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

July 14, 2006

Mr. David Fugate, P.G.
Geologist
Knoxville Environmental Field Office
Division of Solid Waste Management
Tennessee Department of Environment
and Conservation
2700 Middlebrook Pike, Suite 220
Knoxville, Tennessee 37921-5602

TENNESSEE VALLEY AUTHORITY – KINGSTON FOSSIL PLANT – ASH DISPOSAL AREA – IDL 73-0094 – JUNE 2006 GROUNDWATER MONITORING REPORT

Dear Mr. Fugate:

Please find enclosed the groundwater monitoring report for samples collected June 6, 2006 at designated compliance wells surrounding the subject facility. Laboratory data from the analyses of samples collected during this monitoring event is summarized in Table 1. Analytical results indicate there were no primary MCL or statistical exceedences in any of the samples.

Other supporting information with this submittal includes:

- A description of groundwater conditions at the time of sampling including a potentiometric surface map based on water-level measurements made on June 6, 2006 in wells located in vicinity of the facility (Figure 1).
- Field Data Sheets (Appendix A).
- Sample custody record (Appendix B).
- Laboratory Data Sheets (Appendix C).

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.

If you have questions regarding the report, please contact Amos Smith at (423) 751-3522 or Linda Campbell at (865) 717-2157.

Steven C. Strunk
Acting Manager of Permitted Programs
Environmental Affairs
5D Lookout Place

Enclosures

A60 060714 500
Env. Document Type: Solid Waste Correspondence

July 14, 2006

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EDM, WT CA-K
Prepared by J. Mark Boggs, reviewed by Amos L. Smith

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

GROUNDWATER MONITORING REPORT
JUNE 2006 SAMPLING EVENT

Prepared by

J. Mark Boggs, PG (3671)

Tennessee Valley Authority
Knoxville, Tennessee

July 14, 2006

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INTRODUCTION

This report contains groundwater monitoring results for samples collected on June 6, 2006 from the four designated compliance wells surrounding the Kingston Fossil Plant (KIF) ash disposal area. These data represent the second set of compliance monitoring data for the facility following two years of quarterly baseline monitoring. Groundwater samples were analyzed by the TVA Environmental Chemistry Laboratory, an EPA-certified laboratory. Sample collection and laboratory analyses 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 performed by J.E. Stockburger and S.W. Hickman at upgradient well 16A and downgradient wells 4B, 6A and 13B. Dedicated Grundfos Rediflow submersible pumps were used for purging and sampling all wells. Duplicate samples were collected from well 13B, and an equipment blank was collected after well 6A. 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 a minimum of two well volumes 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 groundwater monitoring 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 June 9. A copy of the sample custody form 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 June 30 are summarized in Table 1. The laboratory report presented in Appendix C includes analytical methods and detection limits for each constituent. Constituent concentrations reported for all samples were below drinking water maximum contaminant limits (MCL).

All analytical testing was performed within recommended sample holding times. There were no detections of the required 17 inorganic constituents in the equipment blank.

STATISTICAL EVALUATION

Statistical analysis of the sample analytical data was performed using non-parametric prediction intervals (NPI) applied on an intrawell basis. A description of the NPI method, the rationale for its selection, and specifics regarding application to the KIF facility groundwater detection monitoring program in the July 25, 2005 monitoring report. The analytical results presented in Table 1 indicate that none of the constituent concentrations for any of the groundwater samples exceed statistical upper prediction limits (UPL).

HYDROGEOLOGIC CONDITIONS

The Kingston plant site is located in the Valley and Ridge physiographic province of the Appalachian Highlands region. This region is characterized by a sequence of long narrow ridges and valleys trending northeast-southwest. In general, ridges are formed by relatively resistant sandstone, limestone, and dolomite units while the valleys are underlain by soluble limestone and easily weathered shale. The controlling structural feature of the site is a series of northeast-striking thrust faults which has forced older Cambrian and Ordovician rocks over younger units. Bedrock dips southeast at angles ranging from a few degrees to about 90 degrees.

The ash pond area is immediately underlain by Quaternary alluvium ranging in thickness from about 1.5 m along a portion of the northern perimeter of the site to maximum of

Table 1. June 6, 2006 Groundwater Monitoring Results

Analytical Results for Appendix 1 Inorganic Constituents						Upper Prediction Limit			MCL	Comparison to UPL[a]		
		Well No.										
Parameter	Units	4B downgradient	6A downgradient	13B[b] downgradient	16A upgradient	4B	6A	13B		4B	6A	13B
Antimony	µg/L	< 3	4	< 3	< 3	6	6	6	6	L	L	L
Arsenic	µg/L	< 1	3	< 1	< 1	10	14	10	50	L	L	L
Barium	µg/L	50	90	395	50	2000	2000	2000	2,000	L	L	L
Beryllium	µg/L	< 1	< 1	< 1	< 1	4	4	4	4	L	L	L
Cadmium	µg/L	0.3	0.1	< 0.1	< 0.1	5	5	5	5	L	L	L
Chromium	µg/L	5	1	< 1	< 1	100	100	100	100	L	L	L
Cobalt	µg/L	1	< 1	< 1	< 1	23	17	6	--	L	L	L
Copper	µg/L	100	< 10	< 10	< 10	1000	1000	1000	1,000	L	L	L
Fluoride	µg/L	160	< 100	185	470	4000	4000	4000	4,000	L	L	L
Lead	µg/L	1	< 1	< 1	< 1	15	15	15	50	L	L	L
Mercury	µg/L	< 0.1	< 0.1	< 0.1	< 0.1	2	2	2	2	L	L	L
Nickel	µg/L	5	< 1	< 1	< 1	100	100	100	--	L	L	L
Selenium	µg/L	< 1	< 1	< 1	< 1	50	50	50	50	L	L	L
Silver	µg/L	< 10	< 10	< 10	< 10	100	190	100	100	L	L	L
Thallium	µg/L	< 2	2	< 2	< 2	2	2	2	2	L	L	L
Vanadium	µg/L	< 10	< 10	< 10	< 10	10	150	10	--	L	L	L
Zinc	µg/L	50	< 10	< 10	< 10	5000	5000	5000	5,000	L	L	L

a - "L" = less than or equal to UPL, "G" = greater than UPL.

b - reported concentrations are averages of duplicate samples

c - assumed UPL equal to 90th percentile of TVA valley-wide groundwater measurements

20 m on the western boundary. The alluvial deposits are unconsolidated and lenticular, and consist of clay, silt, and sand with occasional gravel. A thin layer of residuum is occasionally present directly above bedrock. The residuum is typically composed of clay and silt with weathered fissile shale fragments.

