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July 25, 2008

Mr. David Fugate, P.G.
Geologist
Knoxville Environmental Field Office
Division of Solid Waste Management
Tennessee Department of Environment
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3711 Middlebrook Pike
Knoxville, Tennessee 37921

TENNESSEE VALLEY AUTHORITY – KINGSTON FOSSIL PLANT – ASH DISPOSAL AREA – IDL 73-0094 – JUNE 2008 GROUNDWATER MONITORING REPORT

Dear Mr. Fugate:

Please find enclosed the groundwater monitoring report for samples collected June 2, 2008 at designated compliance wells surrounding the subject facility. Laboratory data from the analyses of groundwater samples collected during this monitoring event is summarized in Table 1. Analytical results indicated there were no MCL or statistical exceedences.

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 2, 2008 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 John Dizer at (423) 751-7636 or Cynthia Webb McCowan at (865) 717-2180.

Cynthia M. Anderson
Acting Manager
Water, Waste, and Regulatory Programs
5D Lookout Place

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Prepared by J. Mark Boggs, reviewed by John Dizer

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

July 25, 2008

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Enclosures

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

GROUNDWATER MONITORING REPORT
JUNE 2008

Prepared by

J. Mark Boggs, P.G.
Knoxville, Tennessee

July 14, 2008

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INTRODUCTION

This report contains groundwater detection monitoring results for samples collected on June 2, 2008 from the four designated monitoring wells surrounding the Kingston Fossil Plant (KIF) Ash Disposal Area. Groundwater samples were analyzed by Environmental Science Corporation. 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 S.A. Grindstaff and W.F. Nichols at upgradient well 16A and downgradient wells 4B, 6A and 13B. Dedicated centrifugal pumps were used to purge and sample all monitoring wells. Duplicate samples were collected from well 13B, and an equipment blank was collected after well 16A and before well 13B. 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 of a minimum of two well volumes or until 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.

Collected samples were contained in 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 6. 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 20 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). Note that analysis of the sample from well 6A required sample dilution due to matrix interferences resulting in higher detection limits for vanadium. All analytical testing was performed within recommended sample holding times.

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 is presented 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 a maximum of

Table 1. June 2, 2008 Groundwater Monitoring Results

Analytical Results for Appendix I Inorganic Constituents						Upper Prediction Limit (UPL)			Comparison to UPL[a]			MCL
Constituent	**Units**	**4B** downgradient	**6A** downgradient	**13B**[b] downgradient	**16A** upgradient	**4B**	**6A**	**13B**	**4B**	**6A**	**13B**	
Antimony	µg/L	< 1	< 1	< 1	< 1	6	6	6	L	L	L	6
Arsenic	µg/L	1.7	6.3	1.1	1.4	10	14	10	L	L	L	50
Barium	µg/L	35	140	410	51	2000	2000	2000	L	L	L	2000
Beryllium	µg/L	< 1	< 1	< 1	< 1	4	4	4	L	L	L	4
Cadmium	µg/L	0.53	< 0.5	< 0.5	< 0.5	5	5	5	L	L	L	5
Chromium	µg/L	4	2.6	< 1	1.5	100	100	100	L	L	L	100
Cobalt	µg/L	2.8	1.7	< 1	< 1	23	17	6	L	L	L	--
Copper	µg/L	19	5.6	< 1	1.3	1000	1000	1000	L	L	L	--
Fluoride	mg/L	0.28	< 0.1	0.1	0.3	4	4	4	L	L	L	4
Lead	µg/L	1.3	< 1	< 1	< 1	15	15	15	L	L	L	15
Mercury	µg/L	< 0.2	< 0.2	< 0.2	< 0.2	2	2	2	L	L	L	2
Nickel	µg/L	14	8.2	< 1	2.2	100	100	100	L	L	L	100
Selenium	µg/L	1	< 1	< 1	< 1	50	50	50	L	L	L	50
Silver	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	100	190	100	L	L	L	180[c]
Thallium	µg/L	< 1	< 1	< 1	< 1	2	2	2	L	L	L	2
Vanadium	µg/L	< 10	< 50	< 10	< 10	10	150	10	L	L	L	--
Zinc	µg/L	24	< 10	11	35	5000	5000	5000	L	L	L	--

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

b - reported concentrations are averages of duplicate samples.

c - site specific groundwater protection standard approved 2/15/07.

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 Emory River. 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 2 prior to sample collection are presented in Table 2. The shallow 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 0.008 is estimated between the western and eastern boundaries of the disposal area. The 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 4.8×10^{-5} m/d.

Table 2. Groundwater Levels Measured on June 2, 2008

Well No.	Top of Casing Elevation (m)	Depth to Water (m)	Water Elevation (m-msl)	Well Bottom Depth (m)
4B	230.72	4.08	226.64	12.72
6A	230.13	3.48	226.65	8.88
13B	234.85	2.36	232.49	25.68
16A	234.26	0.09	234.17	20.16

CONCLUSIONS

Groundwater analytical data for the June 2 monitoring 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.

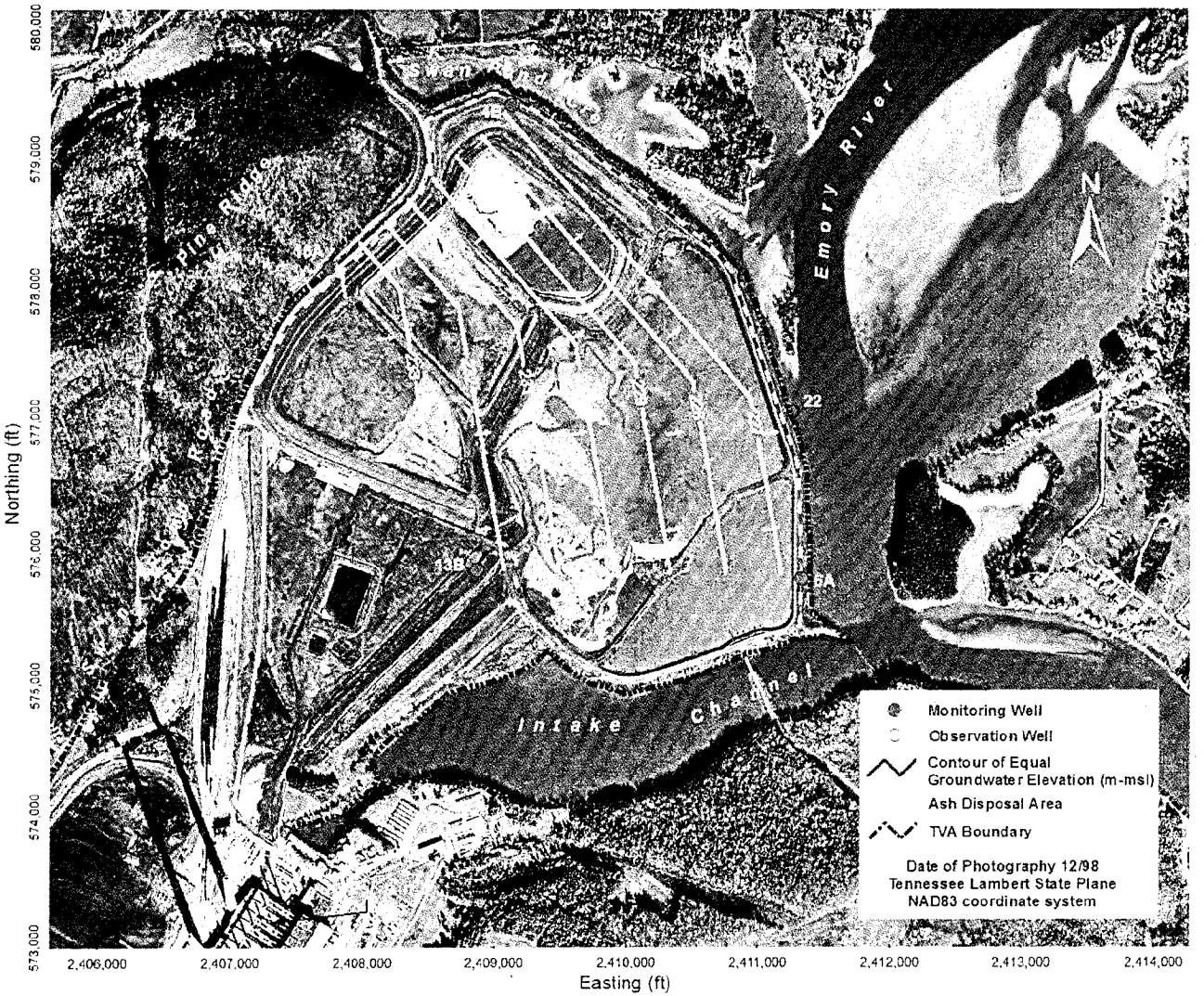

Figure 1. Groundwater Potentiometric Surface on June 2, 2008

APPENDIX A

FIELD DATA SHEETS

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	4B 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
4.08 4195	12.72 4194	102 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter
12.37 4191	To	12.82 4190	K1F-4B-0608	☑ Unfiltered ☐ Filtered ☐ Both; Filter Type and Size:

[Bottom of Well - Depth to Water]	x	Volume Factor	=	Well Volume	Target Purge Volume	Actual Purge Volume
[(12.72)m - (4.08)m]	x	(8.107)L/m	=	70.04 (L)	140.08 (L)	73.0 (L) 4186

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 →	1244	6.5	4.08	12.5						
13L	1246	6.5	—	12.5	16.2	6.7	4.3	1245	167	—
25L	1248	6.0	7.79	12.5	16.3	6.7	4.3	1240	180	—
40	1250	4.0	—	12.5	16.4	6.7	4.3	1255	196	—
	1252	4.0	9.80	12.5	16.5	6.7	4.3	1261	205	—
49L	1254	4.0	—	12.5	16.7	6.7	4.3	1266	215	—
55L	1256	3.0	10.94	12.5	17.0	6.7	4.1	1271	221	—
60 63L	1301	1.6	12.50	12.5	16.6	6.7	4.1	1268	226	—
	—	STOP	TO LET WELL RECHARGE							—
130 RESTART	1341	2.0	10.20	12.5						
	1342		10.58	12.5	16.9	6.8	1.0	1244	196	—
	1343		—	12.5	16.9	6.7	0.8	1238	163	—
	1344		11.00	12.5	17.3	6.8	0.7	1238	173	—
	1345		—	12.5	17.6	6.8	0.6	1240	176	—
10L	1346		11.24	12.5	17.7	6.8	0.6	1240	179	—

Remarks:

Reviewed By: Survey Leader — 06-05-08 Date — Project Leader — 06/16/08 Date

Sample Collector: WFN

Sample Date			Time
Year	Month	Day	1346 (ET) CT
08	06	02	

Pump Duration: 22 min 72004

"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min)	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
1346	2.0	12.5	17.7	6.8	0.6	1240	179	—
	4193	4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed: Year 08 Month 06 Day 02

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

Color: NONE

Odor: NONE

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)
	204		55
Time:	Time: 1533	Time:	Time: 1609
Initial:	Initial: JAY	Initial:	Initial: JAY

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 ☐ TOC ☐ COD ☑ TIC ☐ Ferrous ☑ Metals ☐ Dis. Metals ☑ Mineral ☐ Dis. Mineral ☑ Nutrient ☐ Phenol ☐ Filt TIC ☑ TSS/TDS

Others (list): FA

TVA 30066A [2-2008]

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	6A 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
3.48 4195	8.88 4194	102 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter
8.47 4191	To	8.92 4190	KIF-6A-0608	☑ Unfiltered ☐ Filtered ☐ Both; Filter Type and Size:

[Bottom of Well - Depth to Water]	x	Volume Factor	=	Well Volume	Target Purge Volume	Actual Purge Volume
[(8.88)m - (3.48)m]	x	(8.007)L/m	=	43.78 (L)	87.56 (L)	47.0 (L) 4186

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)
120m Begin Purge →	1059	7.0	3.48	8.6						
12L	1101	5.0	6.25	8.6	18.0	5.9	0.2	4400	139	—
22L	1103	5.0	7.90	8.6	18.3	5.9	0.2	4393	136	—
38L	1106		8.88	8.6						
	—	STOPPED PUMPING / WELL EVACUATED								
108 RESTART	1316	2.25	6.46	8.6						
	1317		—	8.6	18.6	5.8	0.9	4814	168	—
	1318		7.20	8.6	18.5	5.8	0.6	4741	165	—
	1319		—	8.6	18.5	5.8	0.5	4662	163	—
9L	1320		7.49	8.6	18.5	5.8	0.5	4553	162	—

Remarks:

Reviewed By: Survey Leader — 06-05-08 Date — Project Leader — 06-16-08 Date

Sample Collector: WFN

Sample Date			Time
Year	Month	Day	
08	06	02	1320 (ET) CT

Pump Duration: 13 min 72004
"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min)	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
1320	2.25	8.6	18.5	5.8	0.5	4553	162	—
	4193	4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed	415	431	436	437
Year 08 Month 06 Day 02	Phenol 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: 1540	Time:	Time: 1623
	Initial:	Initial: AM	Initial:	Initial: AM

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~~ ☑ Slightly Turbid ☐ Turbid ☐ Highly Turbid
Color: LIGHT TAN
Odor: NONE

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

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	13B 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
2.36 4195	25.68 4194	51 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter Type and Size:
22.29 4191	To	25.34 4190	KIF-13B-0608 KIF-13B-0608-DUP	☑ Unfiltered ☐ Filtered ☐ Both

[Bottom of Well - Depth to Water] x Volume Factor =	Well Volume	Target Purge Volume	Actual Purge Volume
[(25.68)m - (2.36)m] x (2.027)L/m =	47.27 (L)	94.54 (L)	106.5 (L) 4186

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)
1408H2 Begin Purge →	0956	7.5	2.36	10						
31.5 L	1001	6.0	8.34	10	16.7	7.6	0.2	411	-7	—
56.5 L	1006	5.0	8.81	10	16.8	7.9	0.2	412	+1	—
81.5 L	1011	5.0	8.95	10	16.8	8.0	0.2	406	+5	—
106.5 L	1016	5.0	8.99	10	16.8	8.0	0.2	405	+8	—

Remarks: DUPLICATE SAMPLES COLLECTED; SULFIDES COLLECTED DUE TO SLIGHT SULFUR ODOR

Reviewed By: [signature] Survey Leader 06-05-08 Date [signature] Project Leader 06-16-08 Date

Sample Collector: WFN

Sample Date			Time
Year	Month	Day	1016 (ET) CT
08	06	02	

Pump Duration: 20 min 72004

"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min)	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
1016	5.0	10	16.8	8.0	0.2	405	+8	—
	4193	4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed			415	431	436	437
Year	Month	Day	Phenol 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)
08	06	02		209 | 208		3 | 3
			Time:	Time: 1545 | 1550	Time:	Time: 1625 | 1630
			Initial:	Initial: [illegible]	Initial:	Initial: [illegible]

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

Color: NONE

Odor: NONE SLIGHT SULFUR

Bottles Required: ☐ BOD ☐ TOC ☐ COD ☑ TIC ☐ Ferrous ☑ Metals ☐ Dis. Metals ☑ Mineral ☐ Dis. Mineral ☑ Nutrient ☐ Phenol ☐ Filt TIC ☑ TSS/TDS

Others (list): FE; SULFIDE

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

TVA 30066A [2-2008]

TVA-00025602

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	16A 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
0.09 4195	20.16 4194	51 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter Type and Size:
16.98 4191	To	20.03 4190	KIF-16A-0608	☑ Unfiltered ☐ Filtered ☐ Both

[Bottom of Well - Depth to Water] x Volume Factor =	Well Volume	Target Purge Volume	Actual Purge Volume
[(20.16)m - (0.09)m] x (2.027)L/m =	40.68 (L)	81.36 (L)	83.5 (L) 4186

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 →	0918	10.0	0.09	6.7						
10.0L	0919	↓	1.69	6.7	16.5	7.0	0.3	332	37	—
35.5L	0922	8.5	3.19	6.7	16.5	7.1	0.2	334	36	—
51.5L	0924	8.0	4.07	6.7	16.5	7.1	0.2	339	36	—
69.5L	0926	8.0	4.61	6.7	16.5	7.1	0.2	340	37	—
83.5L	0928	8.0	5.15	6.7	16.5	7.1	0.2	340	38	—

Remarks: KIF-APAEQ BLANK-0608 COLLECT AFTER KIF-16A-0608 AND BEFORE KIF-13B-0608 @ 0950.

