



# JOHNSON'S GROCERY

MODIFIED CAP  
ATTF CP-81



**Johnson's Grocery**  
**20444 County Road 34**  
**St. Stephens, Washington Co., AL**  
**Fac ID 17107-129-008217**  
**UST 05-02-07**

**PREPARED FOR**

Mr. Jack Johnson  
P.O. Box 56  
St. Stephens, AL 36569

**DATE**

August 5, 2024

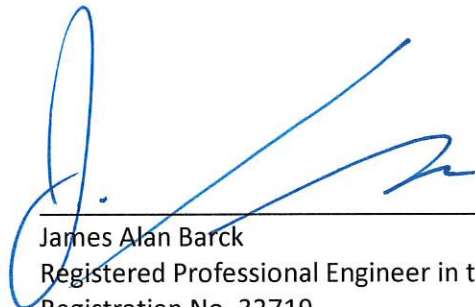
**PREPARED BY**

CDG, Inc.  
11 Court Square  
Andalusia, AL 36420

**CERTIFICATION PAGE**

"I hereby certify that, in my professional judgment, the components of this document and associated work satisfy the applicable requirements set forth in Chapter 335-6 of the ADEM Administrative Code and are consistent with generally accepted professional consulting principles and practices. The information submitted herein, to the best of my knowledge and belief, is true accurate, and complete. I am aware that there are significant penalties for submitting false information."

This document has been prepared based on historical site assessment data and has been prepared to address soil and groundwater contamination at the Johnson's Grocery site (Facility Identification Number 17107-129-008217) in St. Stephens, Washington County, Alabama. The recommended action should not be construed to apply to any other site.

  
\_\_\_\_\_  
James Alan Barck  
Registered Professional Engineer in the State of Alabama  
Registration No. 32719



8-15-24  
Date

## **PROJECT SUMMARY**

The Johnson's Grocery facility is located at the intersection of County Road 34 and Mobile Cut-Off Road in St. Stephens, Washington County, Alabama. The responsible party under the Alabama Tank Trust Fund (ATTF) is Mr. Jack Johnson. According to Mr. Johnson, the grocery store was constructed in 1970 and the three UST's were installed in 1976. The store was closed for remodeling in 2005 and above-ground storage tanks (ASTs) were installed at the site. Since September 2015, the store has operated under the name of Deb's Grocery.

On February 11, 2005, CDG, Inc. (CDG) performed a tank closure at Johnson's Grocery. During the closure, soil samples were collected from the tank pit area. After the samples were analyzed for TPH, it was determined that a release of petroleum products had occurred at the site. The Alabama Department of Environmental Management (ADEM) was notified of the release and responded on August 15, 2005, with a letter requiring that a preliminary investigation be initiated at the site. In a second letter, dated August 15, 2005, ADEM stated that Johnson's Grocery facility was eligible under the ATTF.

To date, a Preliminary Investigation, Secondary Investigation, ARBCA Tier I/II Evaluation, groundwater monitoring events, Mobile Enhanced Multi-Phase Extraction (MEME) events, Corrective Action Plan (CAP) Development, Multi-Phase Extraction (MPE) system purchase, and MPE system installation have been conducted at the site. Currently, there are a total of eleven Type II monitoring wells, five recovery wells, and three air sparge wells at the site.

A MPE treatment system was placed into operation on September 2, 2009, under the approved Corrective Action Plan (CAP) for the site. On October 26, 2017, ADEM authorized the implementation of the modified CAP dated June 2017 which included the addition of air sparge events. In a letter dated November 13, 2023, the Department requested that the air sparge system be shut off due to increases in recovery well RW-1. CDG is currently performing groundwater monitoring activities at the site.

In order to remove the remaining residual concentrations of dissolved-phase hydrocarbons from the Johnson's Grocery site, ADEM requested that a Modified CAP for surfactant injections be developed that explored the use of a surfactant injection approach. This CAP Modification contains the results of that evaluation and recommends a program of groundwater extraction followed by

the surfactant injections as approved under CP-84. Site data summary tables are included in Appendix A and site figures, representing current groundwater conditions are included in Appendix B.

## **PROPOSED MODIFIED CORRECTIVE ACTION ACTIVITIES**

In order to remove the remaining residual concentrations of dissolved-phase hydrocarbons from the Johnson's Grocery site, CDG will contract with an in-situ treatment service provider, ETEC, LLC. ETEC has recommended a remediation approach that consists of applying a series of recirculation events that would involve seven days of surfactant injection and extraction followed by the injection of a bacterial and nutrient solution.

The proposed surfactant solution consists of ETEC formulated PetroSolv™, which based on the vendors product description, is a naturally-formulated, non-toxic, non-ionic, biodegradable surfactant. It is intended to increase free product recovery, enhance the mobility of contaminants, and improve contaminant bioavailability for aerobic or anaerobic bioremediation by temporarily emulsifying hydrophobic compounds such as hydrocarbons. The PetroSolv™ will be injected as part of the recirculation events administered by ETEC. The proposed recirculation events will be conducted on four existing wells (RW-1, RW-2, RW-4, and RW-5) along with five proposed injection wells (IW-1, IW-2, IW-3, IW-4, and IW-5).

ETEC would mix a total volume of approximately 75 gallons of PetroSolv™ with 2,250 gallons of potable water to creating a 5% surfactant solution to be injected into the wells over a 5 day period. Concurrent with the surfactant injection activities, groundwater extraction will be conducted on adjacent wells. Immediately following the surfactant injections and groundwater recovery activities, the bioremediation products of PetroBac™ blend (facultative TPH degrading bacterial consortium and rhamnolipids) along with CBN™ (nutrient and electron acceptors), will be injected to treat remaining dissolved phase hydrocarbon compounds. According to ETEC's data sheets, CBN consists of a high percentage of electron acceptors that promote reducing conditions in the absence of dissolved oxygen, to biochemically reduce the petroleum to CO<sub>2</sub> and water. These products work together to efficiently degrade BTEX, MTBE, and/or Naphthalene's, and their application will perform three in-situ functions: supplying a large population of pre-acclimated bacteria to optimize initial growth of hydrocarbon-degrading microbial populations; to maximize contact between contaminants and the bacteria; and to supply nutrients to support ongoing

biological growth.

ETEC would mix 3,500 pounds of CBN™ and 110 gallons of PetroBac™ with 6,000 gallons of potable water to be injected into nine of the wells (RW-1, RW-2, RW-4, RW-5, IW-1, IW-2, IW-3, IW-4, and IW-5). Following these activities, quarterly groundwater monitoring will resume at the site. The remediation goal for the project is the removal of residual phase-separated and dissolved-phase hydrocarbons constituent concentrations to levels below the site-specific target levels established under the ARBCA Tier II evaluation.

## **WELL INSTALLATION ACTIVITIES**

Prior to conducting the surfactant and nutrient injection events, ETEC has recommended that up to five additional 4-inch wells be installed at the site. CDG will provide personnel and equipment to perform the installation of the additional injection wells. The wells will be installed with a truck mounted drilling rig using hollow-stem auger or sonic drilling techniques. The injection wells will be completed at a depth of approximately 25 feet below land surface (ft-bls) with a screened interval of 15 feet. A filter pack consisting of graded sand will be installed through the center of the hollow-stem augers to a level of two feet above the screened interval. A 2-foot bentonite pellet seal will then be emplaced above the filter pack, wetted with clean water, and allowed to hydrate. The remainder of the borehole will be filled with a bentonite Portland cement mixture emplaced using a tremie pipe. Each well will be completed at the surface with a 2-foot by 2-foot concrete pad and 1-foot by 1-foot flush-mounted steel manway. The construction detail for a typical injection well is included in Appendix B.

## **UIC PERMIT**

An Underground Injection Control (UIC) Permit for the chemical formations proposed by ETEC must be obtained prior to injection activities. CDG has prepared and submitted a UIC permit application to the ADEM Permit Section. A copy of the permit application documents is included in Appendix C.

Additionally, the site Health and Safety Plan is included in Appendix E. The Quality Assurance/Quality Control Plan is included in Appendix F. The UST Release Fact Sheet and UST Site Classification System Checklist is included in Appendix G. A list of personnel

performing tasks is included in Appendix H.

## **CONCLUSIONS AND RECOMMENDATIONS**

It is recommended that the identified residual soil source at the Johnson's Grocery site be addressed through chemical injection/extraction using the existing recovery wells along with a network of proposed dedicated injection wells as recommended in the proposal prepared by ETEC.

