/-) ORP (mV)	Turbidity (NTU)
Begin Purge →	1224	8.0	0.0	6.0						
16	1226		1.6	6.0	16.4	6.9	0.3	357	472	
(24)	1227	7.5	2.7	6.0	16.3	6.9	0.2	357	377	
(39)	1229	7.3	3.5	6.0	16.2	6.9	0.2	360	241	
53.6	1231		3.97	6.0	16.2	6.96	0.1	364	187	
68.2	1233	7.0	4.58	6.0	16.3	7.0	0.1	367	163	
82.2	1235	6.8	4.91	6.0	16.4	7.0	0.1	367	155	

Remarks:

Reviewed By: [signature] Survey Leader 12/30/03 Date; [signature] Project Leader 12/31/03 Date

Sample Collector: JES/SAG

Sample Date Year	Month	Day	Time
03	12	29	1235 ET/CT

Pump Duration 11 min 72004; "999" = 2 days

Sample Readings

Analysis Time ET/CT	Pump Rate (L/min) 4193	Depth to Water (m)	Pump Depth (m) 4192	Temp °C 10 EPA 170.1	pH (s.u.) 400 EPA 150.1	DO (mg/L) 300 EPA 360.1	COND (umhos/cm) 94 EPA 120.1	(+/-) ORP (mV) 90 SM 2580B	Turbidity (NTU) EPA 180.1
1235	6.8	4.91	6.0	16.4	7.0	0.1	367	155	

Additional Sample Data

Analyst: SAG

Date Analyzed: Year 03 Month 12 Day 30

	415 Phenol Alkalinity mg/L (EPA 310.1)	431 Total Alk. mg/L (EPA 310.1)	436 Mineral Acidity mg/L (EPA 305.1)	437 CO_2 Acidity mg/L (EPA 305.1)
Value		143		16
Time		10:05		10:43
Initial		SAG		SAG

Well Diameter (mm)		Vol. Factor (L/m)
12.7	(0.5 in)	0.127
51	(2 in)	2.027
76	(3 in)	4.560
102	(4 in)	8.107
127	(5 in)	12.668
153	(6 in)	18.228

Turbidity 1350 ☑ Clear ☐ Turbid ☐ Slightly Turbid ☐ Highly Turbid

Color: —

Odor: —

Bottles Required: ☐ Ferrous ☐ Mineral ☐ Phenol Others (list): ☐ BOD ☐ TOC ☐ Metals ☐ Dis. Mineral ☐ Filt TIC ☐ COD ☐ TIC ☐ Dis. Metals ☐ Nutrient ☐ TSS/TDS

Distribution: (1) Original - Data Mgmt. (2) Pink - Survey Leader (3) Blue - Project Manager (4) Green - Customer (5) Yellow - ERS Files

TVA 30066A (9-1999)

APPENDIX B

SAMPLE CUSTODY RECORD

Loc Codes - See below
RCRA
100

TENNESSEE VALLEY AUTHORITY WATER MANAGEMENT
ENVIRONMENTAL CHEMISTRY ANALYSIS REQUEST AND CUSTODY RECORD

FORM CONTROL # 17937

PROJECT ID KINGSTON GROUND WATER

REFERENCE: ☑ WORKPLAN ☐ OTHER

ACCT NO.

DATE REQUIRED 01/25/04

RESULTS TO MARK BOGGS
LAB 2C-N

LAB USE ONLY

TEST IDC'S #ICPW1 #ICPW2 DIGICP DIGMS SBWMS ASWMS CDWMS
CRWMS COWMS PBWMS NIWMS SEWMS TLWMS K_W NAW CCW FLW
HGW DIGCVA SO4W TICW #TSS #TDS, NC32NW, *TKNW NH3NW

DATE RECEIVED 12/30/03

DAYS DUE ~~1/25~~ 1/22/04

PROJECT LEADER RLH L/F=03/20357

NO. LABELS 4

LAB USE ONLY LAB ID	FIELD ID	SAMPLE DESCRIPTION	Loc. Codes	SAMPLE MATRIX	DATE/TIME COLLECTED	NO. OF BOTTLES	ADDITIONAL IDC'S
AD20926	KSW-4B-122903	GROUNDWATER	KIF-4B	H2O	12/29 1435	4	
20927	KSW-6A-122903	"	KIF-6A	"	" 1414	4	
20928	KSW-13B-122903	"	KIF-13B	"	" 1309	4	
20929	KSW-13B-122903-DUP	"	KIF-13B	"	" "	4	
20930	KSW-16A-122903	"	KIF-16A	"	" 1235	4	
20931	KSW-22-122903	"	KIF	"	" 1103	1	*NFS ← (#TKNW, NO3NW, NH3NW
20932	EQUIPMENT BLANK	Super 6 three sample tube	KIF	"	" 1555	4	
				WATER			