Bedrock beneath the alluvial deposits at the disposal site is primarily represented by the Conasauga Group (middle to upper Cambrian age). The only exception is a small area along the northern margin of the site underlain by the Rome formation (lower Cambrian age). Specific geologic units within the Conasauga Group represented at the site include the Nolichucky, Maryville, Rogersville, Rutledge, and Pumpkin Valley formations. These formations are locally of low water-producing capacity, and predominantly consist of shale with interbedded siltstone, limestone, and conglomerate. Total thickness of the Conasauga Group beneath the site is unknown but is estimated to be approximately 450 meters. The Rome formation is generally composed of interbedded shale, sandstone, and siltstone. The elevation of the top of rock in the ash pond area is relatively uniform, varying from approximately 213 to 218 m-MSL. Outside this area the bedrock surface rises steeply to the west and southwest. The lower bedrock terrace corresponding to the disposal area represents an erosion surface associated with the ancestral Emory River.

Groundwater movement at the site generally follows topography with groundwater flowing eastward and southeastward from Pine Ridge toward the reservoir. Groundwater originating on, or flowing beneath, the ash pond area ultimately discharges to the reservoir without traversing private property.

Groundwater levels measured in site monitoring wells on June 6 prior to sample collection are presented in Table 2. The groundwater potentiometric surface derived from these measurements is shown on Figure 1. Groundwater generally flows eastward across the ash disposal area toward the reservoir. An average hydraulic gradient of approximately 0.0073 is estimated between the western and eastern boundaries of the disposal area. 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 4.4×10^{-5} m/d.

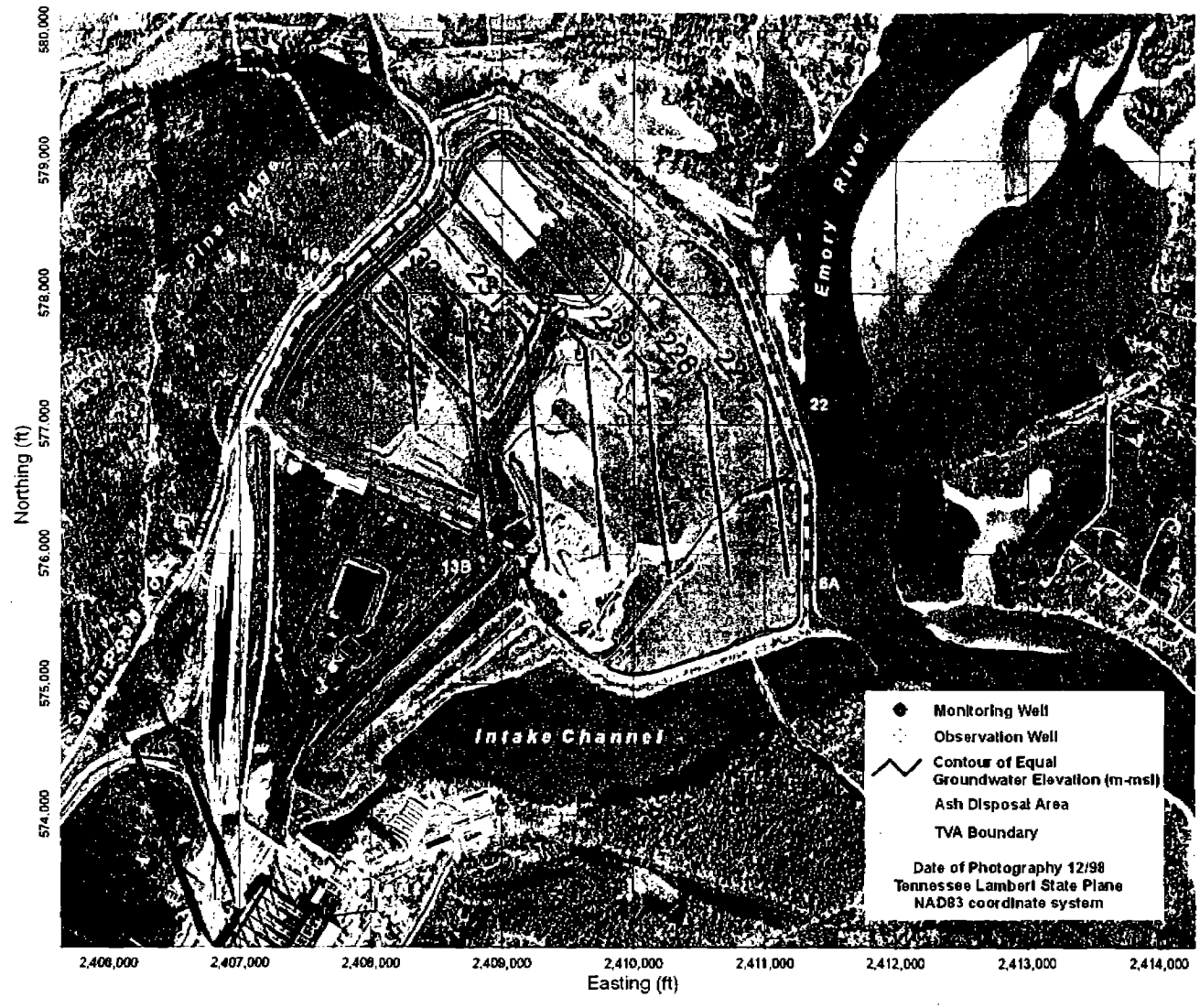

Figure 1. Groundwater Potentiometric Surface on June 6, 2006

Table 2. Groundwater Levels Measured on June 6, 2006

Well No.	Top of Casing Elevation (m)	Depth to Water (m)	Water Elevation (m mls)	Well Bottom Depth (m)
4B	230.72	3.97	226.75	12.72
6A	230.13	3.44	226.69	8.88
13B	234.85	2.78	232.07	25.68
16A	234.26	0.16	234.10	20.16

CONCLUSIONS

Groundwater analytical data for the June 6 sampling event showed no statistical evidence of groundwater contamination from the ash disposal area. Concentrations of the 17 Appendix I inorganic constituents were below MCLs in all samples.