ETEC has stated that the injection regiment outlined in their proposal will accomplish the reduction of contaminant concentrations in groundwater beneath the site to below the Indoor Inhalation SSTLs. It is expected that upon removal of the residual absorbed-phase hydrocarbons in the source area that the remaining dissolved phase constituents will rapidly attenuate to levels acceptable for closure of the site. The possibility exists, however, that additional injection events may be needed to reach those levels. CDG will provide recommendations for additional site activities, if necessary, based on the results of the resumed quarterly groundwater monitoring activities.

Additionally, CDG is submitting three cost proposals for System Decommission activities (CP-82), Well Installation activities (CP-83), and the Injection Events (CP-84) as discussed with the Department.

# APPENDICES

**Tables ..... A**

**Figures ..... B**

- Site Map with Utility and Well Locations
- Potentiometric Surface Map - May 28, 2023
- Groundwater Analytical and Benzene Contour Map - May 28, 2024
- Site Map with Proposed Injection Well Locations
- Typical Injection Well Construction Diagram
- Water Well Inventory Map

**UIC Permit Application..... C**

**ETEC Proposal..... D**

**Health & Safety Plan..... E**

**Quality Assurance/Quality Control Plans..... F**

**ADEM Forms ..... G**

- UST Release Fact Sheet
- UST Site Classification System Checklist

**Tasks Performance Summary ..... H**



# TABLES

APPENDIX A



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-1</b>		
INSTALLATION DATE:	10/20/05	WELL DEPTH (FT BTOC):	21.0	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	199.43	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
11/04/09	11.18	188.25	-	-
02/09/10	8.83	190.60	-	-
05/19/10	10.88		-	-
08/17/10	10.64	188.79	-	-
11/10/10	12.96	186.47	-	-
02/16/11	11.66	187.77	-	-
05/19/11	11.55	187.88	-	-
08/24/11	11.80	187.63	-	-
11/22/11	12.58	186.85	-	-
02/23/12	9.95	189.48	-	-
05/10/12	10.70	188.73	-	-
11/07/12	11.24	188.19	-	-
05/30/13	11.76	187.67	-	-
08/21/13	8.76	190.67	-	-
11/18/13	10.66	188.77	-	-
02/17/14	9.10	190.33	-	-
05/27/14	9.33	190.10	-	-
08/27/14	10.48	188.95	-	-
08/10/15	8.84	190.59	-	-
08/15/16	8.22	191.21	-	-
08/14/17	8.63	190.80	-	4.0
08/27/18	8.16	191.27	-	4.0
08/29/19	8.00	191.43	-	5.0
08/31/20	7.37	192.06	-	2.0
05/31/22	8.34	191.09	-	5.0
11/28/22	8.82	190.61	-	6.0
11/30/23	9.38	190.05	-	5.5

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
11/04/09	-	-	-
02/09/10	1.18	5.9	62
05/19/10	-	-	-
08/17/10	2.74	6.6	138
11/10/10	-	-	-
02/16/11	-	-	-
05/19/11	-	-	-
08/24/11	2.64	5.5	148
11/22/11	-	-	-
02/23/12	-	-	-
05/10/12	-	-	-
11/07/12	-	-	-
05/30/13	1.95	5.5	55
08/21/13	3.98	6.1	237
11/18/13	-	-	-
02/17/14	-	-	-
05/27/14	2.40	6.0	106
08/27/14	2.24	5.4	137
08/10/15	1.94	5.4	82
08/15/16	2.36	5.9	149
08/14/17	4.91	5.2	80
08/27/18	3.49	6.1	152
08/29/19	3.19	6.1	84
08/31/20	3.01	5.7	118
05/31/22	4.28	6.6	32
11/28/22	3.21	6.1	152
11/30/23	2.67	5.9	137

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-1</b>		
INSTALLATION DATE:	10/20/05	WELL DEPTH (FT BTOC):	21.0	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	199.43	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	NOT SAMPLED						
08/27/18	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	0.000210
11/20/18	NOT SAMPLED						
02/22/19	NOT SAMPLED						
05/20/19	NOT SAMPLED						
08/29/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
11/05/19	NOT SAMPLED						
02/12/20	NOT SAMPLED						
05/07/20	NOT SAMPLED						
08/31/20	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
11/17/20	NOT SAMPLED						
02/18/21	NOT SAMPLED						
05/06/21	NOT SAMPLED						
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.0689</b>	<b>0.0172</b>	<b>3.45</b>	<b>2.41</b>	<b>34.5</b>	-	<b>0.0689</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	<b>31</b>

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery	UST NUMBER:	05-02-07	WELL ID:	MW-1				
INSTALLATION DATE:	10/20/05	WELL DEPTH (FT BTOC):	21.0	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	199.43	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)											
SAMPLE DATE	ANTHRACENE	BENZO(a) ANTHRACENE	BENZO(a) PYRENE	BENZO(b) FLUORANTHENE	BENZO(g,h,i) PERYLENE	BENZO(k) FLUORANTHENE	CHRYSENE	FLUORANTHENE	FLUORENE	PHENANTHRENE	PYRENE
02/13/18	NOT SAMPLED										
05/16/18	NOT SAMPLED										
08/27/18	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
11/20/18	NOT SAMPLED										
02/22/19	NOT SAMPLED										
05/20/19	NOT SAMPLED										
08/29/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
11/05/19	NOT SAMPLED										
02/12/20	NOT SAMPLED										
05/07/20	NOT SAMPLED										
08/31/20	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
11/17/20	NOT SAMPLED										
02/18/21	NOT SAMPLED										
05/06/21	NOT SAMPLED										
08/04/21	NOT SAMPLED										
11/03/21	NOT SAMPLED										
02/15/22	NOT SAMPLED										
05/31/22	NOT SAMPLED										
08/30/22	NOT SAMPLED										
11/28/22	NOT SAMPLED										
02/14/23	NOT SAMPLED										
05/22/23	NOT SAMPLED										
08/07/23	NOT SAMPLED										
11/30/23	NOT SAMPLED										
02/06/24	NOT SAMPLED										
05/28/24	NOT SAMPLED										
GRP SSTLs:	<b>0.0434</b>	<b>0.00402</b>	<b>0.000689</b>	<b>0.0015</b>	<b>0.0007</b>	<b>0.00008</b>	<b>0.0016</b>	<b>0.206</b>	<b>1.98</b>	<b>1</b>	<b>0.135</b>
Inhalation SSTLs:	<b>0.0434</b>	<b>0.0094</b>	<b>0.00162</b>	<b>0.0015</b>	<b>0.0007</b>	<b>0.00008</b>	<b>0.0016</b>	<b>0.206</b>	<b>1.98</b>	<b>1</b>	<b>0.135</b>

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-2</b>		
INSTALLATION DATE:	10/20/05	WELL DEPTH (FT BTOC):	19.5	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	200.00	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
11/20/14	16.95	183.05	-	-
02/17/15	14.75	185.25	-	-
05/28/15	13.98	186.02	-	-
08/10/15	13.92	186.08	-	-
11/17/15	14.89	185.11	-	-
02/10/16	11.50	188.50	-	-
05/04/16	11.49	188.51	-	-
08/15/16	12.51	187.49	-	-
11/10/16	15.40	184.60	-	-
02/08/17	12.58	187.42	-	-
05/24/17	12.61	187.39	-	-
08/14/17	11.25	188.75	-	2.5
11/29/17	12.87	187.13	-	1.5
02/13/18	14.32	185.68	-	3.0
05/16/18	12.77	187.23	-	2.0
08/27/18	14.44	185.56	-	2.0
11/20/18	15.91	184.09	-	1.5
02/22/19	12.61	187.39	-	2.0
05/20/19	11.04	188.96	-	3.0
08/29/19	13.79	186.21	-	2.0
11/05/19	15.39	184.61	-	1.0
02/12/20	12.17	187.83	-	3.0
05/07/20	14.40	185.60	-	1.0
08/31/20	12.86	187.14	-	2.0
11/17/20	13.37	186.63	-	2.0
02/18/21	12.40	187.60	-	1.0
05/06/21	11.09	188.91	-	3.0
05/31/22	11.35	188.65	-	2.5
11/28/22	13.87	186.13	-	2.5
11/30/23	14.64	185.36	-	2.5