FIELD COMMENTS ANTS IN WELL 6A -

ANALYSIS REQUESTED per WORKPLAN -

SUBMITTED BY [signature] DATE/TIME 12/30/03

LABORATORY COMMENTS

RECEIVED BY [signature] DATE/TIME 11.30

DISTRIBUTION OF COPIES
1 - LABORATORY 2 - RETURN TO REQUESTOR 3 - RETAINED BY REQUESTOR

TVA 30488 (RG-WM 3-94)

PAGE 1 OF 1

APPENDIX C

LABORATORY DATA SHEETS

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801
Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-4B
Field ID: KSW-4B-122903
Sample Description: GROUNDWATER

Sample ID: AD20926 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 14:35 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	2.0	mg/L	0.05	01/13/2004	15:59	LMJ	EPA 6010B
Ammonia as N	7664-41-7	0.05	mg/L	0.01	01/05/2004	10:53	ADP	EPA 350.1
Antimony, Total Recoverable	7440-36-0	< MDL	mg/L	0.0006	01/13/2004	15:46	LRP	EPA 6020
Arsenic, Total Recoverable	7440-38-2	0.0004	mg/L	0.0001	01/13/2004	15:46	LRP	EPA 6020
Barium, Total	7440-39-3	0.04	mg/L	0.01	01/13/2004	15:59	LMJ	EPA 6010B
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	01/13/2004	15:59	LMJ	EPA 6010B
Boron, Total	7440-42-8	< MDL	mg/L	0.2	01/13/2004	15:59	LMJ	EPA 6010B
Cadmium, Total Recoverable	7440-43-9	0.00029	mg/L	0.00005	01/13/2004	15:46	LRP	EPA 6020
Calcium, Total	7440-70-2	210	mg/L	0.1	01/13/2004	15:59	LMJ	EPA 6010B
Chloride, Total	16887-00-6	3.9	mg/L	1.	01/21/2004	14:16	GMP	EPA 325.2
Chromium, Total Recoverable	7440-47-3	0.0023	mg/L	0.0005	01/13/2004	15:54	LRP	EPA 6020
Cobalt, Total Recoverable	7440-48-4	0.0019	mg/L	0.0005	01/13/2004	15:54	LRP	EPA 6020
Copper, Total	7440-50-8	< MDL	mg/L	0.01	01/13/2004	15:59	LMJ	EPA 6010B
Filterable Residue		760.	mg/L	10.	01/05/2004	10:46	ADP	EPA 160.1
Fluoride, Total	16984-48-8	0.18	mg/L	0.1	01/06/2004	10:00	GMP	EPA 340.2
Inorganic Carbon, Total		79	mg/L	1.	01/08/2004	13:56	ADP	ASTM477988
Iron, Total	7439-89-6	1.7	mg/L	0.01	01/13/2004	15:59	LMJ	EPA 6010B
Lead, Total Recoverable	7439-92-1	0.0012	mg/L	0.0001	01/13/2004	15:46	LRP	EPA 6020
Magnesium, Total	7439-95-4	18	mg/L	0.01	01/13/2004	15:59	LMJ	EPA 6010B
Manganese, Total	7439-96-5	0.89	mg/L	0.005	01/13/2004	15:59	LMJ	EPA 6010B
Mercury, Total	7439-97-6	< MDL	mg/L	0.0001	01/16/2004	11:09	RIG	EPA 7470A
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	01/13/2004	15:59	LMJ	EPA 6010B
Nickel, Total Recoverable	7440-02-0	0.0079	mg/L	0.0005	01/13/2004	15:54	LRP	EPA 6020
Nitrate-Nitrite as N		0.04	mg/L	0.01	01/05/2004	9:53	ADP	EPA 353.2
Non-Filterable Residue		39.	mg/L	1.	12/31/2003	13:35	AJH	EPA 160.2
Potassium, Total	7440-09-7	5.1	mg/L	0.1	01/20/2004	10:20	BRJ	EPA 7610
Selenium, Total Recoverable	7782-49-2	0.0003	mg/L	0.0002	01/13/2004	15:46	LRP	EPA 6020
Silver, Total	7440-22-4	< MDL	mg/L	0.01	01/13/2004	15:59	LMJ	EPA 6010B
Sodium, Total	7440-23-5	7.4	mg/L	0.1	01/20/2004	9:02	BRJ	EPA 7770
Strontium, Total	7440-24-6	0.41	mg/L	0.05	01/13/2004	15:59	LMJ	EPA 6010B
Sulfate, Total	14808-79-8	330	mg/L	1.	01/16/2004	9:00	GMP	EPA 375.4
Thallium, Total Recoverable	7440-28-0	0.0001	mg/L	0.0001	01/13/2004	15:46	LRP	EPA 6020
Total Kjeldahl Nitrogen		0.23	mg/L	0.02	01/12/2004	14:02	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	01/13/2004	15:59	LMJ	EPA 6010B
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	01/13/2004	15:59	LMJ	EPA 6010B