Reviewed By: [signature] Survey Leader 06-05-08 Date [signature] Project Leader 06-16-08 Date

Sample Collector: WFN

Sample Date			Time
Year	Month	Day	0928 (ET) CT
08	06	02	

Pump Duration: 10 min 72004

"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min)	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
0928	8.0	6.7	16.5	7.1	0.2	340	38	—
	4193	4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed			415	431	436	437
Year	Month	Day	Phenol 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)
08	06	02		146		15
			Time:	Time: 1556	Time:	Time: 1431
			Initial:	Initial: SAH	Initial:	Initial: SAH

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

Color: NONE

Odor: NONE

Bottles Required: ☐ BOD ☐ COD ☐ TOC ☑ TIC ☐ Ferrous ☑ Metals ☐ Dis. Metals ☑ Mineral ☐ Dis. Mineral ☑ Nutrient ☐ Phenol ☐ Filt TIC ☑ TSS/TDS

Others (list): FQ

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

TVA 30066A [2-2008]

APPENDIX B

SAMPLE CUSTODY RECORD

Company Name/Address	Alternate Billing	Analysis/Container/Preservative	Chain of Custody
TVA - ENVAFF **(Environmental Affairs)**	Cynthia Anderson cmanders@tva.gov Report to: J.Mark Boggs E-mail to: jmboggs@tva.gov		Page 1 of 2

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

4

Project Description: Kingston Fossil Groundwater — Kingston, TN

PHONE:865-632-6941
FAX: 865-632-6212

Client Project No. Kingston

Lab Project #

Collected by:Sam Grindstaff

Site/Facility ID# 0014D0M

P.O.#

Collected by(signature):

Immediately Packed on Ice N___ Y✓

Rush? (Lab MUST be Notified)
_____Same Day.....200%
_____Next Day 100%
_____Two Day.....50%

Date Results Needed
STANDARD
Email?__No_X_Yes
FAX?_X_No__Yes

CoCode (lab use only)

Template/Prelogin

Shipped Via:

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	No of Cntrs	TIC (See Attached)	Metals (See Attached)	Minerals (See Attached)	Nutrients (See Attached)	Totals Sulfide (See Attached)	Dissolved Metals, filtered thru 0.45 micon in-line Filter (See Attached)			Remarks/contaminant	Sample # (lab only)
KIF-4B-0608	Grab	GW		6/2/08	13:46	7	X	X	X	X					EDD	L349104-01
KIF-6A-0608	Grab	GW		6/2/08	13:20	7	X	X	X	X					EDD	02
KIF-13B-0608	Grab	GW		6/2/08	10:16	8	X	X	X	X	X				EDD	03
KIF-13B-0608-DUP	Grab	GW		6/2/08	10:16	8	X	X	X	X	X				EDD	04
KIF-16A-0608	Grab	GW		6/2/08	9:28	7	X	X	X	X					EDD	05
KIF-22-0608	Grab	GW		6/2/08	11:33	1				X					EDD	06
KIF-G1B-0608	Grab	GW		6/5/08	10:39	7	X	X	X	X					EDD	07
KIF-G3A-0608	Grab	GW		6/3/08	9:58	7	X	X	X	X					EDD	08
KIF-G3A-0608-DUP	Grab	GW		6/3/08	9:58	7	X	X	X	X					EDD	09

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____ pH_____ Temp_____

Remarks: Rec'd with Seal Intact 6/6/08 1320 Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx__ UPS__Other✓	Condition ok (lab use only)
	6-5-08	1410		Courier	
Relinquisher by:(Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.8°C / Bottles Received: 111	COC Seals Intact ✓Y ___N ___NA
	6/6/08	1320			
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 6-6-08 / Time: 1305	pH Checked: <2 >12 NCF:
	6/6/08	1305			

Company Name/Address	Alternate Billing	Analysis/Container/Preservative	Chain of Custody Page 2 of 2
TVA - ENVAFF **(Environmental Affairs)**	Cynthia Anderson cmanders@tva.gov Report to: J.Mark Boggs E-mail to: jmboggs@tva.gov		Prepared by: ENVIRONMENTAL Science corp 12065 Lebanon Road Mt. Juliet TN 37122 Phone (615)758-5858 Phone (800) 767-5859 FAX (615)758-5859

Project Description: Kingston Fossil Groundwater		Kingston, TN	CoCode (lab use only)
PHONE:865-632-8941 FAX: 865-632-8212	Client Project No. Kingston	Lab Project #	Template/Prelogin
Collected by:Sam Grindstaff	Site/Facility ID# 0014D0M	P.O.#	Shipped Via:
Collected by(signature): Immediately Packed on Ice N___ Y_✓	Rush? (Lab MUST be Notified) _____Same Day.....200% _____Next Day.....100% _____Two Day.....50%	Date Results Needed STANDARD Email? _No_X Yes FAX?_X No__Yes	No of Cntrs

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	No of Cntrs	TIC (See Attached)	Metals (See Attached)	Minerals (See Attached)	Nutrients (See Attached)	Totals Sulfide (See Attached)	Dissolved Metals, filtered thru 0.45 micon in-line Filter (See Attached)			Remarks/contaminant	Sample # (lab only)
KIF-G3B-0608	Grab	GW		6/3/08	10:24	7	X	X	X	X					EDD	L349104-10
KIF-G4B-0608	Grab	GW		6/3/08	13:33	7	X	X	X	X					EDD	11
KIF-G5A-0608	Grab	GW		6/3/08	14:10	7	X	X	X	X					EDD	12
KIF-G5B-0608	Grab	GW		6/5/08	8:44	7	X	X	X	X					EDD	13
KIF-G6B-0608	Grab	GW		6/5/08	9:28	8	X	X	X	X		X			EDD	14
KIF-APAEQ BLANK-0608	Grab	GW		6/2/08	9:50	8	X	X	X	X	X				EDD	15
KIF-GYPEQ BLANK-0608	Grab	GW		6/3/08	13:50	8	X	X	X	X		X			EDD	16

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____ pH_____ Temp_____

Remarks: Rec'd with Seal Intact NW 6/6/08 1720 Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx__ UPS__ Other X	Condition (lab use only)
	6-5-08	1410			Ok
Relinquisher by:(Signature)	Date:	Time:	Received by: (Signature)	Temp:	Bottles Received:
	6/6/08	1220		1.8°C	111
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:
	6/6/08	1305		6-6-08	1305

COC Seals Intact ✓Y___N___NA

pH Checked: NCF:

<2 >12

C349/04

Laboratory Analyses Requested (KIF Groundwater)

For samplesKIF-4B, KIF-6A, KIF-13B, KIF-16A, KIF-APAEQ BLANK, KIF-G1B, KIF-G3A, KIF-G3B, KIF-G4B, KIF-G5A, KIF-G5B, KIF-G6B, KIF-GYPEQ BLANK

Aluminum, Total	Copper, Total	Non-Filterable Residue (TSS)
Ammonia as N	Filterable Residue (TDS)	Potassium, Total
Antimony, Total	Fluoride, Total	Selenium, Total
Arsenic, Total	Inorganic Carbon, Total	Silver, Total
Barium, Total	Iron, Total	Sodium, Total
Beryllium, Total	Lead, Total	Strontium, Total
Boron, Total	Magnesium, Total	Sulfate, Total
Cadmium, Total	Manganese, Total	Sulfide, Total (if sulfur odor) ← *
Calcium, Total	Mercury, Total	Thallium, Total
Chloride, Total	Molybdenum, Total	Total Kjeldahl Nitrogen
Chromium, Total	Nickel, Total	Vanadium, Total
Cobalt, Total	Nitrate-Nitrite as N, Total	Zinc, Total

* KIF-13B-0608
KIF-13B-0608-DUP
KIF-APAEQ BLANK-0608
— ONLY —

For sample KIF-22

Ammonia as N	Nitrate-Nitrite as N, Total	Total Kjeldahl Nitrogen

Was a sulfur odor detected? If yes, then request total sulfide ● seperately on COC.

NOTE: KIF-G6B-0608
KIF-GYPEQ BLANK-0608
- COLLECTED A FILTERED SAMPLE TO BE ANALYZED FOR DISSOLVED METALS FOR CONSTITUENTS ABOVE.

APPENDIX C

LABORATORY DATA SHEETS

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop WT9D

Knoxville, TN

Report Summary

Friday June 20, 2008

Report Number: L349104
Samples Received: 06/06/08
Client Project: Kingston

Description: KIF Groundwater

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Linda Cashman, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140
NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

16 Samples Reported: 06/20/08 11:08 Printed: 06/20/08 11:08

ENVIRONMENTAL SCIENCE CORP.