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
11/20/14	2.29	7.7	50
02/17/15	2.51	6.5	30
05/28/15	-	-	-
08/10/15	-	-	-
11/17/15	-	-	-
02/10/16	-	-	-
05/04/16	-	-	-
08/15/16	-	-	-
11/10/16	-	-	-
02/08/17	-	-	-
05/24/17	-	-	-
08/14/17	3.59	6.4	84
11/29/17	3.48	6.1	54
02/13/18	2.64	6.1	134
05/16/18	3.44	6.1	129
08/27/18	2.75	5.6	74
11/20/18	1.87	5.8	-52
02/22/19	2.43	5.7	99
05/20/19	1.74	5.6	63
08/29/19	2.83	6.0	121
11/05/19	2.31	5.7	83
02/12/20	2.42	5.6	102
05/07/20	1.65	5.7	94
08/31/20	2.84	5.8	101
11/17/20	3.24	5.8	218
02/18/21	1.72	7.3	-31
05/06/21	2.67	6.1	157
05/31/22	3.77	7.3	28
11/28/22	2.54	6.0	107
11/30/23	2.44	5.8	59

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-2</b>		
INSTALLATION DATE:	10/20/05	WELL DEPTH (FT BTOC):	19.5	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	200.00	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
<b>03/20/18</b>	<b>CA VIA AIR SPARGE</b>						
05/16/18	<0.0010	0.0030	0.7689	0.3738	1.0753	2.2210	0.1075
08/27/18	<0.0010	0.0043	0.0057	0.0784	0.0432	0.1316	0.0108
11/20/18	0.0016	0.0016	0.0335	0.1522	0.1349	0.3221	0.0208
02/22/19	<0.0010	<0.0010	0.0740	0.1369	0.3537	0.5647	0.0264
05/20/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
08/29/19	<0.0010	0.0112	0.0128	0.0699	0.0043	0.0982	0.0100
11/05/19	0.0056	0.0117	0.3972	0.3406	1.4225	2.1720	0.0102
02/12/20	0.0026	0.0162	0.0128	0.0984	0.1509	0.2783	0.0075
05/07/20	0.0013	0.0051	0.0058	0.0865	0.0402	0.1377	0.0063
08/31/20	<0.001	0.003	0.005	0.033	0.012	0.053	0.002
11/17/20	<0.001	0.007	0.010	0.085	0.013	0.115	0.010
02/18/21	0.012	0.022	0.009	0.065	0.008	0.104	0.012
05/06/21	<0.001	<0.001	<0.001	0.004	<0.001	0.004	<0.001
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	<0.001	<b>0.135</b>	0.011	0.044	0.015	0.205	0.005
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	<b>0.146</b>	<b>0.329</b>	0.079	0.142	0.886	1.436	0.073
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.116</b>	<b>0.0289</b>	<b>5.78</b>	<b>4.04</b>	<b>57.8</b>	-	<b>0.116</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	<b>31</b>

**Monitoring Point Data Summary Table**

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-2</b>		
INSTALLATION DATE:	10/20/05	WELL DEPTH (FT BTOC):	19.5	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	200.00	WELL TYPE: DIAMETER (IN):	II 2
Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)									

**GROUNDWATER ANALYTICAL SUMMARY (mg/L)**

SAMPLE DATE	ANTHRACENE	BENZO(a) ANTHRACENE	BENZO(a) PYRENE	BENZO(b) FLUORANTHENE	BENZO(g,h,i) PERYLENE	BENZO(k) FLUORANTHENE	CHRYSENE	FLUORANTHENE	FLUORENE	PHENANTHRENE	PYRENE
05/24/17	0.013000	0.006010	0.004120	0.004780	0.004750	0.001810	0.005410	0.011700	0.030700	0.057500	0.020800
08/14/17	0.000020	<0.000016	<0.000015	<0.000019	<0.000016	<0.000013	<0.000016	<0.000016	<0.000014	0.000029	<0.000017
11/29/17	<0.000015	<0.000016	<0.000015	<0.000019	<0.000016	<0.000013	<0.000016	<0.000016	<0.000014	<0.000009	<0.000017
02/13/18	0.000129	0.000422	0.000273	0.000407	0.000165	0.000500	0.000505	0.000124	0.000129	0.000201	0.000165
05/16/18	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000048	<0.000020
08/28/18	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000024	0.000023	<0.000020
11/20/18	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000025	<0.000020	<0.000020
02/22/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.0000	<0.000020	<0.000020
05/20/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
08/29/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000037	0.000031	<0.000020
11/05/19	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	0.000369	<0.000170	<0.000170
02/12/20	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000030	<0.000020	0.000023
05/07/20	<0.000020	<0.000020	0.000033	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000041	0.000039	<0.000020
08/31/20	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000021	0.000030	0.000031	0.000043
11/17/20	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
02/18/21	<0.000020	<0.000020	0.000028	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000067	0.000043	0.000024
05/06/21	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
08/04/21	NOT SAMPLLED										
11/03/21	NOT SAMPLLED										
02/15/22	NOT SAMPLLED										
05/31/22	NOT SAMPLLED										
08/30/22	NOT SAMPLLED										
11/28/22	NOT SAMPLLED										
02/14/23	NOT SAMPLLED										
05/22/23	NOT SAMPLLED										
08/07/23	NOT SAMPLLED										
11/30/23	NOT SAMPLLED										
02/06/24	NOT SAMPLLED										
05/28/24	NOT SAMPLLED										
GRP SSTLs:	0.0434	0.00674	0.00116	0.0015	0.0007	0.0008	0.0016	0.206	1.98	1	0.135
Inhalation SSTLs:	0.0434	0.0094	0.00162	0.0015	0.0007	0.0008	0.0016	0.206	1.98	1	0.135

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-3</b>		
INSTALLATION DATE:	10/21/05	WELL DEPTH (FT BTOC):	22.5	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	198.98	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
08/14/17	15.35	183.63	-	1.0
11/29/17	12.21	186.77	-	2.5
02/13/18	DRY			
05/16/18	18.91	180.07	-	0.5
08/27/18	18.80	180.18	-	1.0
11/20/18	DRY			
02/22/19	17.30	181.68	-	1.0
05/20/19	13.17	185.81	-	3.0
08/29/19	18.80	180.18	-	1.0
11/05/19	21.02	177.96	-	1.0
02/12/20	20.23	178.75	-	-
08/31/20	19.61	179.37	-	-
11/17/20	12.15	186.83	-	4.0
02/18/21	20.77	178.21	-	-
05/06/21	19.04	179.94	-	1.0
08/04/21	8.52	190.46	-	6.0
11/03/21	9.77	189.21	-	5.0
02/15/22	10.79	188.19	-	5.0
05/31/22	9.89	189.09	-	2.5
08/30/22	11.44	187.54	-	4.0
11/28/22	12.22	186.76	-	4.5
02/14/23	8.44	190.54	-	6.0
05/22/23	9.85	189.13	-	2.0
08/03/23	14.26	184.72	-	3.5
11/30/23	13.02	185.96	-	4.0
02/06/24	9.52	189.46	-	5.5
05/28/24	8.90	190.08	-	6.0

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
08/14/17	3.12	5.9	101.0
11/29/17	2.77	6.2	20.0
02/13/18	DRY		
05/16/18	2.67	6.2	59.0
08/27/18	3.37	5.7	46.0
11/20/18	DRY		
02/22/19	3.10	5.6	92.0
05/20/19	2.65	5.7	42.0
08/29/19	2.59	5.8	51.0
11/05/19	-	-	-
02/12/20	-	-	-
08/31/20	-	-	-
11/17/20	1.89	6.2	124
02/18/21	-	-	-
05/06/21	2.91	5.8	132
08/04/21	2.79	5.9	117
11/03/21	2.43	5.7	87
02/15/22	0.52	7.4	103
05/31/22	3.44	6.5	56
08/30/22	3.44	5.9	131
11/28/22	3.12	5.9	136
02/14/23	2.72	5.8	107
05/22/23	2.09	5.9	-82
08/03/23	2.96	5.9	98
11/30/23	2.26	5.9	98
02/06/24	2.24	5.8	86
05/28/24	3.21	6.0	114