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801
Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-4B
Field ID: KSW-4B-122903
Sample Description: GROUNDWATER

Sample ID: AD20926 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 14:35 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference

Sample Comments: Latitude:
Longitude:
Analysis confirmed for Na

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
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Chattanooga, Tennessee 37402-2801
Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-6A
Field ID: KSW-6A-122903
Sample Description: GROUNDWATER

Sample ID: AD20927 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 14:14 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	0.22	mg/L	0.05	01/13/2004	16:03	LMJ	EPA 6010B
Ammonia as N	7664-41-7	19	mg/L	0.01	01/05/2004	10:53	ADP	EPA 350.1
Antimony, Total Recoverable	7440-36-0	< MDL	mg/L	0.0006	01/13/2004	16:08	LRP	EPA 6020
Arsenic, Total Recoverable	7440-38-2	0.0050	mg/L	0.0001	01/13/2004	16:08	LRP	EPA 6020
Barium, Total	7440-39-3	0.08	mg/L	0.01	01/13/2004	16:03	LMJ	EPA 6010B
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	01/13/2004	16:03	LMJ	EPA 6010B
Boron, Total	7440-42-8	< MDL	mg/L	0.2	01/13/2004	16:03	LMJ	EPA 6010B
Cadmium, Total Recoverable	7440-43-9	0.00046	mg/L	0.00005	01/13/2004	16:08	LRP	EPA 6020
Calcium, Total	7440-70-2	180	mg/L	0.1	01/13/2004	16:03	LMJ	EPA 6010B
Chloride, Total	16887-00-6	9.0	mg/L	1.	01/21/2004	14:16	GMP	EPA 325.2
Chromium, Total Recoverable	7440-47-3	< MDL	mg/L	0.0005	01/13/2004	16:16	LRP	EPA 6020
Cobalt, Total Recoverable	7440-48-4	0.0066	mg/L	0.0005	01/13/2004	16:16	LRP	EPA 6020
Copper, Total	7440-50-8	< MDL	mg/L	0.01	01/13/2004	16:03	LMJ	EPA 6010B
Filterable Residue		2800.	mg/L	10.	01/05/2004	10:47	ADP	EPA 160.1
Fluoride, Total	16984-48-8	< MDL	mg/L	0.1	01/06/2004	10:00	GMP	EPA 340.2
Inorganic Carbon, Total		67	mg/L	1.	01/08/2004	14:09	ADP	ASTM477988
Iron, Total	7439-89-6	450	mg/L	0.1	01/13/2004	16:03	LMJ	EPA 6010B
Lead, Total Recoverable	7439-92-1	0.0012	mg/L	0.0001	01/13/2004	16:08	LRP	EPA 6020
Magnesium, Total	7439-95-4	50	mg/L	0.01	01/13/2004	16:03	LMJ	EPA 6010B
Manganese, Total	7439-96-5	77	mg/L	0.005	01/13/2004	16:03	LMJ	EPA 6010B
Mercury, Total	7439-97-6	< MDL	mg/L	0.0001	01/16/2004	11:11	RIG	EPA 7470A
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	01/13/2004	16:03	LMJ	EPA 6010B
Nickel, Total Recoverable	7440-02-0	0.0067	mg/L	0.0001	01/13/2004	16:16	LRP	EPA 6020
Nitrate-Nitrite as N		0.13	mg/L	0.01	01/05/2004	9:53	ADP	EPA 353.2
Non-Filterable Residue		61.	mg/L	1.	12/31/2003	13:35	AJH	EPA 160.2
Potassium, Total	7440-09-7	27.	mg/L	0.1	01/20/2004	10:22	BRJ	EPA 7610
Selenium, Total Recoverable	7782-49-2	0.0014	mg/L	0.0002	01/13/2004	16:08	LRP	EPA 6020
Silver, Total	7440-22-4	0.07	mg/L	0.01	01/13/2004	16:03	LMJ	EPA 6010B
Sodium, Total	7440-23-5	11.8	mg/L	0.1	01/20/2004	9:03	BRJ	EPA 7770
Strontium, Total	7440-24-6	0.83	mg/L	0.05	01/13/2004	16:03	LMJ	EPA 6010B
Sulfate, Total	14808-79-8	2000	mg/L	1.	01/16/2004	9:00	GMP	EPA 375.4
Thallium, Total Recoverable	7440-28-0	< MDL	mg/L	0.0001	01/13/2004	16:08	LRP	EPA 6020
Total Kjeldahl Nitrogen		19	mg/L	0.02	01/12/2004	14:53	GMP	EPA 351.2
Vanadium, Total	7440-62-2	0.04	mg/L	0.01	01/13/2004	16:03	LMJ	EPA 6010B
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	01/13/2004	16:03	LMJ	EPA 6010B

