April 2011 - Buildings 1 & 2
Groundwater Monitoring Well Sampling Report

General Services Administration

Bannister Federal Complex

1500 East Bannister Road

Kansas City, Jackson County, Missouri

July 25, 2011

Terracon Project No. 02107144

Prepared for:

General Services Administration

Kansas City, Missouri

Prepared by:

Terracon Consultants, Inc.

Lenexa, Kansas

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Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

July 25, 2011

Terracon

General Services Administration (GSA)
Heartland Region
1500 East Bannister Road, Room 2191
Kansas City, MO 64131

Attn: Mr. Kevin Phillips, Computer Integrated Facilities Manager
Phone: 816.823.1220
Email: kevin.phillips@gsa.gov

Re: April 2011 Groundwater Monitoring Well Sampling Report
Bannister Federal Complex – Buildings 1 & 2
1500 East Bannister Road
Kansas City, Missouri 64131
Terracon Project Number: 02107144

Dear Mr. Phillips:

Terracon Consultants, Inc. (Terracon) is pleased to submit this report summarizing sampling of the Department of Energy (DOE) monitoring wells KC91-152U/L, KC91-156U/L, and KC91-157U/U for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs) congeners at the General Services Administration (GSA) Federal Complex located at 1500 East Bannister Road, Kansas City, Missouri. Terracon personnel conducted the groundwater sampling on April 19, 2011.

Field and laboratory methods were performed consistent with Tetra Tech EM Inc.'s Work Plan and Quality Assurance Project Plan (Work Plan/QAPP) and the quality control requirements outlined therein. Specific sampling procedures and findings are presented in applicable sections of the Sampling Report.

We appreciate the opportunity to be of service and provide this information as part of the ongoing evaluation work at the Bannister Federal Complex. If you have any questions regarding this report, please call us at 913-492-7777.

Sincerely,
Terracon Consultants, Inc.

Wil King, P.G.
Project Geologist

Eric Gorman, P.G.
Environmental Department Manager

Cindy A. Baldwin, CIH, LIH
Senior Industrial Hygienist

Copies to: Addressee (2)

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APRIL 2011 GROUNDWATER MONITORING WELL SAMPLING REPORT

GENERAL SERVICES ADMINISTRATION
BANNISTER FEDERAL COMPLEX – BUILDINGS 1 & 2
1500 EAST BANNISTER ROAD
KANSAS CITY, MISSOURI 64131

TERRACON PROJECT NUMBER: 02107144
July 25, 2011

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed monitoring well sampling activities at the site identified as the General Services Administration (GSA) Bannister Federal Complex (BFC) Buildings 1 & 2 located at 1500 East Bannister Road, Kansas City, Jackson County, Missouri. Monitoring well sampling activities were performed in general accordance with the Tetra Tech EM, Inc. (Tetra Tech) developed Work Plan and Quality Assurance Project Plan for Site Investigation and limited Removal Action Activities (Work Plan/QAPP), dated September 1, 2010 and subsequent addendum dated November 24, 2010. This report summarizes the activities conducted and the analytical results of the groundwater samples collected during the April 2011 groundwater sampling event.

1.1 Site Location Description

The BFC is a 300-acre federal complex, bordered on the north by a wooded bluff and Legacy Park, on the east by the Blue River and Blue River Road, on the south by Bannister Road and Indian Creek, and on the west by Troost Avenue. Building 1 and Building 2 are bordered by GSA buildings and parking to the north and west, by additional parking to the south, and by Honeywell Federal Manufacturing and Technologies to the east. The original BFC was established in 1942 to build aircraft engines for the U.S. Navy. After World War II, manufacture of aircraft engines continued on the west side of the BFC until the 1960s, while manufacture of non-nuclear components of nuclear weapons began at the east side of the BFC in 1949 as explained in the May 2008 Site Preliminary Assessment (PA) and Site Inspection Report performed by SCS Engineers (SCS). Currently, more than half of the BFC (generally the eastern portion of the BFC) is managed by the U.S. Department of Energy (DOE) as the Kansas City Plant (KCP), while the remaining portion of the BFC is managed by GSA and is used primarily as warehouse and office space.

Exhibit 1 provided in Appendix A, is a topographic map depicting the site location and surrounding properties. The site layout is illustrated on Exhibit 2, Appendix A.

2.0 MONITORING WELL SAMPLING ACTIVITIES

Terracon performed the following tasks as specified in the Environmental Protection Agency (EPA) approved Tetra Tech Work Plan/QAPP:

- Conducted groundwater sampling of six Department of Energy (DOE) monitoring wells, KC91-152U/L, KC91-156U/L, and KC91-157U/L (three nested pairs).

2.1 Groundwater Sampling Activities

Terracon personnel mobilized to the site on April 19, 2011 to gauge and sample the groundwater monitoring wells. An electronic interface probe (IFP) was used to measure the water level. Measurements were made of the depth to water and total well depth. Measurements were recorded to the nearest 0.01-foot, referenced from the surveyed mark at the top of the casing. Utilizing the recorded depth to water measurements and the established top of casing elevations, the groundwater elevation at each monitoring well location was calculated. The calculated groundwater elevations are presented in Table 1. Depth to groundwater measurements were collected from each of the six (three nested pairs) monitoring wells (KC91-152U/L, KC91-156U/L, and KC91-157U/L) on April 19, 2011.

All non-dedicated water level measuring equipment was decontaminated before and after measurements at each well location. Decontamination was accomplished following the procedure in Section 4.3.6 of the Work Plan/QAPP.

Following collection of depth to groundwater measurements, a dedicated bladder pump was lowered in each well so the pump intake was located approximately 2 feet above the bottom of the well. Disposable polyethylene tubing was connected from the bladder pump to the surface/bladder pump controller.

Following the placement of the bladder pumps in each monitoring well, the monitoring wells were purged until water quality indicator parameters (i.e., pH, conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and temperature) of the groundwater had stabilized (defined as three successive sets of values within ± 0.1 for pH, ± 3% for conductivity, ± 10 millivolts for ORP, and ± 10% for DO and temperature). Water quality indicator measurements were taken every four minutes, using low-flow rates on the order of 0.1 – 0.5 Liters/minute (L/min). The estimated flow rate was recorded on the well sampling logs. Well sampling logs are provided in Appendix D.

Field parameter measurements were made using a YSI 556 Multi-Probe System (YSI 556) to measure pH, conductivity, temperature, DO, and ORP. Before obtaining these measurements, the field instrumentation was properly calibrated, in accordance with

manufacturer's specifications. Calibration was performed by Field Environmental Instruments (FEI), a Terracon equipment supplier, prior to use in the field. Final field measurements of pH, conductivity, temperature, DO, and ORP were performed following stabilization and recorded on the appropriate field log form.