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-3</b>		
INSTALLATION DATE:	10/21/05	WELL DEPTH (FT BTOC):	22.5	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	198.98	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	<b>6.0796</b>	<b>22.7509</b>	<b>46.5550</b>	1.4241	17.6397	88.3697	<b>0.4700</b>
08/27/18	<b>1.6665</b>	<b>5.0937</b>	<b>9.0767</b>	0.2441	5.6899	20.1044	<b>0.1659</b>
11/20/18	NOT SAMPLED (DRY)						
02/22/19	<b>0.2413</b>	<b>2.9075</b>	<b>10.3642</b>	0.3871	7.4124	21.0712	0.1394
05/20/19	<b>1.1368</b>	<b>4.2746</b>	<b>14.8836</b>	0.4189	11.5459	31.1231	<b>0.1460</b>
08/29/19	0.0696	<b>1.2121</b>	5.2529	0.3317	4.6799	11.4766	0.1263
11/05/19	NOT SAMPLED						
02/12/20	NOT SAMPLED						
05/07/20	NOT SAMPLED						
08/31/20	NOT SAMPLED						
11/17/20	<0.050	<b>0.445</b>	1.69	0.167	3.32	5.622	0.101
02/18/21	NOT SAMPLED						
05/06/21	<b>0.880</b>	<b>5.29</b>	<b>17.4</b>	0.518	9.96	33.168	0.149
08/04/21	0.053	<b>0.163</b>	0.336	0.043	0.746	1.288	0.023
11/03/21	<b>0.274</b>	<b>1.20</b>	2.67	0.305	3.33	7.505	0.110
02/15/22	<0.025	<b>0.386</b>	1.19	<0.025	2.95	4.526	0.095
05/31/22	<0.005	0.018	0.032	<0.005	0.447	0.497	0.008
08/30/22	<b>2.55</b>	<b>12.0</b>	<b>29.0</b>	1.58	14.6	57.180	<b>0.335</b>
11/28/22	0.088	<b>1.05</b>	6.03	0.970	20.6	28.650	<b>0.591</b>
02/14/23	0.058	<b>2.21</b>	<b>9.16</b>	1.220	22.6	35.190	<b>0.364</b>
05/22/23	<b>0.550</b>	<b>1.15</b>	1.56	<0.250	3.50	6.210	<0.250
08/07/23	<b>0.277</b>	<b>3.71</b>	<b>15.9</b>	0.622	25.6	45.832	<b>0.274</b>
11/30/23	<b>0.172</b>	<b>3.16</b>	3.11	0.510	16.5	23.280	<b>0.374</b>
02/06/24	0.141	<b>4.59</b>	1.23	0.925	18.8	25.545	<b>0.477</b>
05/28/24	<0.001	<b>3.83</b>	1.89	0.867	12.8	19.387	<b>0.358</b>
GRP SSTLS:	<b>0.143</b>	<b>0.0357</b>	<b>7.14</b>	<b>5</b>	<b>71.4</b>	-	<b>0.143</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	<b>31</b>



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-3</b>				
INSTALLATION DATE:	10/21/05	WELL DEPTH (FT BTOC):	22.5	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	198.98	WELL TYPE:	II		
								DIAMETER (IN):	2		

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)											
SAMPLE DATE	ANTHRACENE	BENZO(a) ANTHRACENE	BENZO(a) PYRENE	BENZO(b) FLUORANTHENE	BENZO(g,h,i) PERYLENE	BENZO(k) FLUORANTHENE	CHRYSENE	FLUORANTHENE	FLUORENE	PHENANTHRENE	PYRENE
02/13/18	NOT SAMPLED (DRY)										
05/16/18	0.000134	<0.000020	<0.000020	0.000023	0.000020	<0.000020	<0.000020	<0.000020	0.000929	0.000814	0.000099
08/27/18	0.000207	0.000061	0.000052	0.000072	0.000132	0.000029	0.000059	0.000115	0.000577	0.000445	0.000201
11/20/18	NOT SAMPLED (DRY)										
02/22/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000022	<0.000020	<0.000020
05/20/19	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	<0.000170	0.000242	0.000232	<0.000170
08/29/19	0.000087	<0.000085	<0.000085	<0.000085	<0.000085	<0.000085	0.000085	<0.000085	0.000518	0.000211	<0.000085
11/05/19	NOT SAMPLED										
02/12/20	NOT SAMPLED										
05/07/20	NOT SAMPLED										
08/31/20	NOT SAMPLED										
11/17/20	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170
02/18/21	NOT SAMPLED										
05/06/21	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340	<0.00340
08/04/21	NOT SAMPLED										
11/03/21	NOT SAMPLED										
02/15/22	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170	<0.00170
05/31/22	NOT SAMPLED										
08/30/22	NOT SAMPLED										
11/28/22	NOT SAMPLED										
02/14/23	NOT SAMPLED										
05/22/23	NOT SAMPLED										
08/07/23	NOT SAMPLED										
11/30/23	NOT SAMPLED										
02/06/24	NOT SAMPLED										
05/28/24	NOT SAMPLED										
GRP SSTLS:	<b>0.0434</b>	<b>0.00833</b>	<b>0.00143</b>	<b>0.0015</b>	<b>0.0007</b>	<b>0.0008</b>	<b>0.0016</b>	<b>0.206</b>	<b>1.98</b>	<b>1</b>	<b>0.135</b>
Inhalation SSTLS:	<b>0.0434</b>	<b>0.0094</b>	<b>0.00162</b>	<b>0.0015</b>	<b>0.0007</b>	<b>0.0008</b>	<b>0.0016</b>	<b>0.206</b>	<b>1.98</b>	<b>1</b>	<b>0.135</b>

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-4</b>		
INSTALLATION DATE:	10/21/05	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	198.19	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
05/23/07	9.03	189.16	-	-
12/05/07	10.00	188.19	-	-
08/06/09	9.45	188.74	-	-
11/04/09	8.26	189.93	-	-
02/09/10	5.60	192.59	-	-
05/19/10	8.44		-	-
08/17/10	11.15	187.04	-	-
11/10/10	13.01	185.18	-	-
02/16/11	8.02	190.17	-	-
05/19/11	9.60	188.59	-	-
08/24/11	10.08	188.11	-	-
11/22/11	12.48	185.71	-	-
02/23/12	7.23	190.96	-	-
05/10/12	8.90	189.29	-	-
11/07/12	10.48	187.71	-	-
05/30/13	9.70	188.49	-	-
08/21/13	7.58	190.61	-	-
11/18/13	10.26	187.93	-	-
02/17/14	8.81	189.38	-	-
05/27/14	7.96	190.23	-	-
08/27/14	10.88	187.31	-	-
08/10/15	9.03	189.16	-	-
08/15/16	7.74	190.45	-	-
08/14/17	6.31	191.88	-	4.5
08/27/18	7.84	190.35	-	4.0
08/29/19	8.42	189.77	-	4.0
08/31/20	6.49	191.70	-	3.0
05/31/22	7.27	190.92	-	2.5
11/28/22	8.24	189.95	-	6.0
11/30/23	8.49	189.70	-	5.5

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
05/23/07	1.84	5.6	122
12/05/07	1.87	5.8	149
08/06/09	1.87	5.8	149
11/04/09	-	-	-
02/09/10	1.38	6.1	154
05/19/10	-	-	-
08/17/10	2.68	6.0	141
11/10/10	-	-	-
02/16/11	-	-	-
05/19/11	-	-	-
08/24/11	2.46	6.1	257
11/22/11	-	-	-
02/23/12	3.00	5.8	144
05/10/12	-	-	-
11/07/12	3.49	5.6	-
05/30/13	2.03	5.2	89
08/21/13	2.86	6.4	254
11/18/13	-	-	-
02/17/14	-	-	-
05/27/14	4.59	6.4	95
08/27/14	2.05	5.7	125
08/10/15	1.71	5.8	149
08/15/16	1.98	5.7	162
08/14/17	3.86	6.1	74
08/27/18	3.82	6.1	162
08/29/19	2.74	5.8	37
08/31/20	2.90	5.6	104
05/31/22	2.69	6.3	93
11/28/22	2.73	5.9	91
11/30/23	2.19	5.9	49