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801
Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-6A
Field ID: KSW-6A-122903
Sample Description: GROUNDWATER

Sample ID: AD20927 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 14:14 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference

Sample Comments: Latitude:
Longitude:
Analysis confirmed for K and Na

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801
Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-13B
Field ID: KSW-13B-122903
Sample Description: GROUNDWATER

Sample ID: AD20928 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 13:09 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	< MDL	mg/L	0.05	01/13/2004	16:08	LMJ	EPA 6010B
Ammonia as N	7664-41-7	0.11	mg/L	0.01	01/05/2004	10:53	ADP	EPA 350.1
Antimony, Total Recoverable	7440-36-0	< MDL	mg/L	0.0006	01/13/2004	16:30	LRP	EPA 6020
Arsenic, Total Recoverable	7440-38-2	< MDL	mg/L	0.0001	01/13/2004	16:30	LRP	EPA 6020
Barium, Total	7440-39-3	0.31	mg/L	0.01	01/13/2004	16:08	LMJ	EPA 6010B
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	01/13/2004	16:08	LMJ	EPA 6010B
Boron, Total	7440-42-8	< MDL	mg/L	0.2	01/13/2004	16:08	LMJ	EPA 6010B
Cadmium, Total Recoverable	7440-43-9	< MDL	mg/L	0.00005	01/13/2004	16:30	LRP	EPA 6020
Calcium, Total	7440-70-2	13	mg/L	0.1	01/13/2004	16:08	LMJ	EPA 6010B
Chloride, Total	16887-00-6	2.1	mg/L	1.	01/21/2004	14:16	GMP	EPA 325.2
Chromium, Total Recoverable	7440-47-3	< MDL	mg/L	0.0001	01/13/2004	16:30	LRP	EPA 6020
Cobalt, Total Recoverable	7440-48-4	0.0011	mg/L	0.0001	01/13/2004	16:30	LRP	EPA 6020
Copper, Total	7440-50-8	< MDL	mg/L	0.01	01/13/2004	16:08	LMJ	EPA 6010B
Filterable Residue		220.	mg/L	10.	01/05/2004	10:48	ADP	EPA 160.1
Fluoride, Total	16984-48-8	0.18	mg/L	0.1	01/06/2004	10:00	GMP	EPA 340.2
Inorganic Carbon, Total		43	mg/L	1.	01/08/2004	14:21	ADP	ASTM477988
Iron, Total	7439-89-6	0.11	mg/L	0.01	01/13/2004	16:08	LMJ	EPA 6010B
Lead, Total Recoverable	7439-92-1	< MDL	mg/L	0.0001	01/13/2004	16:30	LRP	EPA 6020
Magnesium, Total	7439-95-4	1.7	mg/L	0.01	01/13/2004	16:08	LMJ	EPA 6010B
Manganese, Total	7439-96-5	0.071	mg/L	0.005	01/13/2004	16:08	LMJ	EPA 6010B
Mercury, Total	7439-97-6	< MDL	mg/L	0.0001	01/16/2004	11:13	RIG	EPA 7470A
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	01/13/2004	16:08	LMJ	EPA 6010B
Nickel, Total Recoverable	7440-02-0	0.0005	mg/L	0.0001	01/13/2004	16:30	LRP	EPA 6020
Nitrate-Nitrite as N		< MDL	mg/L	0.01	01/05/2004	9:53	ADP	EPA 353.2
Non-Filterable Residue		< MDL	mg/L	1.	12/31/2003	13:35	AJH	EPA 160.2
Potassium, Total	7440-09-7	2.9	mg/L	0.1	01/20/2004	10:23	BRJ	EPA 7610
Selenium, Total Recoverable	7782-49-2	< MDL	mg/L	0.0002	01/13/2004	16:30	LRP	EPA 6020
Silver, Total	7440-22-4	< MDL	mg/L	0.01	01/13/2004	16:08	LMJ	EPA 6010B
Sodium, Total	7440-23-5	76.	mg/L	0.1	01/20/2004	9:05	BRJ	EPA 7770
Strontium, Total	7440-24-6	0.26	mg/L	0.05	01/13/2004	16:08	LMJ	EPA 6010B
Sulfate, Total	14808-79-8	3.1	mg/L	1.	01/16/2004	9:00	GMP	EPA 375.4
Thallium, Total Recoverable	7440-28-0	< MDL	mg/L	0.0001	01/13/2004	16:30	LRP	EPA 6020
Total Kjeldahl Nitrogen		0.17	mg/L	0.02	01/12/2004	14:02	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	01/13/2004	16:08	LMJ	EPA 6010B
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	01/13/2004	16:08	LMJ	EPA 6010B