APPENDIX A

FIELD DATA SHEETS

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Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston	4B		[illegible]	[illegible]	[illegible]

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
3.97 (4195)	12.72 (4184)	102 (4166)	[illegible]	[illegible]

☒ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	☒ Unfiltered ☐ Filtered ☐ Both
10.37 (4191)		12.83 (4190)	KIF660666	Filter Type and Size

Bottom of Well	-	Depth to Water	x	Volume Factor	=	Well Volume	Target Purge Volume	Actual Purge Volume
12.72 (m)	-	3.97 (m)	x	8.107	(L/m) =	70.9	141.9	9.3 (4158)

Purge Pump: ☐ Bladder ☒ Centrifugal ~~☒ Peristaltic~~ ~~☒ Dedicated~~ Other (list): Dedicated [illegible]

Sample Pump: ☐ Bladder ☒ Centrifuge ☒ ~~Peristaltic~~ ~~☒ Dedicated~~ Other (list):

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 →	929	[illegible]	3.97	12.5						
	931		[illegible]	12.5	15.6	6.6	6.2	1584	319	—
	933	6.4	7.60	12.5	15.7	6.6	6.1	1527	321	—
	9:35		[illegible]	12.5	15.8	6.6	6.3	1516	342	—
	[illegible]47	4.2	[illegible]	12.5	15.9	6.6	[illegible]	1474	[illegible]	—
	[illegible]		[illegible]	12.5	16	6.6	3.4	1432	410	—
	[illegible]		12.81	12.5	16.2	6.6	2.7	1401	395	—
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]					
[illegible]	1003	4.6	10.47	12.5	RESUME	PURGE				
	10.10		10.74	12.5	16.3	6.65	6.4	1133	334	—
	1012	1.2	11.5	12.5	16.9	6.65	6.5	1127	317	—
	10.14		11.46	12.5	17.5	6.6	6.5	1122	322	

Remarks:

Reviewed By: [signature] Survey Leader [illegible] Date [signature] Project Leader Date

Sample Collector	[illegible]
Sample Date	Time
Year / Month / Day	ET / CT
Pump Duration	min 72004

72007 > 2 days

Sample Readings

Analysis Time ET / CT	Pump Rate (L/min) (4190)	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
10.14	1.2	11.46	12.5	17.5	6.6	6.5	[illegible]	[illegible]	—

Additional Sample Data

Analyst: [illegible]	415	410	436	437
Date Analyzed (Year / Month / Day)	Pheno. Alkalinity mg/L (EPA 310.1)	Total Alk. mg/L (EPA 310.1)	Mineral Acidity mg/L (EPA 305.1)	CO_2 Acidity mg/L (EPA 305.1)
	Time	Time [illegible]	Time	Time [illegible]
	Initial	Initial [illegible]	Initial	Initial [illegible]

Values: 284 ; 77

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)	18.239

Turbidity (135): ☒ Clear ☐ Turbid ☐ Slightly Turbid ☐ Highly Turbid

Color:

Odor:

Bottles Required: ☐ Phenol ☒ Mineral ☐ Phenol Others (list):

☐ BOD ☐ TOC ☒ Metals ☐ Dis. Minerals ☐ Fill TOC

☐ COD ☒ TO ☐ Dis. Metals ☒ Nutrient ☐ TSS, TDS

Distribution: (1) Original = Data Mgmt. (2) Pink = Survey Leader

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Preliminary Groundwater Data Field Worksheet

Sheet 1 of

Project/Site	Well Number	Purge Date Year	Month	Day
KINGSTON	6A	06	06	06

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
3.44	7.88	102	JES	[illegible]

☑ Depth of Screen ☐ Open Bore Hole

(m)	To (m)	Sample Label	☑ Unfiltered ☐ Filtered ☐ Both
8.47	8.92	KIF-6A-060606	Filter Type and Size

(Bottom of Well - Depth to Water) x Volume Factor	Well Volume	Target Purge Volume	Actual Purge Volume
(8.88 (m) - 3.44 (m)) x 8.107 (L/m) =	44.1	88.2	[illegible]

Purge Pump: ☐ Bladder ☐ Centrifuge ☐ Peristaltic ☑ Dedicated Other (list):

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

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	9:00	10	3.44	[illegible]						
[illegible]	9:02	8	[illegible]	[illegible]	17.2	[illegible]	6.2	[illegible]	327	
[illegible]	9:07		8.2		17.6	5.8	6.4	[illegible]	364	
					[illegible]					
			[illegible]							
[illegible]	15:23	[illegible]	[illegible]	[illegible]						
[illegible]	15:25		4.86		17.4	5.7	6.2	[illegible]	197	
	~~[illegible]~~									
[illegible]	15:26				17.5	5.7	6.2	[illegible]	197	

Remarks:

Reviewed By: [illegible signature] [illegible date] [illegible signature]

Survey Leader Date Project Leader Date

Sample Collector	Sample Date Year	Month	Day	Time
[illegible]	06	06	06	[illegible]

Pump Duration (min): [illegible] 7200- 1995* = 5 days

Sample Readings

Analysis Time ET / CT	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 2580	Turbidity (NTU) EPA 180.1
4190	4193		4192	10	400	300	94	90	
[illegible]	6	4.86	[illegible]	[illegible]	5.7	6.2	[illegible]	[illegible]	

Additional Sample Data

Analyst: [illegible]

Date Analyzed	415 Pheno 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)
Year / Month / Day: [illegible]	Time / Initial	Time: [illegible] / Initial: [illegible]	Time: [illegible] / Initial: [illegible]	Time: [illegible] / Initial: [illegible]

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)	12.568
152	(6 in)	18.229

Turbidity (Obs): ☐ Clear ☐ Turbid ☑ Slightly Turbid ☐ Highly Turbid

Color: [illegible]

Odor: [illegible]

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

☐ BOD ☐ TOC ☑ Metals ☐ Dis. Minerals ☐ Fil. TOC

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

Distribution: (1) Original - Data Mgmt. (2) Pink - Survey Leader

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Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
KINGSTON	138 (4008)		06	06	06

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
2.78 (4135)	25.68 (4194)	51 (4136)	JES	Smith

☑ Depth of Screen ☐ Open Bore Hole

(m) 22.29 (4191) to 25.34

Sample Label: KIF-138-060606
Dup: KIF-138-060606-Dup

☑ Unfiltered ☐ Filtered ☐ Both
Filter Type and Size

Bottom of Well	− Depth to Water	× Volume Factor	Well Volume	Target Purge Volume	Actual Purge Volume
25.68 m	2.78 (m)	2.027 L/m	46.4	92.8 L	104 (4118)

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

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

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 →	1237	8	2.78	10						
24	1240	8	8.48	10	16.3	7.1	6.2	381	31	
64	1245	8	10.32	10	16.5	7.7	6.1	399	-13	
104	1250		10.39	10	16.5	7.7	6.1	394	-17	

Remarks: [illegible]

Reviewed By: [signature] Survey Leader [illegible] Date [signature] Project Leader [illegible] Date

Sample Collector: [illegible]

Sample Date Year	Month	Day	Time
06	6	6	1250 ET/CT

Purge Duration: 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) EPA 170.1 10	pH (s.u.) EPA 150.1 400	DO (mg/L) EPA 360.1 300	COND (umhos/cm) EPA 120.1 94	(+/-) ORP (mV) SM 2580B 90	Turbidity (NTU) EPA 180.1
1250	8	10.39	10	16.5	7.7	6.1	394	-17	--