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-4</b>		
INSTALLATION DATE:	10/21/05	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	12	CASING ELEV (FT ABOVE MSL):	198.19	WELL TYPE:	II
								DIAMETER (IN):	2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	NOT SAMPLED						
08/27/18	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	0.000069
11/20/18	NOT SAMPLED						
02/22/19	NOT SAMPLED						
05/20/19	NOT SAMPLED						
08/29/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
11/05/19	NOT SAMPLED						
02/12/20	NOT SAMPLED						
05/07/20	NOT SAMPLED						
08/31/20	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
11/17/20	NOT SAMPLED						
02/18/21	NOT SAMPLED						
05/06/21	NOT SAMPLED						
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.11</b>	<b>0.0276</b>	<b>5.52</b>	<b>3.86</b>	<b>55.2</b>	-	<b>0.11</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-5</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	19.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.29	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
08/27/14	14.46	183.83	-	-
11/20/14	16.98	181.31	-	-
02/17/15	14.10	184.19	-	-
05/28/15	13.21	185.08	-	-
08/10/15	14.32	183.97	-	-
11/17/15	14.94	183.35	-	-
02/10/16	10.10	188.19	-	-
05/04/16	10.31	187.98	-	-
08/15/16	12.86	185.43	-	-
11/10/16	15.31	182.98	-	-
02/08/17	10.19	188.10	-	-
08/14/17	8.60	189.69	-	4.0
11/29/17	12.21	186.08	-	1.5
02/13/18	14.63	183.66	-	3.0
05/16/18	12.09	186.20	-	3.0
08/27/18	14.86	183.43	-	2.0
11/20/18	16.07	182.22	-	1.5
02/22/19	8.73	189.56	-	2.0
05/20/19	10.59	187.70	-	3.0
08/29/19	14.65	183.64	-	2.0
11/05/19	15.63	182.66	-	-
02/12/20	11.49	186.80	-	3.0
05/07/20	14.25	184.04	-	1.0
08/31/20	11.99	186.30	-	2.0
11/17/20	12.74	185.55	-	3.0
02/18/21	11.52	186.77	-	1.5
05/06/21	9.78	188.51	-	4.0
05/31/22	9.68	188.61	-	2.5
11/28/22	13.07	185.22	-	3.0
11/30/23	14.02	184.27	-	3.0

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
08/27/14	-	-	-
11/20/14	-	-	-
02/17/15	-	-	-
05/28/15	-	-	-
08/10/15	-	-	-
11/17/15	-	-	-
02/10/16	-	-	-
05/04/16	-	-	-
08/15/16	-	-	-
11/10/16	-	-	-
02/08/17	2.48	5.7	77
08/14/17	4.43	6.4	84
11/29/17	3.83	6.2	83
02/13/18	2.47	5.8	151
05/16/18	3.79	6.4	62
08/27/18	3.64	5.9	142
11/20/18	2.27	6.4	-20
02/22/19	2.43	5.9	158
05/20/19	2.82	6.0	156
08/29/19	2.80	6.2	25
11/05/19	1.79	5.4	54
02/12/20	3.02	5.7	141
05/07/20	1.82	5.8	78
08/31/20	1.89	5.7	34
11/17/20	3.51	5.9	138
02/18/21	2.19	6.3	102
05/06/21	2.74	5.9	117
05/31/22	4.06	6.4	97
11/28/22	3.01	6.0	73
11/30/23	1.79	5.8	68

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-5</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	19.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.29	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
<b>03/20/18</b>	<b>CA VIA AIR SPARGE</b>						
05/16/18	0.0025	0.0044	0.0217	0.0055	0.0527	0.0843	0.0044
08/27/18	0.0174	0.0086	0.0013	0.0049	0.0181	0.0329	0.0047
11/20/18	0.0144	0.0055	0.0022	0.0037	0.0175	0.0289	0.0042
02/22/19	0.0402	0.0139	<0.0010	0.0010	0.0040	0.0189	0.0011
05/20/19	0.0109	0.0116	0.0429	0.0165	0.1148	0.1858	0.0061
08/29/19	0.0032	0.0107	0.0014	0.0165	0.0252	0.0538	0.0147
11/05/19	0.0141	0.0024	<0.0010	0.0034	0.0087	0.0145	0.0026
02/12/20	0.0111	0.0027	<0.0010	0.0032	0.0058	0.0117	0.0027
05/07/20	0.0041	0.0016	<0.0010	<0.0010	0.0059	0.0075	0.0010
08/31/20	0.008	0.006	0.003	0.007	0.026	0.042	0.006
11/17/20	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001
02/18/21	0.023	0.002	0.001	0.001	0.003	0.007	0.001
05/06/21	0.006	<0.001	0.001	<0.001	0.003	0.004	<0.001
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	0.003	<b>0.075</b>	0.111	0.051	0.547	0.784	0.033
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	<b>0.943</b>	<b>1.58</b>	0.886	0.327	4.67	7.463	0.088
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.134</b>	<b>0.0335</b>	<b>6.7</b>	<b>4.69</b>	<b>67</b>	-	<b>0.134</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-5</b>				
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	19.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.29	WELL TYPE:	II	DIAMETER (IN):	2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

### GROUNDWATER ANALYTICAL SUMMARY (mg/L)

SAMPLE DATE	ANTHRACENE	BENZO(a) ANTHRACENE	BENZO(a) PYRENE	BENZO(b) FLUORANTHENE	BENZO(g,h,i) PERYLENE	BENZO(k) FLUORANTHENE	CHRYSENE	FLUORANTHENE	FLUORENE	PHENANTHRENE	PYRENE
05/16/18	<0.000020	0.000035	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000038	0.000024
08/27/18	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000033	<0.000020	0.000023	<0.000020	<0.000020
11/20/18	<0.000020	0.000021	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000033	<0.000020	<0.000020
02/22/19	<0.000020	0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
05/20/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
08/29/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000028	<0.000020	<0.000020
11/05/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
02/12/20	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
05/07/20	<0.000020	<0.000020	0.000027	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
08/31/20	0.000026	<0.000020	<0.000020	<0.000020	0.000027	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
11/17/20	0.000021	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
02/18/21	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
05/06/21	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
08/04/21							NOT SAMPLED				
11/03/21							NOT SAMPLED				
02/15/22							NOT SAMPLED				
05/31/22							NOT SAMPLED				
08/30/22							NOT SAMPLED				
11/28/22							NOT SAMPLED				
02/14/23							NOT SAMPLED				
05/22/23							NOT SAMPLED				
08/07/23							NOT SAMPLED				
11/30/23							NOT SAMPLED				
02/06/24							NOT SAMPLED				
05/28/24							NOT SAMPLED				
GRP SSTLS:	0.0434	0.00782	0.00134	0.0015	0.0007	0.0008	0.0016	0.206	1.98	1	0.134
Inhalation SSTLS:	0.0434	0.0094	0.00162	0.0015	0.0007	0.0008	0.0016	0.206	1.98	1	0.135

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-6</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	203.88	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
02/15/07	17.93	185.95	-	-
05/23/07	18.09	185.79	-	-
12/05/07	18.02	185.86	-	-
08/06/09	18.06	185.82	-	-
11/04/09	18.05	185.83	-	-
02/09/10	16.72	187.16	-	-
05/19/10	18.00		-	-
08/17/10	18.29	185.59	-	-
11/10/10	19.20	184.68	-	-
02/16/11	18.04	185.84	-	-
05/19/11	18.00	185.88	-	-
08/24/11	18.05	185.83	-	-
11/22/11	18.70	185.18	-	-
02/23/12	17.95	185.93	-	-
05/10/12	18.06	185.82	-	-
11/07/12	18.13	185.75	-	-
05/30/13	18.97	184.91	-	-
08/21/13	18.03	185.85	-	-
11/18/13	18.10	185.78	-	-
02/17/14	15.54	188.34	-	-
05/27/14	17.98	185.90	-	-
08/27/14	18.16	185.72	-	-
08/10/15	18.04	185.84	-	-
08/15/16	17.71	186.17	-	-
08/14/17	17.69	186.19	-	-
08/27/18	17.78	186.10	-	1.0
08/29/19	17.90	185.98	-	0.5
08/31/20	17.97	185.91	-	0.5
11/28/22	18.06	185.82	-	1.0
11/30/23	18.19	185.69	-	1.0

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
02/15/07	2.26	5.9	81.0
05/23/07	1.92	5.8	148.0
12/05/07	-	-	-
08/06/09	1.54	5.9	128.0
11/04/09	-	-	-
02/09/10	-	-	-
05/19/10	-	-	-
08/17/10	-	-	-
11/10/10	-	-	-
02/16/11	-	-	-
05/19/11	-	-	-
08/24/11	1.33	6.3	204
11/22/11	-	-	-
02/23/12	-	-	-
05/10/12	-	-	-
11/07/12	-	-	-
05/30/13	1.66	4.6	204
08/21/13	-	-	-
11/18/13	0.94	5.1	67
02/17/14	-	-	-
05/27/14	-	-	-
08/27/14	2.05	5.5	149
08/10/15	1.42	5.2	64
08/15/16	2.61	5.9	138
08/14/17	3.78	5.5	134
08/27/18	4.55	6.2	174
08/29/19	4.33	6.1	144
08/31/20	2.71	5.5	82
11/28/22	2.97	5.9	124
11/30/23	1.93	5.8	79