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
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Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-13B
Field ID: KSW-13B-122903
Sample Description: GROUNDWATER

Sample ID: AD20928 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 13:09 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference

Sample Comments: Latitude:
Longitude:
Calcium result confirmed by reanalysis.
Chloride result is confirmed by reanalysis.

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

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Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-13B
Field ID: KSW-13B-122903-DUP
Sample Description: GROUNDWATER

Sample ID: AD20929 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 13:09 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	< MDL	mg/L	0.05	01/13/2004	16:13	LMJ	EPA 6010B
Ammonia as N	7664-41-7	0.11	mg/L	0.01	01/05/2004	10:53	ADP	EPA 350.1
Antimony, Total Recoverable	7440-36-0	< MDL	mg/L	0.0006	01/13/2004	16:52	LRP	EPA 6020
Arsenic, Total Recoverable	7440-38-2	< MDL	mg/L	0.0001	01/13/2004	16:52	LRP	EPA 6020
Barium, Total	7440-39-3	0.32	mg/L	0.01	01/13/2004	16:13	LMJ	EPA 6010B
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	01/13/2004	16:13	LMJ	EPA 6010B
Boron, Total	7440-42-8	< MDL	mg/L	0.2	01/13/2004	16:13	LMJ	EPA 6010B
Cadmium, Total Recoverable	7440-43-9	< MDL	mg/L	0.00005	01/13/2004	16:52	LRP	EPA 6020
Calcium, Total	7440-70-2	13	mg/L	0.1	01/13/2004	16:13	LMJ	EPA 6010B
Chloride, Total	16887-00-6	2.1	mg/L	1.	01/21/2004	14:16	GMP	EPA 325.2
Chromium, Total Recoverable	7440-47-3	< MDL	mg/L	0.0001	01/13/2004	16:52	LRP	EPA 6020
Cobalt, Total Recoverable	7440-48-4	0.0011	mg/L	0.0001	01/13/2004	16:52	LRP	EPA 6020
Copper, Total	7440-50-8	< MDL	mg/L	0.01	01/13/2004	16:13	LMJ	EPA 6010B
Filterable Residue		210.	mg/L	10.	01/05/2004	10:50	ADP	EPA 160.1
Fluoride, Total	16984-48-8	0.18	mg/L	0.1	01/06/2004	10:00	GMP	EPA 340.2
Inorganic Carbon, Total		43	mg/L	1.	01/08/2004	14:34	ADP	ASTM477988
Iron, Total	7439-89-6	0.06	mg/L	0.01	01/13/2004	16:13	LMJ	EPA 6010B
Lead, Total Recoverable	7439-92-1	< MDL	mg/L	0.0001	01/13/2004	16:52	LRP	EPA 6020
Magnesium, Total	7439-95-4	1.8	mg/L	0.01	01/13/2004	16:13	LMJ	EPA 6010B
Manganese, Total	7439-96-5	0.062	mg/L	0.005	01/13/2004	16:13	LMJ	EPA 6010B
Mercury, Total	7439-97-6	< MDL	mg/L	0.0001	01/16/2004	11:15	RJG	EPA 7470A
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	01/13/2004	16:13	LMJ	EPA 6010B
Nickel, Total Recoverable	7440-02-0	0.0004	mg/L	0.0001	01/13/2004	16:52	LRP	EPA 6020
Nitrate-Nitrite as N		< MDL	mg/L	0.01	01/05/2004	9:53	ADP	EPA 353.2
Non-Filterable Residue		< MDL	mg/L	1.	12/31/2003	13:35	AJH	EPA 160.2
Potassium, Total	7440-09-7	2.9	mg/L	0.1	01/20/2004	10:25	BRJ	EPA 7610
Selenium, Total Recoverable	7782-49-2	< MDL	mg/L	0.0002	01/13/2004	16:52	LRP	EPA 6020
Silver, Total	7440-22-4	< MDL	mg/L	0.01	01/13/2004	16:13	LMJ	EPA 6010B
Sodium, Total	7440-23-5	76.	mg/L	0.1	01/20/2004	9:06	BRJ	EPA 7770
Strontium, Total	7440-24-6	0.27	mg/L	0.05	01/13/2004	16:13	LMJ	EPA 6010B
Sulfate, Total	14808-79-8	3.0	mg/L	1.	01/16/2004	9:00	GMP	EPA 375.4
Thallium, Total Recoverable	7440-28-0	< MDL	mg/L	0.0001	01/13/2004	16:52	LRP	EPA 6020
Total Kjeldahl Nitrogen		0.15	mg/L	0.02	01/12/2004	14:02	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	01/13/2004	16:13	LMJ	EPA 6010B
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	01/13/2004	16:13	LMJ	EPA 6010B