Additional Sample Data

Analyst: [illegible]

Date Analyzed Year	Month	Day
[illegible]	[illegible]	[illegible]

	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		[illegible]		[illegible]
Initial		[illegible]		[illegible]

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)	18.239

Turbidity (list): ☐ 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

TVA-00026629

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Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
KINGSTON	16A 04008		06	06	06

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
0.16 4195	20.16 4194	51 4198		

☒ Depth to Screen ☐ Open Bore Hole

16.93 (m) To 20.03 (m) 4.850

Sample Label: KIF-16A-060606

☒ Unfiltered ☐ Filtered ☐ Both

Filter Type and Size

Bottom of Well	-	Depth to Water	x	Volume Factor	=	Well Volume	Target Purge Volume	Actual Purge Volume
20.16 (m)	-	0.16 (m)	x	2.027 (L/m)	=	40.5	81	122 4185

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

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

Notes and WQ Observations	Time EST/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	1205	16.5		6.67						
	1207		3.25	6.7	16.4	6.9	6.9	342	32	—
	1210		3.26	6.7	16.4	6.9	6.2	344	25	—
	[illegible]									
	1212	[illegible]								
	1215	[illegible]			16.3	7				—
	1220		3.54		16.35	7	7.1	355	23	—

Remarks: [illegible]

Reviewed By: [illegible] Survey Leader [illegible] Date [illegible] Project Leader [illegible] Date

Sample Collector	
Sample Date	Time
Year 06 Month 06 Day 06	EST/CT
Pump Duration	15 min 72004

"1995" + 2 days

Sample Readings

Analysis Time EST/CT	Pump Rate (L/min) 4153	Depth to Water (m)	Pump Depth (m) 4132	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
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	—

Additional Sample Data

Analyst: [illegible]

Date Analyzed		
Year	Month	Day

Turbidity: ☒ 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	Time	Time
Initial	Initial	Initial	Initial

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
152	(6 in)	18.208

Bottles Required: ☐ Fenitrs ☐ Minerals ☐ Phenol Others (List)

☐ BOD ☐ TOC ☒ Metals ☐ Dis. Minerals ☐ Filt TOC

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

Distribution: (1) Original - Data Mgmt (2) Pink - Survey Leader

APPENDIX B

SAMPLE CUSTODY RECORD

RCRA
100%

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

FORM CONTROL # 24748

PROJECT ID: KINGSTON GROUNDWATER

REFERENCE: ☑ WORKPLAN ☐ OTHER

ACCT NO.

DATE REQUIRED: 06-28-06

RESULTS TO: MARK BOGGS

LAB USE ONLY

TEST IDC'S: ① SICPW, SICPW2 (scratch Si, Sn, Ti), SBW, ASW, CDW, CLW, CRW, COW, #TDS, #TSS, FLW, TICW, PBW, HGW, DIGICP, DIGHGA, DIGCVA, NIW, KW, SEW, VAW, SO4W, TLW

② NO32NW, #TKNW, NH3NW

DATE RECEIVED: 6-9-06

DAYS DUE: 6-22-06

PROJECT LEADER: RDS LIF-06060160

NO. LABELS:

LAB USE ONLY LAB ID	FIELD ID	SAMPLE DESCRIPTION	SAMPLE MATRIX	DATE/TIME COLLECTED	NO. OF BOTTLES	Loc. Codes ~~ADDITIONAL IDOS~~
AG40191	KIF-4B-060606	GROUNDWATER M, MIN, TIC, N	H2O	06/06/06 1014	4	KIF-4B ① ②
40192	KIF-6A-060606			1326	4	KIF-6A ① ②
40193	KIF-13B-060606			1250	4	KIF-13B ① ②
40194	KIF-13B-060606-Dup			"	4	KIF-13B ① ②
40195	KIF-16A-060606			1220	4	KIF-16A ① ②
40196	KIF-22-060706			06/07/06 1052	1	KIF-22 ②
40197	EQUIPMENT BLANK	Super Auger Equipment M, MIN, TIC, N		" 1330	4	KIF ① ②

FIELD COMMENTS

ANALYSIS REQUESTED: per workplan

Generator Statement of RCRA Laboratory Sample Regulatory Status

As generator of this material, I have disclosed to TVA Environmental Chemistry all knowledge of the regulatory status of the sample(s) in regard to the definitions in 40 CFR part 261 sub part C, Characteristics of Hazardous Waste and sub part D, Lists of Hazardous Waste which are outside the scope of the analyses requested.

Signed _____ Date _____
(Generator)

SUBMITTED BY: [signature] DATE/TIME: 06/08/06

LABORATORY COMMENTS

RECEIVED BY: [signature] DATE/TIME: 6/9/06 10:39

JUN 9'06 10:39

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

TVA 30488 (1-1999)