After obtaining final field parameter measurements at each individual well, groundwater samples were immediately collected in laboratory-provided containers. Sampling flow rates were kept consistent with purge rates utilized.

After purging and sampling were completed at each well, the purge water was transferred from the 5-gallon buckets to a 55-gallon drum containing granular activated carbon (GAC drum) and discharged to the ground outside of the facility building. Fluid transfers from buckets to drums were made using a funnel, taking care not to spill the purge water.

The groundwater analytical laboratory results for the groundwater sampling event are summarized in Section 4.0 of this report and Tables 2 through 4 in Appendix B. Site layout and monitoring well locations are presented on Exhibit 2, Appendix A. A copy of the groundwater sample laboratory reports is included as Appendix C. Copies of field notes are provided in Appendix D.

3.0 LABORATORY ANALYTICAL METHODS

Laboratory analytical testing of groundwater samples was performed by Environmental Science Corp. (ESC), located in Mt. Juliet, Tennessee, for VOCs using EPA SW-846 Method 8260B and for SVOCs using EPA SW-846 Method 8270. In addition, groundwater samples were analyzed by Columbia Analytical Services (CAS), located in Houston, Texas, for PCBs using EPA Method 1668A. Groundwater samples were preserved in accordance with the requirements of the methods utilized for laboratory analysis.

One field duplicate quality assurance/quality control (QA/QC) groundwater sample (collected from monitoring well KC91-156L) and one rinsate sample (collected from bladder pump prior to use) were collected for laboratory analysis by each laboratory. In addition, a trip blank was provided to ESC for laboratory analysis.

Samples were maintained in the custody of field personnel. After the samples were labeled, they were delivered, under chain-of-custody procedures, for transport to the laboratory. Sample handling and analysis procedures, provided in the approved Work Plan/QAPP prepared by Tetra Tech were used for this sampling event.

Laboratory analytical results are presented on Tables 2 through 4, Appendix B.

4.0 ANALYTICAL RESULTS

4.1 VOCs in Groundwater

With the exception of cis-1,2-dichloroethene (cis-1,2-DCE) , trichloroethene (TCE), and vinyl chloride, VOCs were not reported above associated laboratory detection limits in the groundwater samples collected.

Cis-1,2-DCE was reported in groundwater samples collected from monitoring wells KC91-157L and KC91-157U at concentrations of 3 micrograms per liter (µg/L) and 0.99 µg/L, respectively. The identified cis-1,2-DCE concentrations are below the EPA Tapwater RSL and EPA MCL of 73 µg/L and 70 µg/L, respectively. Vinyl chloride was detected in the groundwater samples collected from monitoring wells KC91-156L and KC91-157L at concentrations of 0.35 µg/L and 1.7 µg/L, respectively. The identified vinyl chloride concentrations are above the EPA Tapwater RSL of 0.016 µg/L, but below the EPA MCL of 2 µg/L. TCE was detected in the groundwater sampled collected from monitoring well KC91-157U at a concentration of 0.51 µg/L, which is below the EPA Tapwater RSL of 2 µg/L and the EPA MCL of 5 µg/L. Remaining VOCs were not detected above laboratory analytical detection limits.

Laboratory groundwater results for VOCs are summarized in Table 2 in Appendix B. Appendix C provides the associated laboratory analytical reports.

4.2 SVOCs in Groundwater

SVOCs were not reported in the groundwater samples collected for laboratory analysis, with the exception of bis(2-ethylhexyl)phthalate in groundwater sample KC91-152L, KC91-156L, KC91-156U, KC91-157L, KC91-157U, and KC91-DUP (KC91-156L) at concentrations of 1 µg/L, 0.69 µg/L, 0.68 µg/L, 0.74 µg/L, 0.7 µg/L, and 0.68 µg/L, respectively. The identified bis(2-ethylhexyl)phthalate concentrations are below the EPA Tapwater RSL and EPA MCL. It should be noted that bis(2-ethylhexyl)phthalate is a common laboratory contaminant.

Laboratory groundwater results for SVOCs are summarized in Table 3 in Appendix B. Appendix C provides the associated laboratory analytical reports.

4.3 PCBs in Groundwater

Various dioxin-like PCBs and non-dioxin-like PCBs (identified as all other PCBs) were reported at concentrations above the sample-specific detection limits in the groundwater samples collected. The identified PCB concentrations do not exceed the site-specific EPA Tapwater RSLs or EPA MCLs.

Laboratory groundwater results for PCBs are summarized in Table 4 in Appendix B. Appendix C provides the associated laboratory analytical reports.

5.0 QUALITY CONTROL AND DATA VALIDATION

5.1 General Field Methods

Sample collection and analysis procedures were performed consistent with standard industry practice, EPA analytical protocols, and the EPA-approved Work Plan. Refer to Section 2.0, Section 3.0, and the Tetra Tech Work Plan and QAPP for additional details regarding general field procedures. The following sections discuss quality control indicators in detail.

5.2 Holding Times and Detection Limits

Laboratory analyses were performed within the sample holding times prescribed by the specific analytical methods applied. In addition, laboratory detection limits for the contaminants of concern (VOCs, PCB, and SVOCs) were at or below EPA RSLs and/or MCLs. Appendix C laboratory reports outline the laboratory detection limits for each individual sample analysis.

5.3 Groundwater Duplicate Results

Terracon collected a duplicate groundwater sample from groundwater monitoring well KC91-156L. The duplicate sample is identified as KC91-DUP. A relative percent difference (RPD) value for bis(2-ethylhexyl)phthalate was identified at 1%, which is below the 20% data quality threshold. All Other PCBs had a calculated RPD of 129%, which is above the 20% data quality threshold. RPDs were not calculated for the remaining VOCs, SVOCs, and PCBs, as they were not detected in groundwater samples KC91-DUP or KC91-156L. Table 5, Appendix B provides a summary of duplicate water data and associated RPD results.

5.4 Quality Assurance and Quality Control

Laboratory quality assurance and quality control (QA/QC) results – e.g., laboratory blank, matrix spike, matrix spike duplicate, etc. – were within acceptable ranges based on the internal Level IV data validation procedures performed by ESC. Tetra Tech will complete the external verification and validation of the laboratory data package. The Case Narrative summaries and quality control data packages provided in Appendix C provide additional details regarding laboratory QA/QC results.

5.5 Rinsate/Equipment Blank Results

Terracon collected a rinsate sample (equipment blank) from the bladder pump utilized in monitoring well KC91-152L (prior to use). The rinsate sample is identified as KC91-Rinsate. All Other PCBs were detected above the reporting limits and PCBs consisting of PCB 118, PCB 105, PCB 167, PCB 156/157, and PCB 189, were detected above the sample-specific detection limits, but below associated reporting limits. The detected PCB concentrations are below the Tapwater RSLs.