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-6</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	203.88	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	NOT SAMPLED						
08/27/18	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	0.000105
11/20/18	NOT SAMPLED						
02/22/19	NOT SAMPLED						
05/20/19	NOT SAMPLED						
08/29/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
11/05/19	NOT SAMPLED						
02/12/20	NOT SAMPLED						
05/07/20	NOT SAMPLED						
08/31/20	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
11/17/20	NOT SAMPLED						
02/18/21	NOT SAMPLED						
05/06/21	NOT SAMPLED						
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	NOT SAMPLED						
08/30/22	NOT SAMPLED						
11/28/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.0249</b>	<b>0.00623</b>	<b>1.25</b>	<b>0.872</b>	<b>12.5</b>	-	<b>0.0249</b>
Inhalation SSTLS:	<b>22,300</b>	<b>9.3</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-

Monitoring Point Data Summary Table									
SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	MW-6		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	203.88	WELL TYPE: DIAMETER (IN):	II 2
Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)									

GROUNDWATER ANALYTICAL SUMMARY (mg/L)											
SAMPLE DATE	ANTHRACENE	BENZO(a) ANTHRACENE	BENZO(a) PYRENE	BENZO(b) FLUORANTHENE	BENZO(g,h,i) PERYLENE	BENZO(k) FLUORANTHENE	CHRYSENE	FLUORANTHENE	FLUORENE	PHENANTHRENE	PYRENE
05/16/18	NOT SAMPLED										
08/27/18	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
11/20/18	NOT SAMPLED										
02/22/19	NOT SAMPLED										
05/20/19	NOT SAMPLED										
08/29/19	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
11/05/19	NOT SAMPLED										
02/12/20	NOT SAMPLED										
05/07/20	NOT SAMPLED										
08/31/20	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
11/17/20	NOT SAMPLED										
02/18/21	NOT SAMPLED										
05/06/21	NOT SAMPLED										
08/04/21	NOT SAMPLED										
11/03/21	NOT SAMPLED										
02/15/22	NOT SAMPLED										
05/31/22	NOT SAMPLED										
08/30/22	NOT SAMPLED										
11/28/22	NOT SAMPLED										
02/14/23	NOT SAMPLED										
05/22/23	NOT SAMPLED										
08/07/23	NOT SAMPLED										
11/30/23	NOT SAMPLED										
02/06/24	NOT SAMPLED										
05/28/24	NOT SAMPLED										
GRP SSTLS:	0.0434	0.00145	0.000249	0.00145	0.0007	0.0008	0.0016	0.206	1.82	1	0.135
Inhalation SSTLS:	0.0434	0.0094	0.00162	0.0015	0.0007	0.0008	0.0016	0.206	1.98	1	0.135

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-7</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	197.92	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
05/23/07	12.17	185.75	-	-
12/05/07	14.23	183.69	-	-
08/06/09	12.83	185.09	-	-
11/04/09	11.90	186.02	-	-
02/09/10	5.77	192.15	-	-
05/19/10	9.79	188.13	-	-
08/17/10	14.19	183.73	-	-
11/10/10	16.05	181.87	-	-
02/16/11	14.28	183.64	-	-
05/19/11	12.69	185.23	-	-
08/24/11	14.52	183.40	-	-
11/22/11	16.32	181.60	-	-
02/23/12	12.53	185.39	-	-
05/10/12	11.57	186.35	-	-
11/07/12	13.90	184.02	-	-
05/30/13	10.96	186.96	-	-
08/21/13	12.28	185.64	-	-
11/18/13	13.05	184.87	-	-
02/17/14	11.00	186.92	-	-
05/27/14	8.76	189.16	-	-
08/27/14	12.25	185.67	-	-
08/10/15	12.34	185.58	-	-
08/15/16	12.27	185.65	-	-
08/14/17	8.13	189.79	-	4.5
08/27/18	12.45	185.47	-	-
08/29/19	12.30	185.62	-	-
08/31/20	10.78	187.14	-	2.0
05/31/22	10.04	187.88	-	5.0
11/28/22	12.66	185.26	-	-
11/30/23	12.65	185.27	-	-

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
05/23/07	2.24	5.8	123.0
12/05/07	2.24	5.8	123.0
08/06/09	-	-	-
11/04/09	-	-	-
02/09/10	-	-	-
05/19/10	-	-	-
08/17/10	-	-	-
11/10/10	-	-	-
02/16/11	-	-	-
05/19/11	-	-	-
08/24/11	2.20	5.8	250
11/22/11	-	-	-
02/23/12	-	-	-
05/10/12	-	-	-
11/07/12	-	-	-
05/30/13	1.62	4.1	178
08/21/13	-	-	-
11/18/13	DRY		
02/17/14	-	-	-
05/27/14	5.72	5.5	134
08/27/14	DRY		
08/10/15	DRY		
08/15/16	1.81	5.6	164
08/14/17	3.75	5.2	151
08/27/18	-	-	-
08/29/19	-	-	-
08/31/20	2.49	5.7	53
05/31/22	3.74	6.7	98
11/28/22	-	-	-
11/30/23	-	-	-

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-7</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	197.92	WELL TYPE:	II
								DIAMETER (IN):	2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18				NOT SAMPLED			
08/27/18				NOT SAMPLED			
11/20/18				NOT SAMPLED			
02/22/19				NOT SAMPLED			
05/20/19				NOT SAMPLED			
08/29/19				NOT SAMPLED			
11/05/19				NOT SAMPLED			
02/12/20				NOT SAMPLED			
05/07/20				NOT SAMPLED			
08/31/20	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
11/17/20				NOT SAMPLED			
02/18/21				NOT SAMPLED			
05/06/21				NOT SAMPLED			
08/04/21				NOT SAMPLED			
11/03/21				NOT SAMPLED			
02/15/22				NOT SAMPLED			
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22				NOT SAMPLED			
11/28/22				NOT SAMPLED			
02/14/23				NOT SAMPLED			
05/22/23				NOT SAMPLED			
08/07/23				NOT SAMPLED			
11/30/23				NOT SAMPLED			
02/06/24				NOT SAMPLED			
05/28/24				NOT SAMPLED			
GRP SSTLS:	<b>0.0136</b>	<b>0.0034</b>	<b>0.681</b>	<b>0.477</b>	<b>6.81</b>	-	<b>0.0136</b>
Inhalation SSTLS:	<b>22,300</b>	<b>9.3</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-8</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	15.5	SCREEN LENGTH (FT):	10	CASING ELEV (FT ABOVE MSL):	194.95	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
08/27/14	12.10	182.85	-	-
11/20/14	14.70	180.25	-	-
02/17/15	12.05	182.90	-	-
05/28/15	10.90	184.05	-	-
08/10/15	11.70	183.25	-	-
11/17/15	10.33	184.62	-	-
02/10/16	7.68	187.27	-	-
05/04/16	7.90	187.05	-	-
08/15/16	10.64	184.31	-	-
11/10/16	13.61	181.34	-	-
02/08/17	8.39	186.56	-	-
08/14/17	7.19	187.76	-	2.5
11/29/17	10.92	184.03	-	1.0
02/13/18	8.69	186.26	-	4.0
05/16/18	9.27	185.68	-	2.0
08/27/18	11.34	183.61	-	1.0
11/20/18	12.44	182.51	-	1.0
02/22/19	8.73	186.22	-	2.0
05/20/19	8.54	186.41	-	2.0
08/29/19	11.85	183.10	-	1.0
11/05/19	10.38	184.57	-	2.0
02/12/20	8.69	186.26	-	2.0
05/07/20	11.25	183.70	-	0.5
08/31/20	7.96	186.99	-	2.0
11/17/20	11.39	183.56	-	1.0
02/18/21	8.20	186.75	-	1.5
05/06/21	7.72	187.23	-	3.0
05/31/22	8.70	186.25	-	2.5
11/28/22	10.37	184.58	-	2.5
11/30/23	11.47	183.48	-	2.0