PAGE 1 OF 1

TVA-00026632

APPENDIX C

LABORATORY DATA SHEETS

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM

Location Code: KIF-4B
Field ID: KIF-4B-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40191 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 10:14 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	0.9	mg/L	0.2	06/16/2006	12:58	LMJ	EPA 6010
Ammonia as N	7664-41-7	0.09	mg/L	0.01	06/15/2006	12:07	ADP	EPA 350.1
Antimony,Total	7440-36-0	< MDL	mg/L	0.003	06/27/2006	13:58	JBR	EPA 7041
Arsenic, Total	7440-38-2	< MDL	mg/L	0.001	06/22/2006	4:43	ABM	EPA 7060A
Barium, Total	7440-39-3	0.05	mg/L	0.01	06/16/2006	12:58	LMJ	EPA 6010
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	06/16/2006	12:58	LMJ	EPA 6010
Boron, Total	7440-42-8	< MDL	mg/L	0.2	06/16/2006	12:58	LMJ	EPA 6010
Cadmium, Total	7440-43-9	0.0003	mg/L	0.0001	06/27/2006	10:52	JBR	EPA 7131
Calcium, Total	7440-70-2	200	mg/L	0.3	06/16/2006	12:58	LMJ	EPA 6010
Chloride, Total	16887-00-6	5.0	mg/L	1.	06/22/2006	14:59	GMP	EPA 325.2
Chromium, Total	7440-47-3	0.005	mg/L	0.001	06/22/2006	22:14	ABM	EPA 7191
Cobalt, Total	7440-48-4	0.001	mg/L	0.001	06/22/2006	17:36	JBR	EPA 7201
Copper, Total	7440-50-8	0.10	mg/L	0.01	06/16/2006	12:58	LMJ	EPA 6010
Filterable Residue		860.	mg/L	10.	06/13/2006	15:07	AJH	EPA 160.1
Fluoride, Total	16984-48-8	0.16	mg/L	0.1	06/22/2006	15:00	GMP	EPA 340.2
Inorganic Carbon, Total		67	mg/L	1.	06/15/2006	8:29	ADP	ASTM477988
Iron, Total	7439-89-6	2.0	mg/L	0.03	06/16/2006	12:58	LMJ	EPA 6010
Lead , Total	7439-92-1	0.001	mg/L	0.001	06/26/2006	17:40	JBR	EPA 7421
Magnesium. Total	7439-95-4	18	mg/L	0.03	06/16/2006	12:58	LMJ	EPA 6010
Manganese, Total	7439-96-5	1.2	mg/L	0.005	06/16/2006	12:58	LMJ	EPA 6010
Mercury, Total	7439-97-6	<MDL	mg/L	0.0001	06/21/2006	10:58	CLS	EPA 7470
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	06/16/2006	12:58	LMJ	EPA 6010
Nickel, Total	7440-02-0	0.005	mg/L	0.001	06/22/2006	20:13	ABM	EPA 7521
Nitrate-Nitrite as N		0.21	mg/L	0.01	06/15/2006	19:26	ADP	EPA 353.2
Non-Filterable Residue		25.	mg/L	1.	06/12/2006	9:59	AJH	EPA 160.2
Potassium, Total	7440-09-7	8.8	mg/L	0.1	06/28/2006	10:39	JBR	EPA 7610
Selenium, Total	7782-49-2	< MDL	mg/L	0.001	06/26/2006	11:40	JBR	EPA 7740
Silver, Total	7440-22-4	< MDL	mg/L	0.01	06/16/2006	12:58	LMJ	EPA 6010
Sodium, Total	7440-23-5	7.3	mg/L	0.1	06/28/2006	11:27	JBR	EPA 7770
Strontium, Total	7440-24-6	0.40	mg/L	0.05	06/16/2006	12:58	LMJ	EPA 6010
Sulfate, Total	14808-79-8	390	mg/L	1.	06/20/2006	14:19	GMP	EPA 375.4
Thallium, Total	7440-28-0	< MDL	mg/L	0.002	06/27/2006	16:57	JBR	EPA 7841
Total Kjeldahl Nitrogen		0.30	mg/L	0.02	06/20/2006	16:00	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	06/16/2006	12:58	LMJ	EPA 6010
Zinc, Total	7440-66-6	0.05	mg/L	0.01	06/16/2006	12:58	LMJ	EPA 6010

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

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-4B
Field ID: KIF-4B-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40191 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 10:14 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

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

Sample Comments: None

$ICPW2 - SCRATCH SI, SN, TI

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

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-6A
Field ID: KIF-6A-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40192 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 13:26 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	< MDL	mg/L	0.2	06/16/2006	13:02	LMJ	EPA 6010
Ammonia as N	7664-41-7	18	mg/L	0.01	06/15/2006	12:07	ADP	EPA 350.1
Antimony,Total	7440-36-0	0.004	mg/L	0.003	06/27/2006	14:04	JBR	EPA 7041
Arsenic, Total	7440-38-2	0.003	mg/L	0.001	06/22/2006	4:48	ABM	EPA 7060A
Barium, Total	7440-39-3	0.09	mg/L	0.01	06/16/2006	13:02	LMJ	EPA 6010
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	06/16/2006	13:02	LMJ	EPA 6010
Boron, Total	7440-42-8	0.7	mg/L	0.2	06/16/2006	13:02	LMJ	EPA 6010
Cadmium, Total	7440-43-9	0.0001	mg/L	0.0001	06/27/2006	10:57	JBR	EPA 7131
Calcium, Total	7440-70-2	240	mg/L	0.3	06/16/2006	13:02	LMJ	EPA 6010
Chloride, Total	16887-00-6	7.3	mg/L	1.	06/22/2006	14:59	GMP	EPA 325.2
Chromium, Total	7440-47-3	0.001	mg/L	0.001	06/22/2006	22:21	ABM	EPA 7191
Cobalt, Total	7440-48-4	< MDL	mg/L	0.001	06/22/2006	17:42	JBR	EPA 7201
Copper, Total	7440-50-8	< MDL	mg/L	0.01	06/16/2006	13:02	LMJ	EPA 6010
Filterable Residue		5500.	mg/L	10.	06/13/2006	15:08	AJH	EPA 160.1
Fluoride, Total	16984-48-8	< MDL	mg/L	0.1	06/22/2006	15:00	GMP	EPA 340.2
Inorganic Carbon, Total		110	mg/L	1.	06/15/2006	8:36	ADP	ASTM477988
Iron, Total	7439-89-6	1100	mg/L	0.03	06/16/2006	13:02	LMJ	EPA 6010
Lead , Total	7439-92-1	< MDL	mg/L	0.001	06/26/2006	17:45	JBR	EPA 7421
Magnesium. Total	7439-95-4	85	mg/L	0.03	06/16/2006	13:02	LMJ	EPA 6010
Manganese, Total	7439-96-5	200	mg/L	0.005	06/16/2006	13:02	LMJ	EPA 6010
Mercury, Total	7439-97-6	<MDL	mg/L	0.0001	06/21/2006	11:10	CLS	EPA 7470
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	06/16/2006	13:02	LMJ	EPA 6010
Nickel, Total	7440-02-0	< MDL	mg/L	0.001	06/22/2006	20:18	ABM	EPA 7521
Nitrate-Nitrite as N		< MDL	mg/L	0.01	06/15/2006	19:26	ADP	EPA 353.2
Non-Filterable Residue		120.	mg/L	1.	06/12/2006	9:59	AJH	EPA 160.2
Potassium, Total	7440-09-7	8.4	mg/L	0.1	06/28/2006	10:44	JBR	EPA 7610
Selenium, Total	7782-49-2	< MDL	mg/L	0.001	06/26/2006	11:45	JBR	EPA 7740
Silver, Total	7440-22-4	< MDL	mg/L	0.01	06/16/2006	13:02	LMJ	EPA 6010
Sodium, Total	7440-23-5	10	mg/L	0.1	06/28/2006	11:32	JBR	EPA 7770
Strontium, Total	7440-24-6	0.71	mg/L	0.05	06/16/2006	13:02	LMJ	EPA 6010
Sulfate, Total	14808-79-8	3000	mg/L	1.	06/20/2006	14:32	GMP	EPA 375.4
Thallium, Total	7440-28-0	0.002	mg/L	0.002	06/27/2006	17:03	JBR	EPA 7841
Total Kjeldahl Nitrogen		17	mg/L	0.02	06/20/2006	16:00	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	06/16/2006	13:02	LMJ	EPA 6010
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	06/16/2006	13:02	LMJ	EPA 6010