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
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Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-13B
Field ID: KSW-13B-122903-DUP
Sample Description: GROUNDWATER

Sample ID: AD20929 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 13:09 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference

Sample Comments: Latitude:
Longitude:
Calcium results confirmed by reanalysis.
Chloride result is confirmed by reanalysis.

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
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North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF-16A
Field ID: KSW-16A-122903
Sample Description: GROUNDWATER

Sample ID: AD20930 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 12:35 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	1.2	mg/L	0.05	01/13/2004	16:27	LMJ	EPA 6010B
Ammonia as N	7664-41-7	0.45	mg/L	0.01	01/05/2004	9:53	ADP	EPA 350.1
Antimony, Total Recoverable	7440-36-0	< MDL	mg/L	0.0006	01/13/2004	17:33	LRP	EPA 6020
Arsenic, Total Recoverable	7440-38-2	0.0006	mg/L	0.0001	01/13/2004	17:33	LRP	EPA 6020
Barium, Total	7440-39-3	0.05	mg/L	0.01	01/13/2004	16:27	LMJ	EPA 6010B
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	01/13/2004	16:27	LMJ	EPA 6010B
Boron, Total	7440-42-8	< MDL	mg/L	0.2	01/13/2004	16:27	LMJ	EPA 6010B
Cadmium, Total Recoverable	7440-43-9	0.00009	mg/L	0.00005	01/13/2004	17:33	LRP	EPA 6020
Calcium, Total	7440-70-2	42	mg/L	0.1	01/13/2004	16:27	LMJ	EPA 6010B
Chloride, Total	16887-00-6	< MDL	mg/L	1.	01/21/2004	14:16	GMP	EPA 325.2
Chromium, Total Recoverable	7440-47-3	< MDL	mg/L	0.0005	01/13/2004	17:55	LRP	EPA 6020
Cobalt, Total Recoverable	7440-48-4	0.0023	mg/L	0.0005	01/13/2004	17:55	LRP	EPA 6020
Copper, Total	7440-50-8	< MDL	mg/L	0.01	01/13/2004	16:27	LMJ	EPA 6010B
Filterable Residue		210.	mg/L	10.	01/05/2004	10:54	ADP	EPA 160.1
Fluoride, Total	16984-48-8	0.39	mg/L	0.1	01/06/2004	10:00	GMP	EPA 340.2
Inorganic Carbon, Total		37	mg/L	1.	01/08/2004	14:46	ADP	ASTM477988
Iron, Total	7439-89-6	1.7	mg/L	0.01	01/13/2004	16:27	LMJ	EPA 6010B
Lead, Total Recoverable	7439-92-1	0.0005	mg/L	0.0001	01/13/2004	17:33	LRP	EPA 6020
Magnesium, Total	7439-95-4	9.1	mg/L	0.01	01/13/2004	16:27	LMJ	EPA 6010B
Manganese, Total	7439-96-5	1.3	mg/L	0.005	01/13/2004	16:27	LMJ	EPA 6010B
Mercury, Total	7439-97-6	< MDL	mg/L	0.0001	01/16/2004	11:17	RIG	EPA 7470A
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	01/13/2004	16:27	LMJ	EPA 6010B
Nickel, Total Recoverable	7440-02-0	0.0014	mg/L	0.0001	01/13/2004	17:55	LRP	EPA 6020
Nitrate-Nitrite as N		0.02	mg/L	0.01	01/05/2004	9:53	ADP	EPA 353.2
Non-Filterable Residue		18.	mg/L	1.	12/31/2003	13:35	AJH	EPA 160.2
Potassium, Total	7440-09-7	2.5	mg/L	0.1	01/20/2004	10:26	BRJ	EPA 7610
Selenium, Total Recoverable	7782-49-2	< MDL	mg/L	0.0002	01/13/2004	17:33	LRP	EPA 6020
Silver, Total	7440-22-4	< MDL	mg/L	0.01	01/13/2004	16:27	LMJ	EPA 6010B
Sodium, Total	7440-23-5	17.	mg/L	0.1	01/20/2004	9:08	BRJ	EPA 7770
Strontium, Total	7440-24-6	0.27	mg/L	0.05	01/13/2004	16:27	LMJ	EPA 6010B
Sulfate, Total	14808-79-8	40	mg/L	1.	01/16/2004	9:00	GMP	EPA 375.4
Thallium, Total Recoverable	7440-28-0	< MDL	mg/L	0.0001	01/13/2004	17:33	LRP	EPA 6020
Total Kjeldahl Nitrogen		0.27	mg/L	0.02	01/12/2004	14:02	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	01/13/2004	16:27	LMJ	EPA 6010B
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	01/13/2004	16:27	LMJ	EPA 6010B