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
08/27/14	1.87	5.2	139
11/20/14	3.41	6.6	39
02/17/15	2.73	6.9	174
05/28/15	1.64	6.2	97
08/10/15	1.68	5.3	42
11/17/15	2.86	6.1	200
02/10/16	3.14	6.2	144
05/04/16	2.29	6.2	187
08/15/16	1.69	5.8	150
11/10/16	-	-	-
02/08/17	3.28	5.9	121
08/14/17	4.10	4.7	157
11/29/17	3.21	6.4	74
02/13/18	4.18	6.4	157
05/16/18	3.31	6.2	84
08/27/18	3.93	6.0	88
11/20/18	1.98	5.3	105
02/22/19	2.43	5.9	158
05/20/19	3.54	6.3	183
08/29/19	3.57	6.1	124
11/05/19	2.74	5.9	96
02/12/20	3.16	5.9	122
05/07/20	3.26	5.9	97
08/31/20	3.23	5.8	68
11/17/20	3.72	5.8	127
02/18/21	3.97	6.7	76
05/06/21	3.03	6.0	156
05/31/22	3.96	6.6	105
11/28/22	3.04	5.9	112
11/30/23	1.87	5.8	131

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-8</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	15.5	SCREEN LENGTH (FT):	10	CASING ELEV (FT ABOVE MSL):	194.95	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
<b>03/20/18</b>	<b>CA VIA AIR SPARGE</b>						
05/16/18	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
08/27/18	0.0017	<0.0010	<0.0010	<0.0010	<0.0010	BDL	0.000069
11/20/18	0.0013	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
02/22/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
05/20/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
08/29/19	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
11/05/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
02/12/20	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
05/07/20	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
08/31/20	0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
11/17/20	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/18/21	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
05/06/21	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	0.002	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	0.015	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.0318</b>	<b>0.00794</b>	<b>1.59</b>	<b>1.11</b>	<b>15.9</b>	-	<b>0.0318</b>
Inhalation SSTLS:	<b>22,300</b>	<b>9.3</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-





## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-9</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	19.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.55	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
11/04/09	10.61	187.94	-	-
02/09/10	5.28	193.27	-	-
05/19/10	9.49		-	-
08/17/10	13.41	185.14	-	-
11/10/10	14.94	183.61	-	-
02/16/11	12.29	186.26	-	-
05/19/11	11.71	186.84	-	-
08/24/11	13.59	184.96	-	-
11/22/11	15.31	183.24	-	-
02/23/12	10.06	188.49	-	-
05/10/12	10.40	188.15	-	-
11/07/12	12.33	186.22	-	-
05/30/13	10.35	188.20	-	-
08/21/13	11.24	187.31	-	-
11/18/13	13.83	184.72	-	-
02/17/14	6.65	191.90	-	-
05/27/14	8.22	190.33	-	-
08/27/14	13.31	185.24	-	-
08/10/15	13.07	185.48	-	-
08/15/16	12.70	185.85	-	-
08/14/17	7.79	190.76	-	4.0
08/27/18	11.90	186.65	-	2.0
08/29/19	12.53	186.02	-	2.0
08/31/20	8.64	189.91	-	2.0
05/31/22	9.03	189.52	-	2.5
11/28/22	11.74	186.81	-	3.5
11/30/23	12.24	186.31	-	3.5

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
11/04/09	-	-	-
02/09/10	-	-	-
05/19/10	-	-	-
08/17/10	-	-	-
11/10/10	-	-	-
02/16/11	-	-	-
05/19/11	-	-	-
08/24/11	2.54	6.1	177
11/22/11	-	-	-
02/23/12	-	-	-
05/10/12	-	-	-
11/07/12	-	-	-
05/30/13	0.81	4.8	93
08/21/13	-	-	-
11/18/13	-	-	-
02/17/14	2.24	6.4	219
05/27/14	1.17	5.8	127
08/27/14	2.09	5.5	134
08/10/15	2.29	5.5	87
08/15/16	1.92	5.8	174
08/14/17	1.89	5.1	62
08/27/18	4.39	6.3	168
08/29/19	2.69	5.8	75
08/31/20	2.36	5.6	47
05/31/22	3.39	6.5	27
11/28/22	2.88	5.8	141
11/30/23	1.73	5.8	119

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-9</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	19.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.55	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	NOT SAMPLED						
08/27/18	0.0030	<0.0010	<0.0010	<0.0010	<0.0010	BDL	0.000059
11/20/18	NOT SAMPLED						
02/22/19	NOT SAMPLED						
05/20/19	NOT SAMPLED						
08/29/19	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
11/05/19	NOT SAMPLED						
02/12/20	NOT SAMPLED						
05/07/20	NOT SAMPLED						
08/31/20	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
11/17/20	NOT SAMPLED						
02/18/21	NOT SAMPLED						
05/06/21	NOT SAMPLED						
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.0436</b>	<b>0.0109</b>	<b>2.18</b>	<b>1.52</b>	<b>21.8</b>	-	<b>0.0436</b>
Inhalation SSTLS:	<b>22,300</b>	<b>9.3</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-10</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.10	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
05/23/07	14.16	183.94	-	-
12/05/07	14.00	184.10	-	-
08/06/09	15.10	183.00	-	-
11/04/09	12.89	185.21	-	-
02/09/10	8.25	189.85	-	-
05/19/10	12.66		-	-
08/17/10	15.00	183.10	-	-
11/10/10	15.80	182.30	-	-
02/16/11	11.60	186.50	-	-
05/19/11	12.82	185.28	-	-
08/24/11	13.49	184.61	-	-
11/22/11	14.51	183.59	-	-
02/23/12	9.72	188.38	-	-
05/10/12	12.26	185.84	-	-
11/07/12	12.75	185.35	-	-
05/30/13	12.70	185.40	-	-
08/21/13	11.25	186.85	-	-
11/18/13	13.22	184.88	-	-
02/17/14	7.91	190.19	-	-
05/27/14	10.90	187.20	-	-
08/27/14	13.80	184.30	-	-
08/10/15	14.76	183.34	-	-
08/15/16	15.04	183.06	-	-
08/14/17	10.82	187.28	-	3.5
08/27/18	14.12	183.98	-	2.0
08/29/19	15.25	182.85	-	2.0
08/31/20	10.81	187.29	-	2.0
05/31/22	12.60	185.50	-	2.5
11/28/22	13.83	184.27	-	3.0
11/30/23	15.51	182.59	-	2.5

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
05/23/07	2.62	5.8	112.0
12/05/07	-	-	-
08/06/09	1.80	6.1	191.0
11/04/09	-	-	-
02/09/10	-	-	-
05/19/10	-	-	-
08/17/10	-	-	-
11/10/10	-	-	-
02/16/11	-	-	-
05/19/11	-	-	-
08/24/11	2.40	6.0	186
11/22/11	-	-	-
02/23/12	-	-	-
05/10/12	-	-	-
11/07/12	-	-	-
05/30/13	1.48	4.2	192
08/21/13	-	-	-
11/18/13	-	-	-
02/17/14	-	-	-
05/27/14	2.73	5.3	154
08/27/14	2.36	5.3	152
08/10/15	2.46	5.1	163
08/15/16	1.79	5.7	149
08/14/17	4.16	5.6	85
08/27/18	3.54	5.8	78
08/29/19	3.32	5.9	131
08/31/20	2.17	5.7	162
05/31/22	2.69	6.5	124
11/28/22	3.18	6.0	134
11/30/23	2.29	5.9	87