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

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-6A
Field ID: KIF-6A-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40192 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 13:26 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

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

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-13B
Field ID: KIF-13B-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40193 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 12:50 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	< MDL	mg/L	0.2	06/16/2006	13:09	LMJ	EPA 6010
Ammonia as N	7664-41-7	0.16	mg/L	0.01	06/15/2006	12:07	ADP	EPA 350.1
Antimony,Total	7440-36-0	< MDL	mg/L	0.003	06/27/2006	14:10	JBR	EPA 7041
Arsenic, Total	7440-38-2	< MDL	mg/L	0.001	06/22/2006	4:54	ABM	EPA 7060A
Barium, Total	7440-39-3	0.40	mg/L	0.01	06/16/2006	13:09	LMJ	EPA 6010
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	06/16/2006	13:09	LMJ	EPA 6010
Boron, Total	7440-42-8	< MDL	mg/L	0.2	06/16/2006	13:09	LMJ	EPA 6010
Cadmium, Total	7440-43-9	< MDL	mg/L	0.0001	06/27/2006	11:03	JBR	EPA 7131
Calcium, Total	7440-70-2	16	mg/L	0.3	06/16/2006	13:09	LMJ	EPA 6010
Chloride, Total	16887-00-6	2.8	mg/L	1.	06/22/2006	14:59	GMP	EPA 325.2
Chromium, Total	7440-47-3	< MDL	mg/L	0.001	06/22/2006	22:27	ABM	EPA 7191
Cobalt, Total	7440-48-4	< MDL	mg/L	0.001	06/22/2006	17:47	JBR	EPA 7201
Copper, Total	7440-50-8	< MDL	mg/L	0.01	06/16/2006	13:09	LMJ	EPA 6010
Filterable Residue		250.	mg/L	10.	06/13/2006	15:08	AJH	EPA 160.1
Fluoride, Total	16984-48-8	0.18	mg/L	0.1	06/22/2006	15:00	GMP	EPA 340.2
Inorganic Carbon, Total		54	mg/L	1.	06/15/2006	8:42	ADP	ASTM477988
Iron, Total	7439-89-6	0.12	mg/L	0.03	06/16/2006	13:09	LMJ	EPA 6010
Lead , Total	7439-92-1	< MDL	mg/L	0.001	06/26/2006	17:50	JBR	EPA 7421
Magnesium. Total	7439-95-4	2.2	mg/L	0.03	06/16/2006	13:09	LMJ	EPA 6010
Manganese, Total	7439-96-5	0.085	mg/L	0.005	06/16/2006	13:09	LMJ	EPA 6010
Mercury, Total	7439-97-6	<MDL	mg/L	0.0001	06/21/2006	11:12	CLS	EPA 7470
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	06/16/2006	13:09	LMJ	EPA 6010
Nickel, Total	7440-02-0	< MDL	mg/L	0.001	06/22/2006	20:24	ABM	EPA 7521
Nitrate-Nitrite as N		< MDL	mg/L	0.01	06/15/2006	19:26	ADP	EPA 353.2
Non-Filterable Residue		< MDL	mg/L	1.	06/12/2006	9:59	AJH	EPA 160.2
Potassium, Total	7440-09-7	3.5	mg/L	0.1	06/28/2006	10:47	JBR	EPA 7610
Selenium, Total	7782-49-2	< MDL	mg/L	0.001	06/26/2006	11:51	JBR	EPA 7740
Silver, Total	7440-22-4	< MDL	mg/L	0.01	06/16/2006	13:09	LMJ	EPA 6010
Sodium, Total	7440-23-5	81	mg/L	0.1	06/28/2006	11:40	JBR	EPA 7770
Strontium, Total	7440-24-6	0.31	mg/L	0.05	06/16/2006	13:09	LMJ	EPA 6010
Sulfate, Total	14808-79-8	1.1	mg/L	1.	06/20/2006	14:45	GMP	EPA 375.4
Thallium, Total	7440-28-0	< MDL	mg/L	0.002	06/27/2006	17:08	JBR	EPA 7841
Total Kjeldahl Nitrogen		0.18	mg/L	0.02	06/20/2006	16:00	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	06/16/2006	13:09	LMJ	EPA 6010
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	06/16/2006	13:09	LMJ	EPA 6010

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

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-13B
Field ID: KIF-13B-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40193 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 12:50 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

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

Sample Comments: Chloride data confirmed.
K data confirmed by historical data.

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

Data Report Number: 060630-153147
Report of Results: Environmental

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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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-13B
Field ID: KIF-13B-060606-DUP
Sample Description: KIF GROUNDWATER

Sample ID: AG40194 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 12:50 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	< MDL	mg/L	0.2	06/16/2006	13:14	LMJ	EPA 6010
Ammonia as N	7664-41-7	0.13	mg/L	0.01	06/15/2006	12:07	ADP	EPA 350.1
Antimony,Total	7440-36-0	< MDL	mg/L	0.003	06/27/2006	14:15	JBR	EPA 7041
Arsenic, Total	7440-38-2	< MDL	mg/L	0.001	06/22/2006	4:59	ABM	EPA 7060A
Barium, Total	7440-39-3	0.39	mg/L	0.01	06/16/2006	13:14	LMJ	EPA 6010
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	06/16/2006	13:14	LMJ	EPA 6010
Boron, Total	7440-42-8	< MDL	mg/L	0.2	06/16/2006	13:14	LMJ	EPA 6010
Cadmium, Total	7440-43-9	< MDL	mg/L	0.0001	06/27/2006	11:08	JBR	EPA 7131
Calcium, Total	7440-70-2	16	mg/L	0.3	06/16/2006	13:14	LMJ	EPA 6010
Chloride, Total	16887-00-6	2.8	mg/L	1.	06/22/2006	14:59	GMP	EPA 325.2
Chromium, Total	7440-47-3	< MDL	mg/L	0.001	06/22/2006	22:33	ABM	EPA 7191
Cobalt, Total	7440-48-4	< MDL	mg/L	0.001	06/22/2006	17:52	JBR	EPA 7201
Copper, Total	7440-50-8	< MDL	mg/L	0.01	06/16/2006	13:14	LMJ	EPA 6010
Filterable Residue		240	mg/L	10.	06/13/2006	15:09	AJH	EPA 160.1
Fluoride, Total	16984-48-8	0.19	mg/L	0.1	06/22/2006	15:00	GMP	EPA 340.2
Inorganic Carbon, Total		50	mg/L	1.	06/15/2006	8:48	ADP	ASTM477988
Iron, Total	7439-89-6	0.10	mg/L	0.03	06/16/2006	13:14	LMJ	EPA 6010
Lead , Total	7439-92-1	< MDL	mg/L	0.001	06/26/2006	17:56	JBR	EPA 7421
Magnesium. Total	7439-95-4	2.1	mg/L	0.03	06/16/2006	13:14	LMJ	EPA 6010
Manganese, Total	7439-96-5	0.08	mg/L	0.005	06/16/2006	13:14	LMJ	EPA 6010
Mercury, Total	7439-97-6	<MDL	mg/L	0.0001	06/21/2006	11:15	CLS	EPA 7470
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	06/16/2006	13:14	LMJ	EPA 6010
Nickel, Total	7440-02-0	< MDL	mg/L	0.001	06/22/2006	20:29	ABM	EPA 7521
Nitrate-Nitrite as N		< MDL	mg/L	0.01	06/15/2006	19:26	ADP	EPA 353.2
Non-Filterable Residue		< MDL	mg/L	1.	06/12/2006	9:59	AJH	EPA 160.2
Potassium, Total	7440-09-7	3.4	mg/L	0.1	06/28/2006	10:49	JBR	EPA 7610
Selenium, Total	7782-49-2	< MDL	mg/L	0.001	06/26/2006	11:57	JBR	EPA 7740
Silver, Total	7440-22-4	< MDL	mg/L	0.01	06/16/2006	13:14	LMJ	EPA 6010
Sodium, Total	7440-23-5	79	mg/L	0.1	06/28/2006	11:42	JBR	EPA 7770
Strontium, Total	7440-24-6	0.31	mg/L	0.05	06/16/2006	13:14	LMJ	EPA 6010
Sulfate, Total	14808-79-8	1.0	mg/L	1.	06/20/2006	14:58	GMP	EPA 375.4
Thallium, Total	7440-28-0	< MDL	mg/L	0.002	06/27/2006	17:14	JBR	EPA 7841
Total Kjeldahl Nitrogen		0.16	mg/L	0.02	06/20/2006	16:00	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	06/16/2006	13:14	LMJ	EPA 6010
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	06/16/2006	13:14	LMJ	EPA 6010