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

TENNESSEE VALLEY AUTHORITY
CENTRAL LABORATORIES SERVICES
1101 Market Street, PSC 1B-C
Chattanooga, Tennessee 37402-2801
Phone: (423) 876 - 4318 • Fax: (423) 876 - 4137

Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells
Location Code: KIF-16A
Field ID: KSW-16A-122903
Sample Description: GROUNDWATER

Sample ID: AD20930 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 12:35 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference

Sample Comments: Latitude:
Longitude:

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
Report of Results: Environmental

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Shipping Address:
Chickamauga Power Service Center
North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF
Field ID: KSW-22-122903
Sample Description: GROUNDWATER

Sample ID: AD20931 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 11:03 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Ammonia as N	7664-41-7	0.68	mg/L	0.01	01/05/2004	9:53	ADP	EPA 350.1
Nitrate-Nitrite as N		< MDL	mg/L	0.01	01/05/2004	9:53	ADP	EPA 353.2
Total Kjeldahl Nitrogen		0.85	mg/L	0.02	01/12/2004	14:02	GMP	EPA 351.2

Sample Comments: None

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Data Report Number: 040126-163347
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Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF

Field ID: EQUIPMENT BLANK

Sample Description: SUPER Q THROUGH SAMPLE TUBE

Sample ID: AD20932 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 15:55 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	0.08	mg/L	0.05	01/13/2004	16:32	LMJ	EPA 6010B
Ammonia as N	7664-41-7	< MDL	mg/L	0.01	01/05/2004	9:53	ADP	EPA 350.1
Antimony, Total Recoverable	7440-36-0	< MDL	mg/L	0.0006	01/13/2004	18:09	LRP	EPA 6020
Arsenic, Total Recoverable	7440-38-2	< MDL	mg/L	0.0001	01/13/2004	18:09	LRP	EPA 6020
Barium, Total	7440-39-3	< MDL	mg/L	0.01	01/13/2004	16:32	LMJ	EPA 6010B
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	01/13/2004	16:32	LMJ	EPA 6010B
Boron, Total	7440-42-8	< MDL	mg/L	0.2	01/13/2004	16:32	LMJ	EPA 6010B
Cadmium, Total Recoverable	7440-43-9	< MDL	mg/L	0.00005	01/13/2004	18:09	LRP	EPA 6020
Calcium, Total	7440-70-2	0.24	mg/L	0.1	01/13/2004	16:32	LMJ	EPA 6010B
Chloride, Total	16887-00-6	< MDL	mg/L	1.	01/21/2004	14:16	GMP	EPA 325.2
Chromium, Total Recoverable	7440-47-3	< MDL	mg/L	0.0001	01/13/2004	18:09	LRP	EPA 6020
Cobalt, Total Recoverable	7440-48-4	< MDL	mg/L	0.0001	01/13/2004	18:09	LRP	EPA 6020
Copper, Total	7440-50-8	< MDL	mg/L	0.01	01/13/2004	16:32	LMJ	EPA 6010B
Filterable Residue		< MDL	mg/L	10.	01/05/2004	10:58	ADP	EPA 160.1
Fluoride, Total	16984-48-8	< MDL	mg/L	0.1	01/06/2004	10:00	GMP	EPA 340.2