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Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-4B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:46

ESC Sample # : L349104-01

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	2.8	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1316	MCH
Fluoride	0.28	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1316	MCH
Sulfate	500	25.	mg/l	9056	06/18/08 1613	159	06/18/08 2051	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1323	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0801	165	06/09/08 1243	LEM
Kjeldahl Nitrogen, TKN	0.18	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0931	DTH
Total Inorganic Carbon	64.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 1841	KSG
Dissolved Solids	980	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1223	AMS
Suspended Solids	13.	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Arsenic	0.0017	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Cadmium	0.00053	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Chromium	0.0040	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Copper	0.019	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Cobalt	0.0028	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Lead	0.0013	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Nickel	0.014	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Selenium	0.0010	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1553	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Zinc	0.024	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1102	KBW
Aluminum	0.16	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Barium	0.035	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Calcium	240	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Iron	0.89	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Magnesium	25.	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Manganese	1.1	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Potassium	6.9	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted
This report shall not be reproduced, except in full, without the written approval from ESC.

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-4B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:46

ESC Sample # : L349104-01

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Sodium	7.3	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Strontium	0.46	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted

Reported: 06/20/08 11:08 Printed: 06/20/08 11:09

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Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-6A-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:20

ESC Sample # : L349104-02

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	4.8	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1334	MCH
Fluoride	BDL	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1334	MCH
Sulfate	2500	100	mg/l	9056	06/18/08 1613	159	06/18/08 2107	MCH
Ammonia Nitrogen	15.	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1324	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0801	165	06/09/08 1244	LEM
Kjeldahl Nitrogen, TKN	16.	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0932	DTH
Total Inorganic Carbon	110	10.	mg/l	9060A	06/13/08 0810	365	06/13/08 1332	KSG
Dissolved Solids	4600	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1223	AMS
Suspended Solids	41.	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Arsenic	0.0063	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Chromium	0.0026	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Copper	0.0056	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Cobalt	0.0017	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Nickel	0.0082	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1609	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Zinc	BDL	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1104	KBW
Aluminum	0.24	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Barium	0.14	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Boron	1.9	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Calcium	250	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Iron	1000	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Magnesium	96.	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Manganese	220	0.050	mg/l	6010B	06/10/08 1623	117	06/12/08 1002	LAT
Molybdenum	BDL	0.025	mg/l	6010B	06/10/08 1623	117	06/12/08 1002	LAT
Potassium	7.5	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted

ENVIRONMENTAL
SCIENCE CORP.

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Mt. Juliet, TN 37122
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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

ESC Sample # : L349104-02

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Site ID : 0014DOM

Sample ID : KIF-6A-0608

Project # : Kingston

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:20

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Sodium	11.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Strontium	0.69	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Vanadium	BDL	0.050	mg/l	6010B	06/10/08 1623	117	06/12/08 1002	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
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ENVIRONMENTAL SCIENCE CORP.

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 10:16

ESC Sample # : L349104-03

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	2.5	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1353	MCH
Fluoride	BDL	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1353	MCH
Sulfate	6.0	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1353	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1325	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0120	LEM
Sulfide	0.13	0.050	mg/l	4500-S2 D	06/10/08 1057	352	06/11/08 0550	KPB
Kjeldahl Nitrogen, TKN	BDL	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0932	DTH
Total Inorganic Carbon	68.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 1936	KSG
Dissolved Solids	240	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1222	AMS
Suspended Solids	BDL	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Arsenic	0.0011	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Chromium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Copper	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Nickel	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1612	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Zinc	0.011	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1106	KBW
Aluminum	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Barium	0.41	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Calcium	17.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Iron	1.2	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Magnesium	2.4	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Manganese	0.28	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 10:16

ESC Sample # : L349104-03

Site ID : 0014DOM

Projett # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Potassium	2.7	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Sodium	73.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Strontium	0.34	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608-DUP

Collected By : Sam Grindstaff
Collection Date : 06/02/08 10:16

ESC Sample # : L349104-04

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	2.5	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1411	MCH
Fluoride	0.10	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1411	MCH
Sulfate	BDL	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1411	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1326	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0122	LEM
Sulfide	0.14	0.050	mg/l	4500-S2 D	06/10/08 1057	352	06/11/08 0550	KPB
Kjeldahl Nitrogen, TKN	BDL	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0933	DTH
Total Inorganic Carbon	59.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 1954	KSG
Dissolved Solids	240	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1231	AMS
Suspended Solids	BDL	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Arsenic	0.0011	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Chromium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Copper	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Nickel	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1615	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Zinc	0.011	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1109	KBW
Aluminum	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Barium	0.41	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Calcium	17.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Iron	0.12	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Magnesium	2.3	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Manganese	0.084	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

ESC Sample # : L349104-04

Site ID : 0014DOM

Project # : Kingston

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608-DUP

Collected By :
Collection Date : 06/02/08 10:16

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Potassium	2.6	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Sodium	74.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Strontium	0.34	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-16A-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 09:28

ESC Sample # : L349104-05

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	BDL	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1430	MCH
Fluoride	0.30	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1430	MCH
Sulfate	28.	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1430	MCH
Ammonia Nitrogen	0.29	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1330	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0125	LEM
Kjeldahl Nitrogen, TKN	0.37	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0934	DTH
Total Inorganic Carbon	42.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 2012	KSG
Dissolved Solids	200	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1231	AMS
Suspended Solids	12.	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Arsenic	0.0014	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Chromium	0.0015	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Copper	0.0013	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Nickel	0.0022	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1618	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Zinc	0.035	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1111	KBW
Aluminum	0.28	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Barium	0.051	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Calcium	44.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Iron	1.1	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Magnesium	9.3	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Manganese	1.3	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Potassium	2.1	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

ESC Sample # : L349104-05

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Site ID : 0014DOM

Sample ID : KIF-16A-0608

Project # : Kingston

Collected By :
Collection Date : 06/02/08 09:28

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Sodium	16.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Strontium	0.28	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-APAEQ BLANK-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 09:50

ESC Sample # : L349104-15

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	BDL	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1829	MCH
Fluoride	BDL	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1829	MCH
Sulfate	BDL	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1829	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1000	234	06/13/08 0942	CWP
Nitrate-Nitrite	1.4	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0139	LEM
Sulfide	BDL	0.050	mg/l	4500-S2 D	06/10/08 1057	352	06/11/08 0550	KPB
Kjeldahl Nitrogen, TKN	BDL	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0945	DTH
Total Inorganic Carbon	BDL	1.0	mg/l	9060A	06/10/08 1600	162	06/13/08 0036	KSG
Dissolved Solids	BDL	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1222	AMS
Suspended Solids	BDL	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Arsenic	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Chromium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Copper	0.0010	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Nickel	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1812	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Zinc	0.031	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/09/08 0907		06/11/08 1203	CLF
Aluminum	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Barium	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Calcium	2.3	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Iron	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Magnesium	0.11	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Manganese	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebaron Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-APAEQ BLANK-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 09:50

ESC Sample # : L349104-15

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Potassium	BDL	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Sodium	BDL	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Strontium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted

Reported: 06/20/08 11:08 Printed: 06/20/08 11:10

Attachment A
List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L349104-02	Molybdenum	O
	Vanadium	O
L349104-03	Suspended Solids	T4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T4	(ESC) - Additional method/sample information: QNS - Quantity Not Sufficient

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
06/20/08 at 11:10:10

TSR Signing Reports: 400
R5 - Desired TAT

Please add EDD to all samples from TVAENVAFF. RC 09/04/07

Sample: L349104-01 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-02 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-03 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-04 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-05 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-06 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08

Sample: L349104-07 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-08 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-09 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-10 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-11 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-12 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-13 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-14 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-15 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-16 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18

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

GROUNDWATER MONITORING REPORT
JUNE 2008

Prepared by

J. Mark Boggs, P.G.
Knoxville, Tennessee

July 14, 2008

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APPENDICES

LIST OF TABLES

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INTRODUCTION

This report contains groundwater detection monitoring results for samples collected on June 2, 2008 from the four designated monitoring wells surrounding the Kingston Fossil Plant (KIF) Ash Disposal Area. Groundwater samples were analyzed by Environmental Science Corporation. 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 S.A. Grindstaff and W.F. Nichols at upgradient well 16A and downgradient wells 4B, 6A and 13B. Dedicated centrifugal pumps were used to purge and sample all monitoring wells. Duplicate samples were collected from well 13B, and an equipment blank was collected after well 16A and before well 13B. 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 of a minimum of two well volumes or until 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.

Collected samples were contained in 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 6. 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 20 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). Note that analysis of the sample from well 6A required sample dilution due to matrix interferences resulting in higher detection limits for vanadium. All analytical testing was performed within recommended sample holding times.