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

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-13B
Field ID: KIF-13B-060606-DUP
Sample Description: KIF GROUNDWATER

Sample ID: AG40194 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 12:50 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

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

Sample Comments: None
Chloride data confirmed.
K data confirmed by historical data.

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

Data Report Number: 060630-153147
Report of Results: Environmental

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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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-16A
Field ID: KIF-16A-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40195 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 12:20 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	0.4	mg/L	0.2	06/16/2006	13:18	LMJ	EPA 6010
Ammonia as N	7664-41-7	0.45	mg/L	0.01	06/15/2006	12:07	ADP	EPA 350.1
Antimony,Total	7440-36-0	< MDL	mg/L	0.003	06/27/2006	14:21	JBR	EPA 7041
Arsenic, Total	7440-38-2	< MDL	mg/L	0.001	06/22/2006	5:05	ABM	EPA 7060A
Barium, Total	7440-39-3	0.05	mg/L	0.01	06/16/2006	13:18	LMJ	EPA 6010
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	06/16/2006	13:18	LMJ	EPA 6010
Boron, Total	7440-42-8	< MDL	mg/L	0.2	06/16/2006	13:18	LMJ	EPA 6010
Cadmium, Total	7440-43-9	< MDL	mg/L	0.0001	06/27/2006	11:26	JBR	EPA 7131
Calcium, Total	7440-70-2	41	mg/L	0.3	06/16/2006	13:18	LMJ	EPA 6010
Chloride, Total	16887-00-6	< MDL	mg/L	1.	06/22/2006	14:59	GMP	EPA 325.2
Chromium, Total	7440-47-3	< MDL	mg/L	0.001	06/22/2006	22:39	ABM	EPA 7191
Cobalt, Total	7440-48-4	< MDL	mg/L	0.001	06/22/2006	18:17	JBR	EPA 7201
Copper, Total	7440-50-8	< MDL	mg/L	0.01	06/16/2006	13:18	LMJ	EPA 6010
Filterable Residue		230.	mg/L	10.	06/13/2006	15:09	AJH	EPA 160.1
Fluoride, Total	16984-48-8	0.47	mg/L	0.1	06/22/2006	15:00	GMP	EPA 340.2
Inorganic Carbon, Total		38	mg/L	1.	06/15/2006	8:55	ADP	ASTM477988
Iron, Total	7439-89-6	1.1	mg/L	0.03	06/16/2006	13:18	LMJ	EPA 6010
Lead , Total	7439-92-1	< MDL	mg/L	0.001	06/26/2006	19:09	JBR	EPA 7421
Magnesium. Total	7439-95-4	8.7	mg/L	0.03	06/16/2006	13:18	LMJ	EPA 6010
Manganese, Total	7439-96-5	1.2	mg/L	0.005	06/16/2006	13:18	LMJ	EPA 6010
Mercury, Total	7439-97-6	<MDL	mg/L	0.0001	06/21/2006	11:22	CLS	EPA 7470
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	06/16/2006	13:18	LMJ	EPA 6010
Nickel, Total	7440-02-0	< MDL	mg/L	0.001	06/22/2006	20:35	ABM	EPA 7521
Nitrate-Nitrite as N		< MDL	mg/L	0.01	06/15/2006	19:26	ADP	EPA 353.2
Non-Filterable Residue		10.	mg/L	1.	06/12/2006	9:59	AJH	EPA 160.2
Potassium, Total	7440-09-7	2.9	mg/L	0.1	06/28/2006	10:50	JBR	EPA 7610
Selenium, Total	7782-49-2	< MDL	mg/L	0.001	06/26/2006	12:16	JBR	EPA 7740
Silver, Total	7440-22-4	< MDL	mg/L	0.01	06/16/2006	13:18	LMJ	EPA 6010
Sodium, Total	7440-23-5	16	mg/L	0.1	06/28/2006	11:43	JBR	EPA 7770
Strontium, Total	7440-24-6	0.29	mg/L	0.05	06/16/2006	13:18	LMJ	EPA 6010
Sulfate, Total	14808-79-8	34	mg/L	1.	06/20/2006	15:11	GMP	EPA 375.4
Thallium, Total	7440-28-0	< MDL	mg/L	0.002	06/27/2006	17:19	JBR	EPA 7841
Total Kjeldahl Nitrogen		0.52	mg/L	0.02	06/20/2006	16:00	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	06/16/2006	13:18	LMJ	EPA 6010
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	06/16/2006	13:18	LMJ	EPA 6010

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

Data Report Number: 060630-153147
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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-16A
Field ID: KIF-16A-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40195 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 12:20 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

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

Data Report Number: 060630-153147
Report of Results: Environmental

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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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF-22
Field ID: KIF-22-060606
Sample Description: KIF GROUNDWATER