Chloroform was detected at a concentration of 0.69 µg/L which is above the Tapwater RSL of 0.19 µg/L and below the MCL of 80 µg/L. Remaining VOCs and SVOCs were not detected above the laboratory reporting limits or sample-specific detection limits.

Table 2, Table 3, and Table 4 in Appendix B provide a summary of rinsate laboratory results.

5.6 Method Blank Results

Laboratory analysis of the method blank reported a concentration of PCB 118 below reporting limits but above sample-specific detection limits. Laboratory detections above sample-specific detection limits are reported in Table 4, Appendix B. All Other PCBs were identified at a concentration of 0.000797 µg/L, below the EPA RSL for Tapwater of 0.17 µg/l and EPA MCL of 0.5 µg/L.

5.7 Deviations from Work Plan

The EPA approved Work Plan/QAPP called for method 8082 to be used for the PCB analysis of samples. However, Method 1668A was used in the sample analysis. Method 1668A was used in an attempt to obtain required reporting limits.

6.0 SUMMARY AND CONCLUSIONS

6.1 Summary

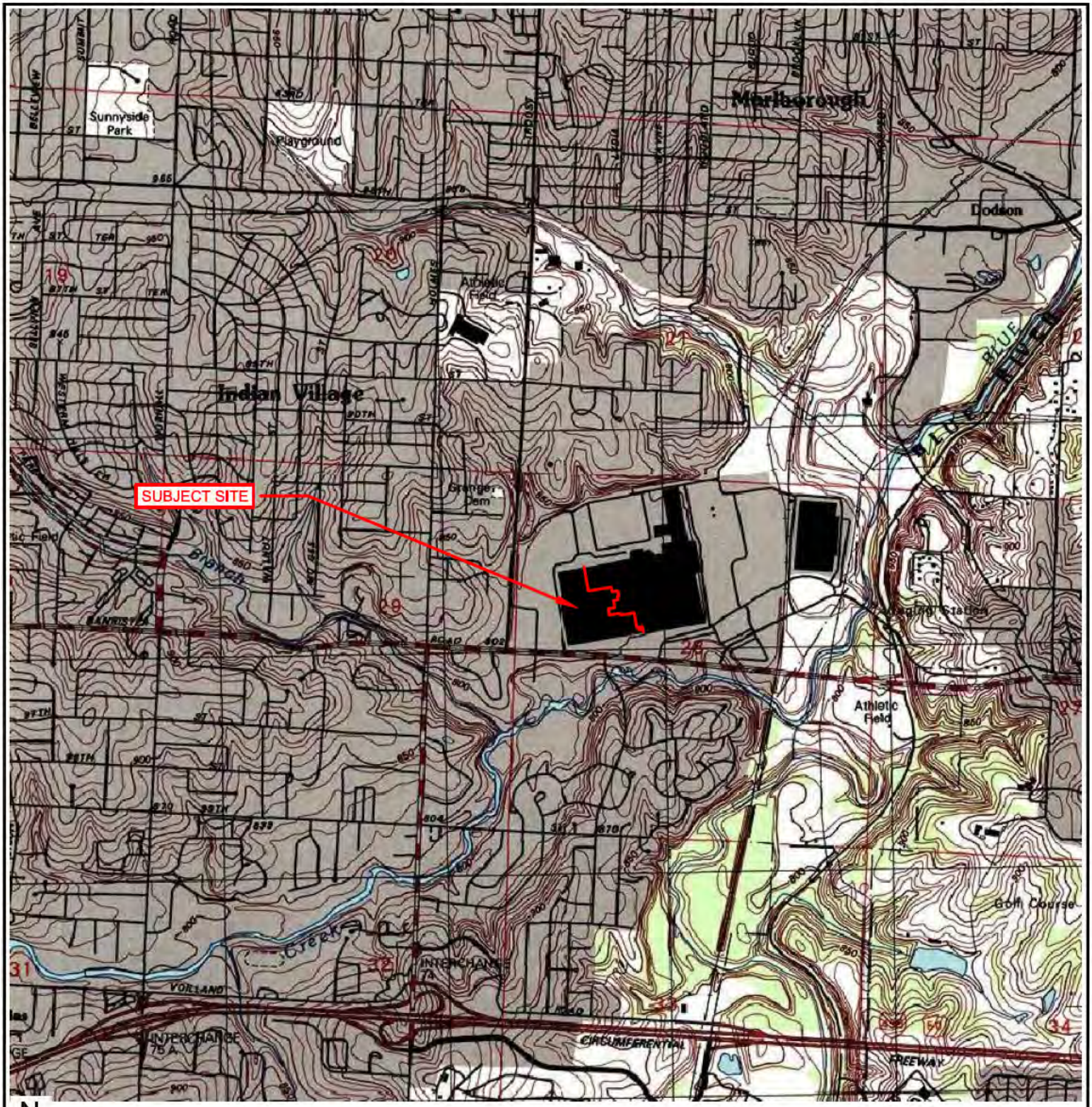
Based on laboratory analytical data, vinyl chloride was detected above the EPA Tapwater RSL, but below the EPA MCL in the groundwater sample collected from monitoring well KC91-157L. The remaining contaminants of concern were not detected above the RSLs and/or MCLs.

6.2 Conclusions

Based on the results of the April 2011 groundwater sampling event, vinyl chloride is present on-site above the EPA RSL for Tapwater.

APPENDIX A

EXHIBITS



N

0 1000' 2,000' 4,000'