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 is presented 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 a maximum of

Table 1. June 2, 2008 Groundwater Monitoring Results

Analytical Results for Appendix I Inorganic Constituents						Upper Prediction Limit (UPL)			Comparison to UPL[a]			MCL
Constituent	**Units**	**4B** downgradient	**6A** downgradient	**13B**[b] downgradient	**16A** upgradient	**4B**	**6A**	**13B**	**4B**	**6A**	**13B**	
Antimony	µg/L	< 1	< 1	< 1	< 1	6	6	6	L	L	L	6
Arsenic	µg/L	1.7	6.3	1.1	1.4	10	14	10	L	L	L	50
Barium	µg/L	35	140	410	51	2000	2000	2000	L	L	L	2000
Beryllium	µg/L	< 1	< 1	< 1	< 1	4	4	4	L	L	L	4
Cadmium	µg/L	0.53	< 0.5	< 0.5	< 0.5	5	5	5	L	L	L	5
Chromium	µg/L	4	2.6	< 1	1.5	100	100	100	L	L	L	100
Cobalt	µg/L	2.8	1.7	< 1	< 1	23	17	6	L	L	L	--
Copper	µg/L	19	5.6	< 1	1.3	1000	1000	1000	L	L	L	--
Fluoride	mg/L	0.28	< 0.1	0.1	0.3	4	4	4	L	L	L	4
Lead	µg/L	1.3	< 1	< 1	< 1	15	15	15	L	L	L	15
Mercury	µg/L	< 0.2	< 0.2	< 0.2	< 0.2	2	2	2	L	L	L	2
Nickel	µg/L	14	8.2	< 1	2.2	100	100	100	L	L	L	100
Selenium	µg/L	1	< 1	< 1	< 1	50	50	50	L	L	L	50
Silver	µg/L	< 0.5	< 0.5	< 0.5	< 0.5	100	190	100	L	L	L	180[c]
Thallium	µg/L	< 1	< 1	< 1	< 1	2	2	2	L	L	L	2
Vanadium	µg/L	< 10	< 50	< 10	< 10	10	150	10	L	L	L	--
Zinc	µg/L	24	< 10	11	35	5000	5000	5000	L	L	L	--

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

b - reported concentrations are averages of duplicate samples.

c - site specific groundwater protection standard approved 2/15/07.

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 Emory River. 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 2 prior to sample collection are presented in Table 2. The shallow 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 0.008 is estimated between the western and eastern boundaries of the disposal area. The 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 4.8×10^{-5} m/d.

Table 2. Groundwater Levels Measured on June 2, 2008

Well No.	Top of Casing Elevation (m)	Depth to Water (m)	Water Elevation (m-msl)	Well Bottom Depth (m)
4B	230.72	4.08	226.64	12.72
6A	230.13	3.48	226.65	8.88
13B	234.85	2.36	232.49	25.68
16A	234.26	0.09	234.17	20.16

CONCLUSIONS

Groundwater analytical data for the June 2 monitoring 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.

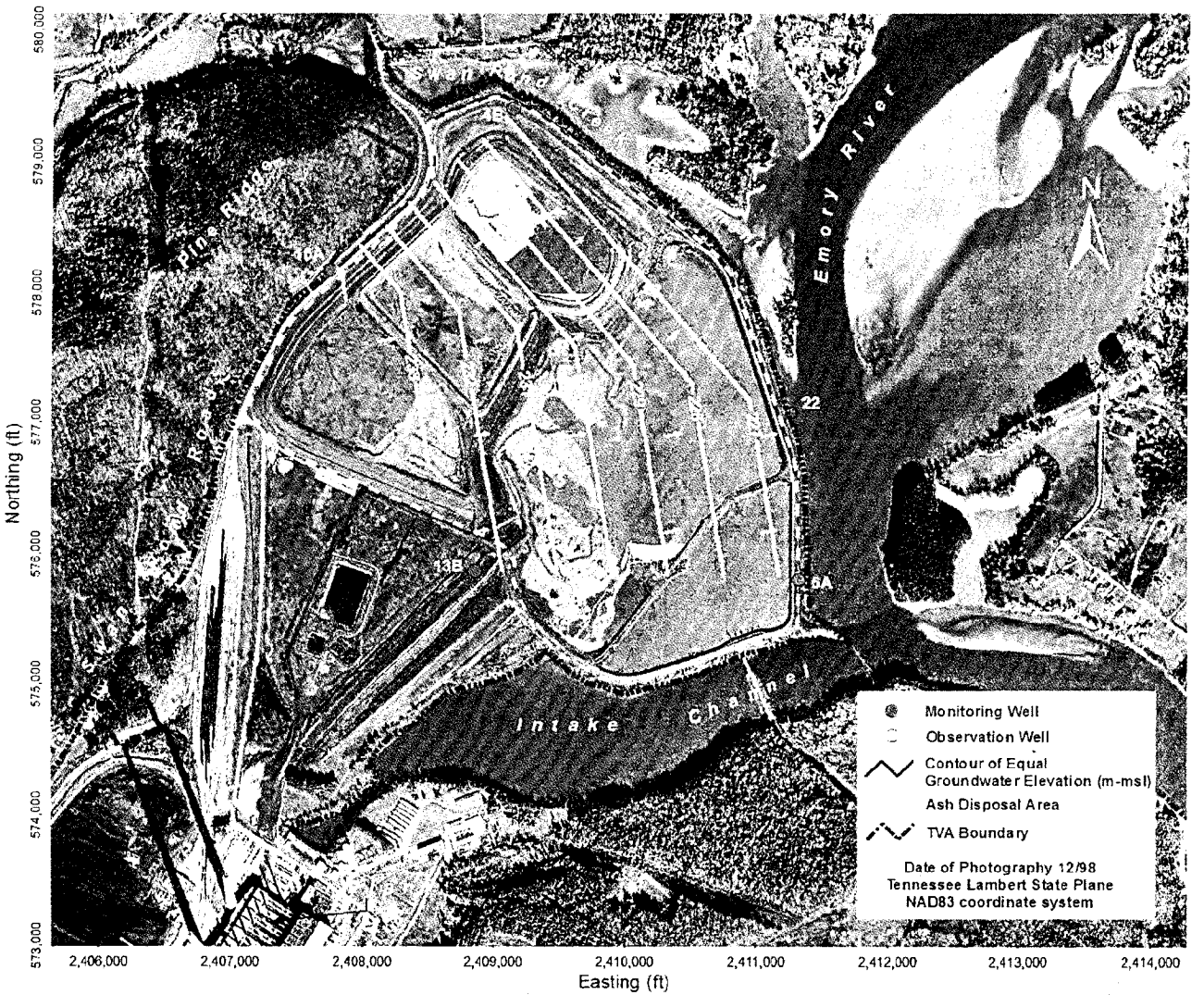

Figure 1. Groundwater Potentiometric Surface on June 2, 2008

APPENDIX A

FIELD DATA SHEETS

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	4B 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
4.08 4195	12.72 4194	102 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	
12.37 4191	To	12.82 4190	K1F-4B-0608	☑ Unfiltered ☐ Filtered ☐ Both; Filter Type and Size:

[Bottom of Well - Depth to Water]	x Volume Factor	=	Well Volume	Target Purge Volume	Actual Purge Volume
[(12.72)m - (4.08)m]	x (8.107)L/m	=	70.04 (L)	140.08 (L)	73.0 (L) 4186

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 →	1244	6.5	4.08	12.5						
13L	1246	6.5	—	12.5	16.2	6.7	4.3	1245	167	—
25L	1248	6.0	7.79	12.5	16.3	6.7	4.3	1240	180	—
	1250	4.0	—	12.5	16.4	6.7	4.3	1255	196	—
	1252	4.0	9.80	12.5	16.5	6.7	4.3	1261	205	—
49L	1254	4.0	—	12.5	16.7	6.7	4.3	1266	215	—
55L	1256	3.0	10.74	12.5	17.0	6.7	4.1	1271	221	—
63L	1301	1.6	12.50	12.5	16.6	6.7	4.1	1268	226	—
	—	STOP	TO LET WELL RECHARGE							
RESTART	1341	2.0	10.20	12.5						
	1342		10.58	12.5	16.9	6.8	1.0	1244	196	—
	1343		—	12.5	16.9	6.7	0.8	1238	163	—
	1344		11.00	12.5	17.3	6.8	0.7	1238	173	—
	1345		—	12.5	17.6	6.8	0.6	1240	176	—
10L	1346		11.24	12.5	17.7	6.8	0.6	1240	179	—

Remarks:

Reviewed By: Survey Leader 06-05-08 Date Project Leader 06/16/08 Date

Sample Collector: WFN

Sample Date			Time
Year	Month	Day	1346 (ET) CT
08	06	02	

Pump Duration: 22 min 72004

"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min)	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
1346	2.0	12.5	17.7	6.8	0.6	1240	179	—
	4193	4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed			415	431	436	437
Year	Month	Day	Phenol 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)
08	06	02		204		55
			Time:	Time: 1533	Time:	Time: 1609
			Initial:	Initial: JAH	Initial:	Initial: JAH

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

Color: NONE

Odor: NONE

Bottles Required: ☐ BOD ☐ TOC ☐ COD ☑ TIC ☐ Ferrous ☑ Metals ☐ Dis. Metals ☑ Mineral ☐ Dis. Mineral ☑ Nutrient ☐ Phenol ☐ Filt TIC ☑ TSS/TDS

Others (list): FC

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

TVA 30066A [2-2008]

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	6A 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
3.48 4195	8.88 4194	102 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter Type and Size:
8.47 4191	To	8.92 4190	KIF-6A-0608	☑ Unfiltered ☐ Filtered ☐ Both

[Bottom of Well - Depth to Water]	x	Volume Factor	=	Well Volume	Target Purge Volume	Actual Purge Volume
[(8.88)m - (3.48)m]	x	(8.007)L/m	=	43.78 (L)	87.56 (L)	47.0 (L) 4186

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)
120mL Begin Purge →	1059	7.0	3.48	8.6						
12L	1101	5.0	6.25	8.6	18.0	5.9	0.2	4400	139	—
22L	1103	5.0	7.90	8.6	18.3	5.9	0.2	4393	136	—
38L	1106		8.88	8.6						
	—	STOPPED PUMPING / WELL EVACUATED —								
10P RESTART	1316	2.25	6.46	8.6						
	1317	↓	—	8.6	18.6	5.8	0.9	4814	168	—
	1318		7.20	8.6	18.5	5.8	0.6	4791	165	—
	1319		—	8.6	18.5	5.8	0.5	4662	163	—
9L	1320	↓	7.49	8.6	18.5	5.8	0.5	4553	162	—

Remarks:

Reviewed By: Survey Leader 06-05-08 Date Project Leader 06-16-08 Date

Sample Collector: WFN

Sample Date			Time
Year	Month	Day	1320 (ET) CT
08	06	02	

Pump Duration: 13 min 72004
"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min)	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
1320	2.25	8.6	18.5	5.8	0.5	4553	162	—
4193		4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed			415	431	436	437
Year	Month	Day	Phenol 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)
08	06	02		196		1680
			Time:	Time: 1540	Time:	Time: 1623
			Initial:	Initial: SAG	Initial:	Initial: SAG

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

Color: LIGHT TAN
Odor: NONE

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

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

TVA 30066A [2-2008]

TVA-00025635

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	13B 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
2.36 4195	25.68 4194	51 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	
22.29 4191	To	25.34 4190	KIF-13B-0608 KIF-13B-0608-DUP	☑ Unfiltered ☐ Filtered ☐ Both Filter Type and Size:

[Bottom of Well - Depth to Water] x Volume Factor =	Well Volume	Target Purge Volume	Actual Purge Volume
[(25.68)m - (2.36)m] x (2.027)L/m =	47.27 (L)	94.54 (L)	106.5 (L) 4186

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)
1402 Begin Purge →	0956	7.5	2.36	10	—	—	—	—	—	—
31.5 L	1001	6.0	8.34	10	16.7	7.6	0.2	411	-7	—
56.5 L	1006	5.0	8.81	10	16.8	7.9	0.2	412	+1	—
81.5 L	1011	5.0	8.95	10	16.8	8.0	0.2	406	+5	—
106.5 L	1016	5.0	8.99	10	16.8	8.0	0.2	405	+8	—

Remarks: DUPLICATE SAMPLES COLLECTED; SULFIDES COLLECTED DUE TO SLIGHT SULFUR ODOR

Reviewed By: Survey Leader 06-05-08 Date Project Leader 06-16-08 Date

Sample Collector: WFN			
Sample Date			Time
Year	Month	Day	1016
08	06	02	(ET) CT
Pump Duration: 20 min			72004

"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min)	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
1016	5.0	10	16.8	8.0	0.2	405	+8	—
	4193	4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed		
Year	Month	Day
08	06	02

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

Color: NONE

Odor: NONE SLIGHT SULFUR

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)
	209 208		3 3
Time:	Time: 1545 1550	Time:	Time: 1625 1630
Initial:	Initial: MW MW	Initial:	Initial: MW MW

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): FE; SULFIDE

TVA 30066A [2-2008]

Preliminary Groundwater Data Field Worksheet

Sheet 1 of 1

Project/Site	Well Number	Purge Date	Year	Month	Day
Kingston Groundwater	16A 84068		08	06	02

Depth to Water (m)	Bottom of Well (m)	Well Diameter (mm)	Survey Leader	Field Crew
0.09 4195	20.16 4194	51 4188	SAG	WFN

☑ Depth of Screen ☐ Open Bore Hole

(m)	To	(m)	Sample Label	Filter Type and Size:
16.98 4191	To	20.03 4190	KIF-16A-0608	☑ Unfiltered ☐ Filtered ☐ Both

[Bottom of Well - Depth to Water] x Volume Factor =	Well Volume	Target Purge Volume	Actual Purge Volume
[(20.16)m - (0.09)m] x (2.027)L/m =	40.68 (L)	81.36 (L)	83.5 (L) 4186

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 →	0918	10.0	0.09	6.7						
10.0L	0919	↓	1.69	6.7	16.5	7.0	0.3	332	37	—
35.5L	0922	8.5	3.19	6.7	16.5	7.1	0.2	334	36	—
51.5L	0924	8.0	4.07	6.7	16.5	7.1	0.2	339	36	—
69.5L	0926	8.0	4.61	6.7	16.5	7.1	0.2	340	37	—
83.5L	0928	8.0	5.15	6.7	16.5	7.1	0.2	340	38	—

Remarks: KIF-APAEQ BLANK - 0608 COLLECT AFTER KIF-16A-0608 AND BEFORE KIF-13B-0608 @ 0950.

Reviewed By: [signature] 06-05-08 Survey Leader Date [signature] 06-16-08 Project Leader Date

Sample Collector: WFN

Sample Date			Time
Year	Month	Day	0928 (ET) CT
08	06	02	

Pump Duration: 10 min 72004

"999" = 2 days

Sample Readings

Analysis Time (ET) CT	Pump Rate (L/min) 4193	Pump Depth (m) 4192	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
0928	8.0	6.7	16.5	7.1	0.2	340	38	—
		4192	10	400	300	94	90	

Additional Sample Data

Analyst: SAG

Date Analyzed: Year 08 Month 06 Day 02

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

Color: NONE

Odor: NONE

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)
	146		15
Time:	Time: 1556	Time:	Time: 1431
Initial:	Initial: SAG	Initial:	Initial: SAG

Bottles Required: ☐ BOD ☐ COD ☐ TOC ☑ TIC ☐ Ferrous ☑ Metals ☐ Dis. Metals ☑ Mineral ☐ Dis. Mineral ☑ Nutrient ☐ Phenol ☐ Filt TIC ☑ TSS/TDS

Others (list): FQ

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

TVA 30066A [2-2008]

TVA-00025637

APPENDIX B

SAMPLE CUSTODY RECORD

Company Name/Address

TVA - ENVAFF

(Environmental Affairs)

Alternate Billing

Cynthia Anderson

cmanders@tva.gov

Report to: J.Mark Boggs

E-mail to: jmboggs@tva.gov

Project Description: Kingston Fossil Groundwater — Kingston, TN

PHONE:865-632-6941
FAX: 865-632-8212

Client Project No. Kingston

Lab Project #

Collected by:Sam Grindstaff

Site/Facility ID# 0014D0M

P.O.#

Collected by(signature):

Immediately Packed on Ice N___ Y✓

Rush? (Lab MUST be Notified)
_____Same Day.....200%
_____Next Day.....100%
_____Two Day.....50%

Date Results Needed
STANDARD
Email?___No_X_Yes
FAX?_X_No___Yes

Analysis/Container/Preservative

Chain of Custody
Page_1_of_2_

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

4

CoCode (lab use only)

Template/Prelogin

Shipped Via:

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	No of Cntrs	TIC (See Attached)	Metals (See Attached)	Minerals (See Attached)	Nutrients (See Attached)	Totals Sulfide (See Attached)	Dissolved Metals, filtered thru 0.45 micon in-line Filter (See Attached)			Remarks/contaminant	Sample # (lab only)
KIF-4B-0608	Grab	GW		6/2/08	13:46	7	X	X	X	X					EDD	L349104-01
KIF-6A-0608	Grab	GW		6/2/08	13:20	7	X	X	X	X					EDD	02
KIF-13B-0608	Grab	GW		6/2/08	10:16	8	X	X	X	X	X				EDD	03
KIF-13B-0608-DUP	Grab	GW		6/2/08	10:16	8	X	X	X	X	X				EDD	04
KIF-16A-0608	Grab	GW		6/2/08	9:28	7	X	X	X	X					EDD	05
KIF-22-0608	Grab	GW		6/2/08	11:33	1				X					EDD	06
KIF-G1B-0608	Grab	GW		6/5/08	10:39	7	X	X	X	X					EDD	07
KIF-G3A-0608	Grab	GW		6/3/08	9:58	7	X	X	X	X					EDD	08
KIF-G3A-0608-DUP	Grab	GW		6/3/08	9:58	7	X	X	X	X					EDD	09

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____ pH_____ Temp_____

Remarks: Rec'd With Seal Intact DW 6/6/08 1220 Flow_____ Other_____

	Date:	Time:		
Relinquisher by:(Signature)	6-5-08	1410	Received by:(Signature)	
Relinquisher by:(Signature)	6/6/08	1220	Received by: (Signature)	
Relinquisher by:(Signature)	6/6/08	1305	Received for lab by: (Signature)	

Samples returned via: FedEx__ UPS__ Other✓ Courier

Temp: 1.8°C | Bottles Received: 111

Date: 6-6-08 | Time: 1305

Condition ok (lab use only)

COC Seals Intact ✓Y___N___NA

pH Checked: <2 >12 NCF:

TVA-00025639

Company Name/Address

TVA - ENVAFF

(Environmental Affairs)

Alternate Billing

Cynthia Anderson

cmanders@tva.gov

Report to: J.Mark Boggs

E-mail to: jmboggs@tva.gov

Project Description: Kingston Fossil Groundwater — Kingston, TN

PHONE:865-632-8941
FAX: 865-632-8212

Client Project No. Kingston

Lab Project #

Collected by:Sam Grindstaff

Site/Facility ID# 0014D0M

P.O.#

Collected by(signature):

Immediately Packed on Ice N___ Y✓

Rush? (Lab MUST be Notified)
_____Same Day.....200%
_____Next Day.....100%
_____Two Day..... 50%

Date Results Needed
STANDARD

Email? __No_X Yes
FAX?__X_No___Yes

Analysis/Container/Preservative

Chain of Custody
Page_2_of_2_

Prepared by:

ENVIRONMENTAL Science corp
12065 Lebanon Road
Mt. Juliet TN 37122
Phone (615)758-5858
Phone (800) 767-5859
FAX (615)758-5859

4

CoCode (lab use only)

Template/Prelogin

Shipped Via:

Sample ID	Comp/Grab	Matrix	Depth	Date	Time	No of Cntrs	TIC (See Attached)	Metals (See Attached)	Minerals (See Attached)	Nutrients (See Attached)	Totals Sulfide (See Attached)	Dissolved Metals, filtered thru 0.45 micon in-line Filter (See Attached)			Remarks/contaminant	Sample # (lab only)
KIF-G3B-0608	Grab	GW		6/3/08	10:24	7	X	X	X	X					EDD	L349104-10
KIF-G4B-0608	Grab	GW		6/3/08	13:33	7	X	X	X	X					EDD	11
KIF-G5A-0608	Grab	GW		6/3/08	14:10	7	X	X	X	X					EDD	12
KIF-G5B-0608	Grab	GW		6/5/08	8:44	7	X	X	X	X					EDD	13
KIF-G6B-0608	Grab	GW		6/5/08	9:28	8	X	X	X	X		X			EDD	14
KIF-APAEQ BLANK-0608	Grab	GW		6/2/08	9:50	8	X	X	X	X	X				EDD	15
KIF-GYPEQ BLANK-0608	Grab	GW		6/3/08	13:50	8	X	X	X	X		X			EDD	16

Matrix: SS-Soil/Solid GW-Groundwater WW-Wastewater DW-Drinking Water OT- Other_____

pH_____ Temp_____

Remarks: Rec'd with Seal Intact TW 6/6/08 1220

Flow_____ Other_____

Relinquisher by:(Signature)	Date:	Time:	Received by:(Signature)	Samples returned via: FedEx__ UPS__ Other X		Condition (lab use only)
	6-5-08	1410				OK
Relinquisher by:(Signature)	Date:	Time:	Received by: (Signature)	Temp:	Bottles Received:	
	6/6/08	1220		1.8°C	111	COC Seals Intact ✓ Y___ N___ NA
Relinquisher by:(Signature)	Date:	Time:	Received for lab by: (Signature)	Date:	Time:	pH Checked: NCF:
	6/6/08	1305		6-6-08	1305	<2 >12

C349104

Laboratory Analyses Requested (KIF Groundwater)

For samplesKIF-4B, KIF-6A, KIF-13B, KIF-16A, KIF-APAEQ BLANK, KIF-G1B, KIF-G3A, KIF-G3B, KIF-G4B, KIF-G5A, KIF-G5B, KIF-G6B, KIF-GYPEQ BLANK

Aluminum, Total	Copper, Total	Non-Filterable Residue (TSS)
Ammonia as N	Filterable Residue (TDS)	Potassium, Total
Antimony, Total	Fluoride, Total	Selenium, Total
Arsenic, Total	Inorganic Carbon, Total	Silver, Total
Barium, Total	Iron, Total	Sodium, Total
Beryllium, Total	Lead, Total	Strontium, Total
Boron, Total	Magnesium, Total	Sulfate, Total
Cadmium, Total	Manganese, Total	Sulfide, Total (if sulfur odor) ← * KIF-13B-0608 KIF-13B-0608-DUP KIF-APAEQ BLANK-0608 ONLY
Calcium, Total	Mercury, Total	Thallium, Total
Chloride, Total	Molybdenum, Total	Total Kjeldahl Nitrogen
Chromium, Total	Nickel, Total	Vanadium, Total
Cobalt, Total	Nitrate-Nitrite as N, Total	Zinc, Total

For sample KIF-22

Ammonia as N	Nitrate-Nitrite as N, Total	Total Kjeldahl Nitrogen

Was a sulfur odor detected? If yes, then request total sulfide ● seperately on COC.

NOTE: KIF-G6B-0608
KIF-GYPEQ BLANK-0608
- COLLECTED A FILTERED SAMPLE TO BE ANALYZED FOR DISSOLVED METALS FOR CONSTITUENTS ABOVE.

APPENDIX C

LABORATORY DATA SHEETS

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop WT9D

Knoxville, TN

Report Summary

Friday June 20, 2008

Report Number: L349104
Samples Received: 06/06/08
Client Project: Kingston

Description: KIF Groundwater

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Linda Cashman, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140
NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

16 Samples Reported: 06/20/08 11:08 Printed: 06/20/08 11:08

ENVIRONMENTAL SCIENCE CORP.

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Mt. Juliet, TN 37122
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Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-4B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:46

ESC Sample # : L349104-01

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	2.8	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1316	MCH
Fluoride	0.28	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1316	MCH
Sulfate	500	25.	mg/l	9056	06/18/08 1613	159	06/18/08 2051	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1323	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0801	165	06/09/08 1243	LEM
Kjeldahl Nitrogen, TKN	0.18	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0931	DTH
Total Inorganic Carbon	64.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 1841	KSG
Dissolved Sólids	980	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1223	AMS
Suspended Solids	13.	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Arsenic	0.0017	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Cadmium	0.00053	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Chromium	0.0040	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Copper	0.019	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Cobalt	0.0028	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Lead	0.0013	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Nickel	0.014	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Selenium	0.0010	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1553	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Zinc	0.024	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1722	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1102	KBW
Aluminum	0.16	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Barium	0.035	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Calcium	240	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Iron	0.89	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Magnesium	25.	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Manganese	1.1	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Potassium	6.9	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-4B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:46

ESC Sample # : L349104-01

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Sodium	7.3	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Strontium	0.46	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1544	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted

Reported: 06/20/08 11:08 Printed: 06/20/08 11:09

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-6A-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:20