Sample ID: AG40196 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 10:52 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Ammonia as N	7664-41-7	0.83	mg/L	0.01	06/15/2006	12:07	ADP	EPA 350.1
Nitrate-Nitrite as N		< MDL	mg/L	0.01	06/15/2006	19:26	ADP	EPA 353.2
Total Kjeldahl Nitrogen		0.88	mg/L	0.02	06/20/2006	16:00	GMP	EPA 351.2

Sample Comments: None

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

Data Report Number: 060630-153147
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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, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF
Field ID: EQUIPMENT BLANK
Sample Description: SUPER Q THRU EQUIPMENT

Sample ID: AG40197 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 13:30 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

Analyte	CAS Number[1]	Result	Units	MDL[2]	Analysis Date	Analysis Time	Analyst	Method Reference
Aluminum, Total	7429-90-5	< MDL	mg/L	0.2	06/16/2006	13:22	LMJ	EPA 6010
Ammonia as N	7664-41-7	< MDL	mg/L	0.01	06/15/2006	12:07	ADP	EPA 350.1
Antimony,Total	7440-36-0	< MDL	mg/L	0.003	06/27/2006	14:27	JBR	EPA 7041
Arsenic, Total	7440-38-2	< MDL	mg/L	0.001	06/22/2006	5:10	ABM	EPA 7060A
Barium, Total	7440-39-3	< MDL	mg/L	0.01	06/16/2006	13:22	LMJ	EPA 6010
Beryllium, Total	7440-41-7	< MDL	mg/L	0.001	06/16/2006	13:22	LMJ	EPA 6010
Boron, Total	7440-42-8	< MDL	mg/L	0.2	06/16/2006	13:22	LMJ	EPA 6010
Cadmium, Total	7440-43-9	< MDL	mg/L	0.0001	06/27/2006	11:31	JBR	EPA 7131
Calcium, Total	7440-70-2	< MDL	mg/L	0.3	06/16/2006	13:22	LMJ	EPA 6010
Chloride, Total	16887-00-6	< MDL	mg/L	1.	06/22/2006	14:59	GMP	EPA 325.2
Chromium, Total	7440-47-3	< MDL	mg/L	0.001	06/22/2006	22:45	ABM	EPA 7191
Cobalt, Total	7440-48-4	< MDL	mg/L	0.001	06/22/2006	18:22	JBR	EPA 7201
Copper, Total	7440-50-8	< MDL	mg/L	0.01	06/16/2006	13:22	LMJ	EPA 6010
Filterable Residue		< MDL	mg/L	10.	06/13/2006	15:10	AJH	EPA 160.1
Fluoride, Total	16984-48-8	< MDL	mg/L	0.1	06/22/2006	15:00	GMP	EPA 340.2
Inorganic Carbon, Total		< MDL	mg/L	1.	06/15/2006	9:08	ADP	ASTM477988
Iron, Total	7439-89-6	< MDL	mg/L	0.03	06/16/2006	13:22	LMJ	EPA 6010
Lead , Total	7439-92-1	< MDL	mg/L	0.001	06/26/2006	19:14	JBR	EPA 7421
Magnesium, Total	7439-95-4	< MDL	mg/L	0.03	06/16/2006	13:22	LMJ	EPA 6010
Manganese, Total	7439-96-5	< MDL	mg/L	0.005	06/16/2006	13:22	LMJ	EPA 6010
Mercury, Total	7439-97-6	<MDL	mg/L	0.0001	06/21/2006	11:24	CLS	EPA 7470
Molybdenum, Total	7439-98-7	< MDL	mg/L	0.02	06/16/2006	13:22	LMJ	EPA 6010
Nickel, Total	7440-02-0	< MDL	mg/L	0.001	06/22/2006	20:40	ABM	EPA 7521
Nitrate-Nitrite as N		< MDL	mg/L	0.01	06/15/2006	18:10	ADP	EPA 353.2
Non-Filterable Residue		< MDL	mg/L	1.	06/12/2006	9:59	AJH	EPA 160.2
Potassium, Total	7440-09-7	0.1	mg/L	0.1	06/28/2006	10:52	JBR	EPA 7610
Selenium, Total	7782-49-2	< MDL	mg/L	0.001	06/26/2006	12:22	JBR	EPA 7740
Silver, Total	7440-22-4	< MDL	mg/L	0.01	06/16/2006	13:22	LMJ	EPA 6010
Sodium, Total	7440-23-5	< MDL	mg/L	0.1	06/28/2006	11:44	JBR	EPA 7770
Strontium, Total	7440-24-6	< MDL	mg/L	0.05	06/16/2006	13:22	LMJ	EPA 6010
Sulfate, Total	14808-79-8	< MDL	mg/L	1.	06/20/2006	15:24	GMP	EPA 375.4
Thallium, Total	7440-28-0	< MDL	mg/L	0.002	06/27/2006	17:25	JBR	EPA 7841
Total Kjeldahl Nitrogen		< MDL	mg/L	0.02	06/20/2006	16:00	GMP	EPA 351.2
Vanadium, Total	7440-62-2	< MDL	mg/L	0.01	06/16/2006	13:22	LMJ	EPA 6010
Zinc, Total	7440-66-6	< MDL	mg/L	0.01	06/16/2006	13:22	LMJ	EPA 6010

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

Data Report Number: 060630-153147
Report of Results: Environmental

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Shipping Address:
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North Side Chickamauga Reservation
Chattanooga, Tennessee 37415

Customer Address: Mark Boggs, WT 9C-K
Debbie Nunn, MR 2U-C
Phone: Not Available
Fax : Not Available
E-Mail: GroundwaterWells; EDM
Location Code: KIF
Field ID: EQUIPMENT BLANK
Sample Description: SUPER Q THRU EQUIPMENT

Sample ID: AG40197 **LRF ID:** 06060160
Matrix: Water **Reg:** RCRA
Date Collected: 06/06/2006
Time Collected: 13:30 EST
Date Received: 06/09/2006
Time Received: 10:39
Project Manager: Ricardo I. Gilbert

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 060630-153147 was electronically approved using Labworks Enterprise Version 5.7, Build 255 on **06/30/2006 at 2:29:00 PM by Ricardo I. Gilbert**

Vanessa L. Ramey, Lab Director
Lisa D. Ortiz, Department Manager
James W. Dillard, Product Manager
Ricardo I. Gilbert, Senior Analytical Chemist

This report contains sample results for the following samples, Login Reference File number: 06060160

Sample ID	Field ID
AG40191	KIF-4B-060606
AG40192	KIF-6A-060606
AG40193	KIF-13B-060606
AG40194	KIF-13B-060606-DUP
AG40195	KIF-16A-060606
AG40196	KIF-22-060606
AG40197	EQUIPMENT BLANK

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