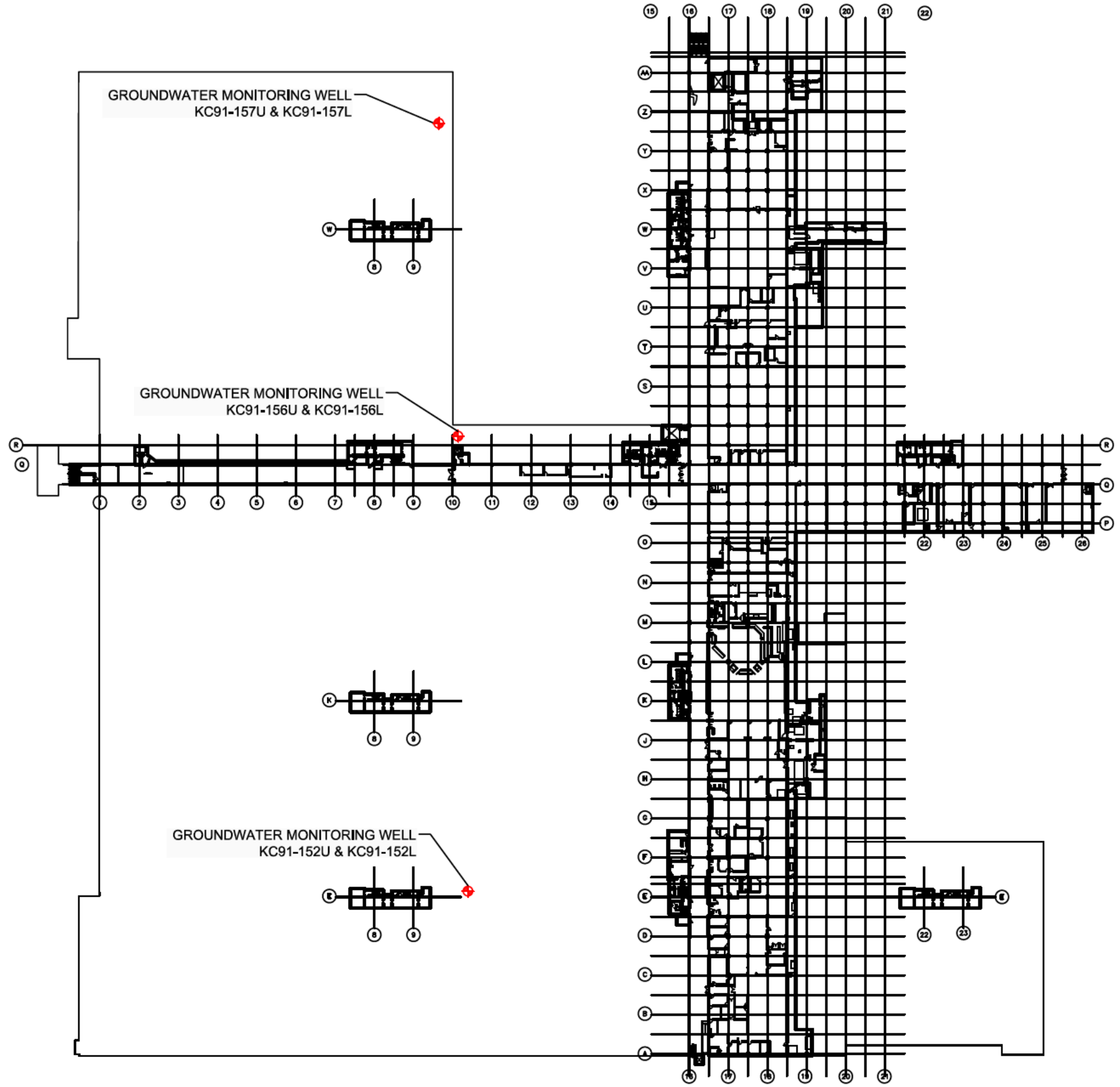
U.S.G.S. 7.5 MINUTE SERIES TOPOGRAPHIC MAP

STATE OF KANSAS-MISSOURI QUADRANGLE
GRANDVIEW 1996

Project Mngr: WWK	Project No. 02117144	Terracon Consulting Engineers and Scientists	EXHIBIT 1 - TOPOGRAPHIC MAP
Approved By: WWK	Scale: 1" = 2000'	13910 W. 96TH TERRACE LENEXA, KS 66215	BUILDING 1 & 2 GROUNDWATER SAMPLING
Checked By: WWK	Date: 5/15/11	PH. (913) 492-7777 FAX. (913) 492-7443	1500 E BANNISTER ROAD
Drawn By: DBM	File No. 107144E1.DWG		KANSAS CITY, MISSOURI

EXHIBIT

1



N

LEGEND

GROUNDWATER SAMPLE LOCATION

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Project Mngr:	WWK
Drawn By:	DBM
Checked By:	WWK
Approved By:	WWK
Project No.	02107144
Scale:	NOT TO SCALE
File No.	building 1&2 ground water sampling
Date:	05/16/11

Terracon
Consulting Engineers and Scientists
13910 W. 96TH TERRACE KANSAS CITY, KS 66215
PH. (913) 492-7777 FAX. (913) 492-7443

EXHIBIT 2 - SAMPLE LOCATION DIAGRAM

BUILDING 1 & 2 GROUNDWATER SAMPLING

1500 E BANNISTER ROAD
KANSAS CITY, MISSOURI

Exhibit # 2

APPENDIX B

TABLES

Table 1
Groundwater Elevation Data
General Services Administration - Building 1 & Building 2
Terracon Project No. 02107144

Well Number	Date Measured	Top of Casing Elevation (Feet)	Static Water Level (Feet BTOC)	Groundwater Elevation (Feet)	Length of Water (Feet)	Total Depth (Feet BGS)	Screen Interval (Feet BTOC)
KC91-152 L	4/19/2011	800.26	13.85	786.41	27.24	41.09	36.5 to 41.5
KC91-152 U	4/19/2011	800.24	13.59	786.65	6.42	20.01	9.5 to 19.5
KC91-156 L	4/19/2011	800.15	14.26	785.89	23.83	38.09	33.5 to 38.5
KC91-156 U	4/19/2011	800.13	14.28	785.85	5.73	20.01	9.5 to 19.5
KC91-157 L	4/19/2011	800.07	12.21	787.86	25.41	37.62	33.0 to 38.0
KC91-157 U	4/19/2011	800.01	12.13	787.88	7.89	20.02	9.5 to 19.5

Notes:

Top of casing elevations were provided by Honeywell on April 1, 2011

BGS = Below Grade Surface

BTOC= Below Top of Casing

Table 2
Analytical Data Summary for Building 1 & 2 _ VOCs In Groundwater
General Services Administration Bannister Federal Complex
Kansas City, Missouri