ESC Sample # : L349104-02

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	4.8	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1334	MCH
Fluoride	BDL	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1334	MCH
Sulfate	2500	100	mg/l	9056	06/18/08 1613	159	06/18/08 2107	MCH
Ammonia Nitrogen	15.	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1324	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0801	165	06/09/08 1244	LEM
Kjeldahl Nitrogen, TKN	16.	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0932	DTH
Total Inorganic Carbon	110	10.	mg/l	9060A	06/13/08 0810	365	06/13/08 1332	KSG
Dissolved Solids	4600	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1223	AMS
Suspended Solids	41.	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Arsenic	0.0063	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Chromium	0.0026	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Copper	0.0056	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Cobalt	0.0017	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Nickel	0.0082	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1609	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Zinc	BDL	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1726	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1104	KBW
Aluminum	0.24	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Barium	0.14	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Boron	1.9	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Calcium	250	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Iron	1000	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Magnesium	96.	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Manganese	220	0.050	mg/l	6010B	06/10/08 1623	117	06/12/08 1002	LAT
Molybdenum	BDL	0.025	mg/l	6010B	06/10/08 1623	117	06/12/08 1002	LAT
Potassium	7.5	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-6A-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 13:20

ESC Sample # : L349104-02

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Sodium	11.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Strontium	0.69	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1547	LAT
Vanadium	BDL	0.050	mg/l	6010B	06/10/08 1623	117	06/12/08 1002	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
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Reported: 06/20/08 11:08 Printed: 06/20/08 11:09

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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 10:16

ESC Sample # : L349104-03

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	2.5	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1353	MCH
Fluoride	BDL	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1353	MCH
Sulfate	6.0	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1353	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1325	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0120	LEM
Sulfide	0.13	0.050	mg/l	4500-S2 D	06/10/08 1057	352	06/11/08 0550	KPB
Kjeldahl Nitrogen, TKN	BDL	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0932	DTH
Total Inorganic Carbon	68.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 1936	KSG
Dissolved Solids	240	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1222	AMS
Suspended Solids	BDL	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Arsenic	0.0011	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Chromium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Copper	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Nickel	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1612	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Zinc	0.011	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1729	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1106	KBW
Aluminum	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Barium	0.41	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Calcium	17.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Iron	1.2	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Magnesium	2.4	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Manganese	0.28	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
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Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 10:16

ESC Sample # : L349104-03

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Potassium	2.7	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Sodium	73.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Strontium	0.34	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1553	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
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Reported: 06/20/08 11:08 Printed: 06/20/08 11:09

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Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608-DUP

Collected By : Sam Grindstaff
Collection Date : 06/02/08 10:16

ESC Sample # : L349104-04

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	2.5	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1411	MCH
Fluoride	0.10	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1411	MCH
Sulfate	BDL	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1411	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1326	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0122	LEM
Sulfide	0.14	0.050	mg/l	4500-S2 D	06/10/08 1057	352	06/11/08 0550	KPB
Kjeldahl Nitrogen, TKN	BDL	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0933	DTH
Total Inorganic Carbon	59.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 1954	KSG
Dissolved Solids	240	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1231	AMS
Suspended Solids	BDL	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Arsenic	0.0011	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Chromium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Copper	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Nickel	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1615	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Zinc	0.011	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1732	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1109	KBW
Aluminum	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Barium	0.41	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Calcium	17.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Iron	0.12	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Magnesium	2.3	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Manganese	0.084	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

ESC Sample # : L349104-04

Site ID : 0014DOM

Project # : Kingston

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-13B-0608-DUP

Collected By :
Collection Date : 06/02/08 10:16

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Potassium	2.6	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Sodium	74.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Strontium	0.34	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1556	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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Notes:
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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-16A-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 09:28

ESC Sample # : L349104-05

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	BDL	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1430	MCH
Fluoride	0.30	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1430	MCH
Sulfate	28.	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1430	MCH
Ammonia Nitrogen	0.29	0.10	mg/l	350.1	06/11/08 1431	234	06/11/08 1330	LEM
Nitrate-Nitrite	BDL	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0125	LEM
Kjeldahl Nitrogen, TKN	0.37	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0934	DTH
Total Inorganic Carbon	42.	1.0	mg/l	9060A	06/10/08 1600	162	06/12/08 2012	KSG
Dissolved Solids	200	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1231	AMS
Suspended Solids	12.	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Arsenic	0.0014	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Chromium	0.0015	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Copper	0.0013	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Nickel	0.0022	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1618	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Zinc	0.035	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1736	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/06/08 2248	261	06/10/08 1111	KBW
Aluminum	0.28	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Barium	0.051	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Calcium	44.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Iron	1.1	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Magnesium	9.3	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Manganese	1.3	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Potassium	2.1	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
The reported analytical results relate only to the sample submitted

ENVIRONMENTAL
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12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-16A-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 09:28

ESC Sample # : L349104-05

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Sodium	16.	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Strontium	0.28	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1559	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 09227, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
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AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Notes:
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Reported: 06/20/08 11:08 Printed: 06/20/08 11:09

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REPORT OF ANALYSIS

Mr. Mark Boggs
TVA-Environmental Affairs
400 West Summit Hill Dr., Mailstop
Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-APAEQ BLANK-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 09:50

ESC Sample # : L349104-15

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Chloride	BDL	1.0	mg/l	9056	06/06/08 1615	159	06/07/08 1829	MCH
Fluoride	BDL	0.10	mg/l	9056	06/06/08 1615	159	06/07/08 1829	MCH
Sulfate	BDL	5.0	mg/l	9056	06/06/08 1615	159	06/07/08 1829	MCH
Ammonia Nitrogen	BDL	0.10	mg/l	350.1	06/11/08 1000	234	06/13/08 0942	CWP
Nitrate-Nitrite	1.4	0.10	mg/l	353.2	06/09/08 0802	165	06/09/08 0139	LEM
Sulfide	BDL	0.050	mg/l	4500-S2 D	06/10/08 1057	352	06/11/08 0550	KPB
Kjeldahl Nitrogen, TKN	BDL	0.10	mg/l	351.2	06/20/08 1016	234	06/20/08 0945	DTH
Total Inorganic Carbon	BDL	1.0	mg/l	9060A	06/10/08 1600	162	06/13/08 0036	KSG
Dissolved Solids	BDL	10.	mg/l	2540C	06/07/08 0858	193	06/09/08 1222	AMS
Suspended Solids	BDL	1.0	mg/l	2540D	06/07/08 0856	193	06/07/08 0929	AMS
Antimony	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Arsenic	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Beryllium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Cadmium	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Chromium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Copper	0.0010	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Cobalt	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Lead	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Nickel	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Selenium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Silver	BDL	0.00050	mg/l	6020	06/10/08 1303	47	06/17/08 1812	EGR
Thallium	BDL	0.0010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Zinc	0.031	0.010	mg/l	6020	06/10/08 1303	47	06/15/08 1827	EGR
Mercury	BDL	0.00020	mg/l	7470A	06/09/08 0907		06/11/08 1203	CLF
Aluminum	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Barium	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Boron	BDL	0.20	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Calcium	2.3	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Iron	BDL	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Magnesium	0.11	0.10	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Manganese	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT

BDL - Below Detection Limit
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REPORT OF ANALYSIS

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TVA-Environmental Affairs
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Knoxville, TN

June 20,2008

Date Received : 06/06/08 13:05
Description : Kingston Fossil Groundwater

Sample ID : KIF-APAEQ BLANK-0608

Collected By : Sam Grindstaff
Collection Date : 06/02/08 09:50

ESC Sample # : L349104-15

Site ID : 0014DOM

Project # : Kingston

Parameter	Result	Det. Limit	Units	Method	Prep	PID	Analyzed	AID
Molybdenum	BDL	0.0050	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Potassium	BDL	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Sodium	BDL	0.50	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Strontium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT
Vanadium	BDL	0.010	mg/l	6010B	06/10/08 1623	117	06/11/08 1859	LAT

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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Notes:
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Reported: 06/20/08 11:08 Printed: 06/20/08 11:10

Attachment A
List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L349104-02	Molybdenum	O
	Vanadium	O
L349104-03	Suspended Solids	T4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T4	(ESC) - Additional method/sample information: QNS - Quantity Not Sufficient

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
06/20/08 at 11:10:10

TSR Signing Reports: 400
R5 - Desired TAT

Please add EDD to all samples from TVAENVAFF. RC 09/04/07

Sample: L349104-01 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-02 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-03 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-04 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-05 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-06 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08

Sample: L349104-07 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-08 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-09 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-10 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-11 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-12 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-13 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-14 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-15 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18
Sample: L349104-16 Account: TVAENVAFF Received: 06/06/08 13:05 Due Date: 06/20/08 00:00 RPT Date: 06/20/08 11:08
Added TKN, Chloride, Sulfate per RC 6/18