Inorganic Carbon, Total		< MDL	mg/L	1.	01/08/2004	14:59	ADP	ASTM477988
Iron, Total	7439-89-6	< MDL	mg/L	0.01	01/13/2004	16:32	LMJ	EPA 6010B
Lead, Total Recoverable	7439-92-1	< MDL	mg/L	0.0001	01/13/2004	18:09	LRP	EPA 6020
Magnesium, Total	7439-95-4	0.01	mg/L	0.01	01/13/2004	16:32	LMJ	EPA 6010B
Manganese, Total	7439-96-5	< MDL	mg/L	0.005	01/13/2004	16:32	LMJ	EPA 6010B
Mercury, Total	7439-97-6	< MDL	mg/L	0.0001	01/16/2004	11:21	RIG	EPA 7470A
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	01/13/2004	16:32	LMJ	EPA 6010B
Nickel, Total Recoverable	7440-02-0	< MDL	mg/L	0.0001	01/13/2004	18:09	LRP	EPA 6020
Nitrate-Nitrite as N		< MDL	mg/L	0.01	01/05/2004	9:53	ADP	EPA 353.2
Non-Filterable Residue		< MDL	mg/L	1.	12/31/2003	13:35	AJH	EPA 160.2
Potassium, Total	7440-09-7	< MDL	mg/L	0.1	01/20/2004	10:31	BRJ	EPA 7610
Selenium, Total Recoverable	7782-49-2	< MDL	mg/L	0.0002	01/13/2004	18:09	LRP	EPA 6020
Silver, Total	7440-22-4	< MDL	mg/L	0.01	01/13/2004	16:32	LMJ	EPA 6010B
Sodium, Total	7440-23-5	< MDL	mg/L	0.1	01/20/2004	9:38	BRJ	EPA 7770
Strontium, Total	7440-24-6	< MDL	mg/L	0.05	01/13/2004	16:32	LMJ	EPA 6010B
Sulfate, Total	14808-79-8	< MDL	mg/L	1.	01/16/2004	9:00	GMP	EPA 375.4
Thallium, Total Recoverable	7440-28-0	< MDL	mg/L	0.0001	01/13/2004	18:09	LRP	EPA 6020
Total Kjeldahl Nitrogen		0.04	mg/L	0.02	01/12/2004	14:02	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	01/13/2004	16:32	LMJ	EPA 6010B
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	01/13/2004	16:32	LMJ	EPA 6010B

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

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Customer Address: Mark Boggs, LAB 2C-N
Jack Milligan, CST17B-C
Phone: Debbie Nunn, HB 2A-C
Fax : Not Available
E-Mail: GroundwaterWells

Location Code: KIF
Field ID: EQUIPMENT BLANK
Sample Description: SUPER Q THROUGH SAMPLE TUBE

Sample ID: AD20932 **LRF ID:** 03120357
Matrix: Water **Reg:** RCRA
Date Collected: 12/29/2003
Time Collected: 15:55 EST
Date Received: 12/30/2003
Time Received: 11:27
Project Manager: Randall L. Howell

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference

Sample Comments: None

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit

Central Laboratories Services data report number 040126-163347 was electronically approved using Labworks Enterprise Version 5.7, Build 255 on 01/23/2004 at 11:51 by Randall L. Howell.

Vanessa L. Ramey, Lab Director
Lisa D. Ortiz, Product Manager
Randall L. Howell, Product Manager
Ricardo I. Gilbert, Senior Analytical Chemist

This report contains sample results for the following samples, Login Reference File number: 03120357

AD20926
AD20927
AD20928
AD20929
AD20930
AD20931
AD20932

[1] Chemical Abstracts Service Registry Number [2] Method Detection Limit