Sample I.D.		KC91-152L		KC91-152U		KC91-156L		KC91-156U		KC91-157L		KC91-157U		KC91-DUP (KC91-156L)	KC91-RINSATE		TRIP BLANK		Tapwater RSL (ug/l)	MCL (ug/l)
Sample Date		1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011		
Units	CAS Number	All concentrations provided in milligrams per liter (µg/L)																		
Acetone	67-64-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	22000	NE
Acrolein	107-02-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.042	NE
Acrylonitrile	107-13-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.045	NE
Benzene	71-43-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.41	5
Bromobenzene	108-86-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	88	NE
Bromodichloromethane	75-27-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.12	80
Bromoform	75-25-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.5	80
Bromomethane	74-83-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.7	NE
n-Butylbenzene	104-51-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
sec-Butylbenzene	135-98-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
tert-Butylbenzene	98-06-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Carbon tetrachloride	56-23-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.44	5
Chlorobenzene	108-90-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	91	100
Chlorodibromomethane	124-48-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15	80
Chloroethane	75-00-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21000	NE
2-Chloroethyl vinyl ether	110-75-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Chloroform	67-66-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.43 J	0.69 J	ND	ND	0.19	80
Chloromethane	74-87-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	190	NE
2-Chlorotoluene	95-49-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	730	NE
4-Chlorotoluene	106-43-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2600	NE
1,2-Dibromo-3-Chloropropane	96-12-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00032	0.00000014
1,2-Dibromoethane	106-93-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0065	0.05
Dibromomethane	74-95-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.2	NE
1,2-Dichlorobenzene	95-50-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	370	600
1,3-Dichlorobenzene	541-73-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
1,4-Dichlorobenzene	106-46-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.43	75
Dichlorodifluoromethane	75-71-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	390	NE
1,1-Dichloroethane	75-34-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.4	NE
1,2-Dichloroethane	107-06-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15	5
1,1-Dichloroethene	75-35-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	340	7
cis-1,2-Dichloroethene	156-59-2	ND	ND	ND	ND	ND	ND	ND	ND	2.9	3	0.82 J	0.99 J	ND	ND	ND	ND	ND	73	70
trans-1,2-Dichloroethene	156-60-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	100
1,2-Dichloropropane	78-87-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.39	5
1,1-Dichloropropene	563-58-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
1,3-Dichloropropane	142-28-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	730	NE
cis-1,3-Dichloropropene	10061-01-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
trans-1,3-Dichloropropene	10061-02-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
2,2-Dichloropropane	594-20-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Di-isopropyl ether	108-20-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	830	NE
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	700
Hexachloro-1,3-butadiene	87-68-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.86	NE
Isopropylbenzene	98-82-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	680	NE
p-Isopropyltoluene	99-87-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
2-Butanone (MEK)	78-93-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7100	NE
Methylene Chloride	75-09-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.8	5
4-Methyl-2-pentanone (MIBK)	108-10-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2000	NE
Methyl tert-butyl ether	1634-04-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	NE
Naphthalene	91-20-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.14	NE
n-Propylbenzene	103-65-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Styrene	100-42-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1600	100
1,1,1,2-Tetrachloroethane	630-20-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.52	NE
1,1,2,2-Tetrachloroethane	79-34-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.067	NE
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	59000	NE
Tetrachloroethene	127-18-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11	5
Toluene	108-88-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2300	1000
1,2,3-Trichlorobenzene	87-61-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	29	NE
1,2,4-Trichlorobenzene	120-82-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3	70
1,1,1-Trichloroethane	71-55-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9100	200
1,1,2-Trichloroethane	79-00-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.24	5
Trichloroethene	79-01-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.52 J	0.51 J	ND	ND	ND	ND	ND	2	5
Trichlorofluoromethane	75-69-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1300	NE
1,2,3-Trichloropropane	96-18-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00072	NE
1,2,4-Trimethylbenzene	95-63-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15	NE
1,2,3-Trimethylbenzene	526-73-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
1,3,5-Trimethylbenzene	108-67-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	370	NE
Vinyl chloride	75-01-4	ND	ND	ND	ND	ND	0.35 J	ND	ND	1.5	1.7	ND	ND	ND	ND	ND	ND	ND	0.016	2
Xylenes, Total	1330-20-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200	10000

Source: Environmental Science Corp., 2011
Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) and Maximum Concentration Levels (MCLs) derived from the EPA Regional Screening Levels document dated November 201(

Notes:

ug/L = Groundwater concentrations reported in micrograms per liter
RSL = Regional Screening Level
MCL = Maximum Contaminant Level
" J " = Laboratory detection reported below reporting limit but above sample-specific detection limit
ND = Not detected above the laboratory method detection limits.
NE = Not Established by the EPA
Bold = Indicates analyte reported above laboratory analytical detection limits
Bold = Indicates analyte reported above the EPA Tapwater RSL and/or MCL

Table 3
Analytical Data Summary for Building 1 & 2 . SVOCs In Groundwater
General Services Administration Bannister Federal Complex
Kansas City, Missouri

Sample I.D.		KC91-152L		KC91-152U		KC91-156L		KC91-156U		KC91-157L		KC91-157U		KC91-DUP (KC91-156L)	KC91-RINSATE		Tap Water RSL (ug/l)	MCL
Sample Date		1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	4/19/2011	1/19/2011	4/19/2011		
Paramater	CAS Number	All concentrations provided in milligrams per liter (µg/L)																
Acenaphthene	83-32-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2200	NE
Acenaphthylene	208-96-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Anthracene	120-12-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11000	NE
Benzidine	92-87-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.000094	NE
Benzo(a)anthracene	56-55-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.029000	NE
Benzo(b)fluoranthene	205-99-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.029000	NE
Benzo(k)fluoranthene	207-08-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.290000	NE
Benzo(g,h,i)perylene	191-24-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Benzo(a)pyrene	50-32-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.002900	0.20
Bis(2-chlorethoxy)methane	111-91-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	NE
Bis(2-chloroethyl)ether	111-44-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0120	NE
Bis(2-chloroisopropyl)ether	108-60-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3200	NE
4-Bromophenyl-phenylether	101-55-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
2-Chloronaphthalene	91-58-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2900	NE
4-Chlorophenyl-phenylether	7005-72-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Chrysene	218-01-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.9	NE
Dibenz(a,h)anthracene	53-70-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00290	NE
3,3-Dichlorobenzidine	91-94-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	NE
2,4-Dinitrotoluene	121-14-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22	NE
2,6-Dinitrotoluene	606-20-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	37	NE
Fluoranthene	206-44-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1500	NE
Fluorene	86-73-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1500	NE
Hexachlorobenzene	118-74-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.042	1
Hexachloro-1,3-butadiene	87-68-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.86	NE
Hexachlorocyclopentadiene	77-47-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	220	500
Hexachloroethane	67-72-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.80	NE
Indeno(1,2,3-cd)pyrene	193-39-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0290	NE
Isophorone	78-59-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	71	NE
Naphthalene	91-20-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.140	NE
Nitrobenzene	98-95-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.12	NE
n-Nitrosodimethylamine	62-75-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00042	NE
n-Nitrosodiphenylamine	86-30-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	NE
n-Nitrosodi-n-propylamine	621-64-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0096	NE
Phenanthrene	85-01-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Benzylbutyl phthalate	85-68-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	35	NE
Bis(2-ethylhexyl)phthalate	117-81-7	**1.2**	**1**	ND	ND	ND	**0.69 J**	ND	**0.68 J**	ND	**0.74 J**	ND	**0.7 J**	**0.68 J**	ND	ND	4.8	6.0
Di-n-butyl phthalate	84-74-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3700	NE
Diethyl phthalate	84-66-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	29000	NE
Dimethyl phthalate	131-11-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Di-n-octyl phthalate	117-84-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Pyrene	129-00-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1100	NE
1,2,4-Trichlorobenzene	120-82-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3	70
4-Chloro-3-methylphenol	59-50-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3700	NE
2-Chlorophenol	95-57-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	NE
2,4-Dichlorophenol	120-83-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	110	NE
2,4-Dimethylphenol	105-67-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	730	NE
4,6-Dinitro-2-methylphenol	534-52-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	29	NE
2,4-Dinitrophenol	51-28-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	73	NE
2-Nitrophenol	88-75-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
4-Nitrophenol	100-02-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE
Pentachlorophenol	87-86-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.170	1.0
Phenol	108-95-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11000	NE
2,4,6-Trichlorophenol	88-06-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.10	Ne

Source: Environmental Science Corp., 2011
Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) and Maximum Concentration Levels (MCLs) derived from the EPA Regional Screening Levels document dated November 2010

Notes:

ug/L = Groundwater concentrations reported in micrograms per liter
RSL = Regional Screening Level
MCL = Maximum Contaminant Level
" J " = Laboratory detection reported below reporting limit but above sample-specific detection limit.
ND = Not detected above the laboratory method detection limits.
NE = Not Established by the EPA
Bold = Indicates analyte reported above laboratory analytical detection limits

Table 4
Analytical Data Summary - PCBs In Groundwater
General Services Administration - Building 1 & Building 2
Kansas City, Missouri

Sample I.D.		KC91-152U		KC91-152L		KC91-156U		KC91-156L		KC91-157U		KC91-157L		KC91-DUP (KC91-156L)	Method Blank		KC91-RINSATE		Tapwater RSL	MCL
Sample Date		1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	1/19/2011	4/19/2011	4/19/2011	2/1/2011	4/27/2011	1/19/2011	4/19/2011		
Parameter	CAS Number	All concentrations provided in milligrams per liter (µg/L)																		
PCB 81	70362-50-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0017	NE
PCB 77	32598-13-3	ND	ND	**0.00022 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0052	NE
PCB 123	65510-44-3	ND	ND	**0.000025 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.017	NE
PCB 118	31508-00-6	**0.0000232 J**	**0.0000424 J**	**0.00147 J**	**0.000051 J**	**0.0000309 J**	ND	**0.0000206 J**	ND	**0.0000239 J**	**0.0000253 J**	**0.0000258 J**	**0.0000207 J**	**0.00005 J**	**0.000024 J**	**0.0000155 J**	**0.0000262 J**	**0.0000373 J**	0.017	NE
PCB 114	74472-37-0	ND	ND	**0.0000505 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0000068 J**	ND	ND	ND	0.017	NE
PCB 105	32598-14-4	**0.0000125 J**	ND	**0.000749 J**	**0.000025 J**	**0.0000131 J**	ND	**0.00000912 J**	ND	**0.0000101 J**	ND	**0.0000101 J**	**0.00000574 J**	**0.0000192 J**	**0.0000115 J**	ND	**0.000013 J**	**0.000019 J**	0.017	NE
PCB 126	57465-28-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0000052	NE
PCB 167	52663-72-6	ND	ND	**0.000103 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00000735 J**	0.017	NE
PCBs 156 + 157	NA	ND	ND	**0.000317 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0000107 J**	ND	ND	**0.0000243 J**	0.017	NE
PCB 169	32774-16-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.000017	NE
PCB 189	39635-31-9	ND	ND	**0.0000533 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00000746 J**	0.017	NE
All Other PCBs	--	**0.00114967**	**0.00171750**	**0.08272265**	**0.00347985**	**0.00363410**	**0.00033250**	**0.00155420**	**0.00050320**	**0.00136220**	**0.00135510**	**0.00124405**	**0.00100337**	**0.00234778**	**0.00100850**	**0.00079651**	**0.00101661**	**0.00364975**	0.17	0.5

Source: Columbia Analytical Services (CAS), 2011

Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) and Maximum Concentration Levels (MCLs) derived from the EPA Regional Screening Levels document dated November 2010

Notes:

ug/L = Groundwater concentrations reported in micrograms per liter
RSL = Regional Screening Level
MCL = Maximum Contaminant Level
" J " = Laboratory detection reported below reporting limit but above sample-specific detection limit.
ND = Not detected above the laboratory method detection limits.
NE = Not Established by the EPA
Bold = Indicates analyte reported above laboratory analytical detection limits
Bold = Indicates analyte reported above the EPA Tapwater RSL and/or MCL

Table 5
Analytical Data Summary for Buildings 1 & 2 - Groundwater Duplicate
General Services Administration
Kansas City, Missouri

Sample I.D.	CAS	KC91-156L	KC91-DUP	RPD (%)
Sample Date		4/19/2011	4/19/2011	
Volatile Organic Compounds (VOCs)				
Vinyl chloride	75-01-4	0.35 J	ND	NA
All Other VOCs	--	ND	ND	NA
Semi-Volatile Organic Compounds (SVOCs)				
Bis(2-ethylhexyl)phthalate	117-81-7	0.69 J	0.68 J	1%
All Other SVOCs	--	ND	ND	NA
Polychlorinated Biphenyls (PCBs)				
PCB 105	32598-14-4	ND	0.0000192 J	NA
PCB 118	31508-00-6	ND	0.00005 J	NA
All Other PCBs	--	0.000503	0.002348	129%
All Remaining PCBs	--	ND	ND	NA

Source: Environmental Science Corp. (ESC), 2011 and Columbia Analytical Services (CAS), 2011

Notes:

All concentrations provided in micrograms per liter (µg/L)

RPD = Relative percent difference

DUP = Duplicate sample

NA = RPD not calculated because no analyte was detected

Bold = Indicates RPD above the 20% data quality threshold

APPENDIX C

LABORATORY ANALYTICAL REPORTS

APPENDIX D

FIELD NOTES

WELL PURGING AND SAMPLING DATA

		WELL NO.:KC91-157U
DATE: 4/19/2011	PROJECT NAME: GSA Bannister	PROJECT NO.: 02107144

WEATHER CONDITIONS: Rainy

WELL DIAMETER (IN.): ☐ 1 ☑ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ☑ GROUND WATER ☐ WASTE WATER ☐ SURFACE WATER ☐ OTHER _____

WELL DEPTH (TOC): FT. | DEPTH TO WATER BEFORE PURGING (TOC): FT.

LENGTH OF WATER: FT. | CALCULATED ONE WELL VOLUME[1]: GA.

PURGING DEVICE: ☑ DEDICATED ☑ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☑ DECONTAMINATED

EQUIP. DECON.
- ☐ TAP WATER WASH
- ☐ ISOPROPANOL
- ☐ ANALYTE FREE FINAL RINSE
- ☑ ALCONOX WASH
- ☐ DIST/DEION 1 RINSE
- ☐ OTHER SOLVENT
- ☐ DIST/DEION FINAL RINSE
- ☐ LIQUINOX WASH
- ☐ DIST/DEION 2 RINSE
- ☑ TAP WATER FINAL RINSE
- ☐ AIR DRY

CONTAINER PRESERVATION: ☑ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL SERIAL NO.:

ACTUAL TIME (MIN)	DEPTH TO WATER (FEET)	TEMP ☐ °F ☑ °C	SPECIFIC CONDUCT (µS/cm)	pH	DISS OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
		±10%	±3%	±0.1	±10%		±10mv		
1740		22.93	4427	6.12	1.54	—	46.8	CL	
1744		23.08	4478	6.09	0.70	—	53.9	CL	
1748		23.10	4419	6.08	0.64	—	56.9	CL	
1752		23.10	4335	6.08	0.62	—	56.4	CL	
1756		23.10	4266	6.11	0.61	—	54.1	CL	

DEPTH TO WATER AFTER PURGING (TOC): FT. | SAMPLE FILTERED: ☐ YES ☐ NO SIZE____

NOTES: 312 mL/min

SAMPLE TIME: 1800 ID#

☐ DUPLICATE TIME: ID#

☐ EQUIP. BLANK: TIME: ID#

PREPARED BY:

Purged ~~2.5~~ 2.0 gal

[1] 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE, 0.163 GAL IN 2" DIA PIPE, 0.65 GAL IN 4" DIA PIPE, AND 1.5 GAL IN 6" DIA PIPE

WELL PURGING AND SAMPLING DATA

		WELL NO.:KC91-157L
DATE: 4/19/2011	PROJECT NAME: GSA Bannister	PROJECT NO.: 02107144

WEATHER CONDITIONS: Cloudy

WELL DIAMETER (IN.): ☐ 1 ☑ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ☑ GROUND WATER ☐ WASTE WATER ☐ SURFACE WATER ☐ OTHER _____

WELL DEPTH (TOC): FT.	DEPTH TO WATER BEFORE PURGING (TOC): FT.
LENGTH OF WATER: FT.	CALCULATED ONE WELL VOLUME[1]: GA.

PURGING DEVICE: ☑ DEDICATED ☑ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON.

	☐ TAP WATER WASH	☐ ISOPROPANOL	☐ ANALYTE FREE FINAL RINSE
☑ ALCONOX WASH	☐ DIST/DEION 1 RINSE	☐ OTHER SOLVENT	☒ DIST/DEION FINAL RINSE
☐ LIQUINOX WASH	☐ DIST/DEION 2 RINSE	☑ TAP WATER FINAL RINSE	☐ AIR DRY

CONTAINER PRESERVATION: ☑ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL SERIAL NO.:

ACTUAL TIME (MIN)	DEPTH TO WATER (FEET)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT (µS/cm)	pH	DISS OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
		±10%	±3%	±0.1	±10%		±10mv		
1812		22.32	1151	6.75	1.52	—	-125.7	CL	
1816		22.29	1121	6.75	0.76	—	-130.7	CL	
1820		22.27	1115	6.75	0.54	—	-133.5	CL	
1824		22.27	1115	6.75	0.56	—	-132.5	CL	
1828		22.26	1116	6.74	0.55	—	-130.7	CL	

DEPTH TO WATER AFTER PURGING (TOC): FT. SAMPLE FILTERED: ☐ YES ☐ NO SIZE____

NOTES: 312 mL/min

SAMPLE TIME: 1830 ID#

☐ DUPLICATE TIME: ID#

☐ EQUIP. BLANK: TIME: ID#

PREPARED BY:

[1] FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE, 0.163 GAL IN 2" DIA PIPE, 0.65 GAL IN 4" DIA PIPE, AND 1.5 GAL IN 6" DIA PIPE

Purged: 2 gal

WELL PURGING AND SAMPLING DATA

		WELL NO.:KC91-152U
DATE: 4/19/2011	PROJECT NAME: GSA Bannister	PROJECT NO.: 02107144

WEATHER CONDITIONS: Indoor

WELL DIAMETER (IN.): ☐ 1 ☑ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ☑ GROUND WATER ☐ WASTE WATER ☐ SURFACE WATER ☐ OTHER _____

WELL DEPTH (TOC): FT. | DEPTH TO WATER BEFORE PURGING (TOC): FT.

LENGTH OF WATER: FT. | CALCULATED ONE WELL VOLUME[1]: GA.

PURGING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON.
- ☐ TAP WATER WASH
- ☐ ISOPROPANOL
- ☐ ANALYTE FREE FINAL RINSE
- ☑ ALCONOX WASH
- ☐ DIST/DEION 1 RINSE
- ☐ OTHER SOLVENT
- ☐ DIST/DEION FINAL RINSE
- ☐ LIQUINOX WASH
- ☐ DIST/DEION 2 RINSE
- ☑ TAP WATER FINAL RINSE
- ☐ AIR DRY

CONTAINER PRESERVATION: ☑ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL SERIAL NO.: YSI 556 MPS

ACTUAL TIME (MIN)	DEPTH TO WATER (FEET)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT (µS/cm)	pH	DISS OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
1324		±10%	±3%	±0.1	±10%		±10mv		
~~1323~~	—	22.70	122	5.99	5.71	—	198.6	TU	
1328		22.76	122	5.93	~~5.3~~ 5.32	—	197.5	CO	
1332		22.79	123	5.89	4.95	—	194.1	CO	
1336		22.79	123	5.88	4.86	—	191.3	CL	
1340		22.80	123	5.86	4.65	—	189.4	CL	

DEPTH TO WATER AFTER PURGING (TOC): FT. | SAMPLE FILTERED: ☐ YES ☒ NO SIZE____

NOTES: 250mL/50sec. = 300mL/min

SAMPLE TIME: 1343 ID#

~~☒ DUPLICATE~~ TIME: ID#

☒ EQUIP. BLANK: TIME: ID#

PREPARED BY:

Purged ≈ 3 gal

MS/MSD Sample - Extra Vol.

[1] 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE, 0.163 GAL IN 2" DIA PIPE, 0.65 GAL IN 4" DIA PIPE, AND 1.5 GAL IN 6" DIA PIPE

WELL PURGING AND SAMPLING DATA

		WELL NO.:KC91-152L
DATE: 4/19/2011	PROJECT NAME: GSA Bannister	PROJECT NO.: 02107144

WEATHER CONDITIONS:

WELL DIAMETER (IN.): ☐ 1 ☑ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ☑ GROUND WATER ☐ WASTE WATER ☐ SURFACE WATER ☐ OTHER _____

WELL DEPTH (TOC): FT. | DEPTH TO WATER BEFORE PURGING (TOC): FT.

LENGTH OF WATER: FT. | CALCULATED ONE WELL VOLUME[1]: GA.

PURGING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON.
☐ TAP WATER WASH ☐ ISOPROPANOL ☐ ANALYTE FREE FINAL RINSE
☑ ALCONOX WASH ☐ DIST/DEION 1 RINSE ☐ OTHER SOLVENT ☐ DIST/DEION FINAL RINSE
☐ LIQUINOX WASH ☐ DIST/DEION 2 RINSE ☑ TAP WATER FINAL RINSE ☐ AIR DRY

CONTAINER PRESERVATION: ☑ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL SERIAL NO.:

ACTUAL TIME (MIN)	DEPTH TO WATER (FEET)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT (µS/cm)	pH	DISS OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
		±10%	±3%	±0.1	±10%		±10mv		
1436		22.16	464	7.03	1.10	—	-118.3	CO	
1440		22.05	520	7.06	0.54	—	-120.2	SL CO	
1444		22.01	552	7.05	0.41	—	-117.0	CL	
1448		21.98	577	7.05	0.28	—	-119.7	CL	
1452		21.98	587	7.06	0.41	—	-115.1	CL	
1456		21.96	595	7.06	0.65	—	-113.7	CL	
1500		21.95	602	7.06	0.39	—	-114.9	CL	

DEPTH TO WATER AFTER PURGING (TOC): FT. | SAMPLE FILTERED: ☐ YES ☐ NO SIZE____

NOTES: 395 mL/min

SAMPLE TIME: ~~1503~~ 1502 ID#

☐ DUPLICATE TIME: ID#

☐ EQUIP. BLANK: TIME: ID#

PREPARED BY:

Purged ≈ 3 gal

[1] 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE, 0.163 GAL IN 2" DIA PIPE, 0.65 GAL IN 4" DIA PIPE, AND 1.5 GAL IN 6" DIA PIPE

WELL PURGING AND SAMPLING DATA

		WELL NO.:KC91-156U
DATE: 4/19/2011	PROJECT NAME: GSA Bannister	PROJECT NO.: 02107144

WEATHER CONDITIONS: Indoor

WELL DIAMETER (IN.): ☐ 1 ☑ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ☑ GROUND WATER ☐ WASTE WATER ☐ SURFACE WATER ☐ OTHER _____

WELL DEPTH (TOC): FT. | DEPTH TO WATER BEFORE PURGING (TOC): FT.

LENGTH OF WATER: FT. | CALCULATED ONE WELL VOLUME[1]: GA.

PURGING DEVICE: ☑ DEDICATED ☑ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON.
- ☐ TAP WATER WASH
- ☐ ISOPROPANOL
- ☐ ANALYTE FREE FINAL RINSE
- ☑ ALCONOX WASH
- ☐ DIST/DEION 1 RINSE
- ☐ OTHER SOLVENT
- ☐ DIST/DEION FINAL RINSE
- ☐ LIQUINOX WASH
- ☐ DIST/DEION 2 RINSE
- ☑ TAP WATER FINAL RINSE
- ☐ AIR DRY

CONTAINER PRESERVATION: ☑ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL SERIAL NO.: YSI 556 MPS

ACTUAL TIME (MIN)	DEPTH TO WATER (FEET)	TEMP ☐ °F ☑ °C	SPECIFIC CONDUCT (µS/cm)	pH	DISS OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
		±10%	±3%	±0.1	±10%		±10mv		
1557		22.10	497	6.97	1.87	—	-134.0	CL	
1601		22.16	477	6.94	1.33	—	-115.5	CL	
1605		22.17	469	6.93	1.01	—	-116.5	CL	
1609		22.19	479	6.96	0.82	—	-121.9	CL	
1613		22.19	488	6.97	1.10	—	-123.3	CL	

DEPTH TO WATER AFTER PURGING (TOC): FT. | SAMPLE FILTERED: ☐ YES ☐ NO SIZE____

NOTES: 312 mL/min

SAMPLE TIME: 1615 ID#

☐ DUPLICATE TIME: ID#

☐ EQUIP. BLANK: TIME: ID#

PREPARED BY:

~~4~~ 4 1-Liter Ambers
2 40mL VOAs

[1] FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE, 0.163 GAL IN 2" DIA PIPE, 0.65 GAL IN 4" DIA PIPE, AND 1.5 GAL IN 6" DIA PIPE

purged ? 2.5 gal

WELL PURGING AND SAMPLING DATA

	WELL NO.:KC91-156L
DATE: 4/19/2011	PROJECT NAME: GSA Bannister — PROJECT NO.: 02107144

WEATHER CONDITIONS: Overcast

WELL DIAMETER (IN.): ☐ 1 ☑ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ☑ GROUND WATER ☐ WASTE WATER ☐ SURFACE WATER ☐ OTHER _____

WELL DEPTH (TOC): FT. | DEPTH TO WATER BEFORE PURGING (TOC): FT.

LENGTH OF WATER: FT. | CALCULATED ONE WELL VOLUME[1]: GA.

PURGING DEVICE: ☑ DEDICATED ☑ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☑ DEDICATED ☐ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON.
- ☐ TAP WATER WASH
- ☐ ISOPROPANOL
- ☐ ANALYTE FREE FINAL RINSE
- ☑ ALCONOX WASH
- ☐ DIST/DEION 1 RINSE
- ☐ OTHER SOLVENT
- ☐ DIST/DEION FINAL RINSE
- ☐ LIQUINOX WASH
- ☐ DIST/DEION 2 RINSE
- ☑ TAP WATER FINAL RINSE
- ☐ AIR DRY

CONTAINER PRESERVATION: ☑ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL SERIAL NO.: YSI 556 MPS

ACTUAL TIME (MIN)	DEPTH TO WATER (FEET)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT (µS/cm)	pH	DISS OXYGEN (mg/L)	TURBIDITY (NTUs)	ORP (mV)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
		±10%	±3%	±0.1	±10%		±10mv		
1636		21.96	622	6.86	3.50		-130.8	CL	
1640		21.96	630	6.85	0.92		-138.6	CL	
1644		21.95	633	6.86	0.67		-144.4	CL	
1648		21.95	635	6.86	0.60		-147.4	CL	
1652		21.94	635	6.87	0.36		-150.0	CL	

DEPTH TO WATER AFTER PURGING (TOC): FT. | SAMPLE FILTERED: ☐ YES ☒ NO SIZE____

NOTES: 375 mL/min

SAMPLE TIME: 1655 ID#

☒ DUPLICATE: ~~Dup~~ TIME: ID#

☐ EQUIP. BLANK: TIME: ID#

PREPARED BY:

Purged ≈ 3 gal

[1] 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE, 0.163 GAL IN 2" DIA PIPE, 0.65 GAL IN 4" DIA PIPE, AND 1.5 GAL IN 6" DIA PIPE

KC91-Dup

7/19/2011

Arrived on site @ 1114
Unloaded vehicle
Collected Rinsate @ 1130
from KC91-152 L pump
by pouring DI water over pump.

Finished openings all wells by
1155
Waited 15 minutes before gauging

	DTW	Time
KC91-152U	13.59	1210
KC91-152L	13.85	1216
KC91-156U	14.26	1232
KC91-156L	14.28	1235
KC91-157U	12.13	1243
KC91-157L	12.21	1246

Gauged w/ Solinst M102
Decontaminated w/ distilled water / Alconox
+ distilled H2O rinse
Sampled all wells
Left site @ 1400 hrs