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-10</b>		
INSTALLATION DATE:	03/15/06	WELL DEPTH (FT BTOC):	20.0	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.10	WELL TYPE:	II
								DIAMETER (IN):	2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	NOT SAMPLED						
08/27/18	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	0.00118
11/20/18	NOT SAMPLED						
02/22/19	NOT SAMPLED						
05/20/19	NOT SAMPLED						
08/29/19	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
11/05/19	NOT SAMPLED						
02/12/20	NOT SAMPLED						
05/07/20	NOT SAMPLED						
08/31/20	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
11/17/20	NOT SAMPLED						
02/18/21	NOT SAMPLED						
05/06/21	NOT SAMPLED						
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.024</b>	<b>0.006</b>	<b>1.2</b>	<b>0.84</b>	<b>12</b>	-	<b>0.024</b>
Inhalation SSTLS:	<b>22,300</b>	<b>9.3</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-11</b>		
INSTALLATION DATE:	07/31/14	WELL DEPTH (FT BTOC):	36.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	202.01	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
08/04/14	13.50	188.51	-	-
08/10/15	17.22	184.79	-	-
11/17/15	17.89	184.12	-	-
02/10/16	13.59	188.42	-	-
05/04/16	14.05	187.96	-	-
08/15/16	16.67	185.34	-	-
11/10/16	18.59		-	-
02/08/17	16.61	185.40	-	-
08/14/17	13.54	188.47	-	8.0
11/29/17	15.98	186.03	-	5.0
02/13/18	16.34	185.67	-	5.0
05/16/18	15.71	186.30	-	5.0
08/27/18	17.82	184.19	-	5.0
11/20/18	19.18	182.83	-	7.5
02/22/19	15.76	186.25	-	7.0
05/20/19	14.21	187.80	-	5.0
08/29/19	16.72	185.29	-	5.0
11/05/19	17.79	184.22	-	5.0
02/12/20	15.28	186.73	-	5.0
05/07/20	16.92	185.09	-	5.0
08/31/20	15.88	186.13	-	3.0
11/17/20	17.16	184.85	-	5.0
02/18/21	14.58	187.43	-	3.0
05/06/21	14.62	187.39	-	5.0
05/31/22	14.23	187.78	-	2.5
11/28/22	16.44	185.57	-	9.0
11/30/23	17.01	185.00	-	9.0

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
08/04/14	-	-	-
08/10/15	1.57	5.7	139
11/17/15	2.53	5.9	228
02/10/16	2.73	6.0	70
05/04/16	2.69	6.4	231
08/15/16	2.53	6.1	188
11/10/16	-	-	-
02/08/17	3.13	5.8	168
08/14/17	2.90	5.8	129
11/29/17	2.79	6.3	142
02/13/18	3.58	6.2	169
05/16/18	3.54	6.3	119
08/27/18	3.87	6.2	141
11/20/18	2.47	5.9	46
02/22/19	2.85	5.8	125
05/20/19	3.26	6.2	162
08/29/19	2.89	6.0	93
11/05/19	2.67	6.2	119
02/12/20	3.08	5.8	151
05/07/20	1.93	6.0	13
08/31/20	2.94	6.2	124
11/17/20	5.52	6.0	186
02/18/21	3.11	7.4	82
05/06/21	2.89	6.2	121
05/31/22	3.08	7.0	30
11/28/22	3.46	6.1	122
11/30/23	2.97	6.0	141

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>MW-11</b>		
INSTALLATION DATE:	07/31/14	WELL DEPTH (FT BTOC):	36.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	202.01	WELL TYPE: DIAMETER (IN):	II 2

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	0.0175	0.0072	<0.0010	0.0020	0.0013	0.0105	<0.0010
08/27/18	0.0061	<0.0010	<0.0010	<0.0010	<0.0010	BDL	0.00104
11/20/18	0.0193	0.0082	<0.0010	0.0011	<0.0010	0.0093	<0.0010
02/22/19		<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
05/20/19	0.0167	0.0063	<0.0010	<0.0010	<0.0010	0.0063	<0.0010
08/29/19	0.0139	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
11/05/19	0.0214	0.0044	<0.0010	<0.0010	<0.0010	0.0044	<0.0010
02/12/20	0.0162	0.0022	<0.0010	<0.0010	<0.0010	0.0022	<0.0010
05/07/20	0.0121	<0.0010	<0.0010	<0.0010	<0.0010	BDL	<0.0010
08/31/20	0.010	0.005	<0.001	<0.001	<0.001	0.005	<0.001
11/17/20	0.010	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/18/21	0.015	0.001	<0.001	<0.001	<0.001	0.001	<0.001
05/06/21	0.005	0.003	0.006	0.001	0.006	0.016	<0.001
08/04/21	NOT SAMPLED						
11/03/21	NOT SAMPLED						
02/15/22	NOT SAMPLED						
05/31/22	0.008	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	NOT SAMPLED						
11/28/22	0.007	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/14/23	NOT SAMPLED						
05/22/23	NOT SAMPLED						
08/07/23	NOT SAMPLED						
11/30/23	0.007	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
02/06/24	NOT SAMPLED						
05/28/24	NOT SAMPLED						
GRP SSTLS:	<b>0.102</b>	<b>0.0256</b>	<b>5.11</b>	<b>3.85</b>	<b>51.1</b>	-	<b>0.102</b>
Inhalation SSTLS:	<b>22,300</b>	<b>9.3</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-





## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-1</b>		
INSTALLATION DATE:	08/03/09	WELL DEPTH (FT BTOC):	20.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.01	WELL TYPE: DIAMETER (IN):	II 4
Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)									

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
08/14/17	5.91	192.10	-	15.0
11/29/17	11.96	186.05	-	5.0
02/13/18	17.21	180.80	-	2.0
05/16/18	13.71	184.30	-	5.0
08/27/18	17.02	180.99	-	4.0
11/20/18	18.43	179.58	-	3.5
02/22/19	18.45	179.56	-	2.5
05/20/19	17.38	180.63	-	4.0
08/29/19	17.69	180.32	-	4.0
11/05/19	17.69	180.32	-	4.0
02/12/20	17.56	180.45	-	1.0
05/07/20	18.58	179.43	-	2.0
08/31/20	17.62	180.39	-	2.0
11/17/20	12.59	185.42	-	5.0
02/18/21	15.79	182.22	-	2.0
05/06/21	17.58	180.43	-	4.0
08/04/21	7.78	190.23	-	24.0
11/03/21	9.68	188.33	-	5.0
02/15/22	6.33	191.68	-	2.5
05/31/22	5.35	192.66	-	2.5
08/30/22	8.74	189.27	-	5.0
11/28/22	12.74	185.27	-	14.5
02/14/23	7.41	190.60	-	25.0
05/22/23	9.41	188.60	-	2.5
08/07/23	12.21	185.80	-	15.5
11/30/23	13.76	184.25	-	12.5
02/06/24	9.04	188.97	-	21.5
05/28/24	8.83	189.18	-	22.5

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
08/14/17	4.84	6.9	9
11/29/17	2.64	6.4	62
02/13/18	3.39	6.1	126
05/16/18	2.48	5.8	121
08/27/18	3.61	5.8	112
11/20/18	2.29	6.3	-38
02/22/19	3.01	6.0	75
05/20/19	2.49	6.1	127
08/29/19	2.78	5.9	82
11/05/19	1.84	5.8	104
02/12/20	2.64	5.7	152
05/07/20	3.05	5.8	134
08/31/20	2.39	5.8	56
11/17/20	2.39	6.0	74
02/18/21	4.95	7.2	22
05/06/21	2.81	5.7	87
08/04/21	2.92	6.0	84
11/03/21	2.68	5.9	37
02/15/22	0.51	6.8	10
05/31/22	3.07	6.8	92
08/30/22	3.32	6.2	153
11/28/22	3.24	6.0	117
02/14/23	2.49	5.8	89
05/22/23	2.76	6.0	-64
08/07/23	1.93	5.7	76
11/30/23	2.56	5.8	142
02/06/24	1.79	5.7	64
05/28/24	3.56	6.2	147

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-1</b>		
INSTALLATION DATE:	08/03/09	WELL DEPTH (FT BTOC):	20.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.01	WELL TYPE:	II
							197.90	DIAMETER (IN):	4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
<b>03/20/18</b>	<b>CA VIA AIR SPARGE</b>						
05/16/18	0.0980	<b>1.3950</b>	<b>8.5512</b>	1.6359	9.6242	21.2063	<b>0.2302</b>
08/27/18	0.1343	<b>1.0172</b>	4.8729	1.1059	6.8335	13.8295	<b>0.2168</b>
11/20/18	<b>0.2410</b>	<b>1.3924</b>	4.7825	0.8643	5.0319	12.0711	<b>0.1927</b>
02/22/19	0.1169	<b>0.5130</b>	1.9677	0.4598	3.1062	6.0466	0.1376
05/20/19	<b>0.1894</b>	<b>0.7184</b>	2.1635	0.3943	2.7880	6.0641	0.1110
08/29/19	<b>0.9064</b>	<b>1.6050</b>	5.2479	0.7866	4.8258	12.4653	<b>0.1489</b>
11/05/19	<b>0.3933</b>	<b>2.0882</b>	6.9401	1.1464	7.0604	17.2351	<b>0.1586</b>
02/12/20	<b>0.2225</b>	<b>1.0664</b>	3.4199	0.6078	3.5395	8.6336	0.1041
05/07/20	<b>0.1975</b>	<b>1.0381</b>	3.6778	0.6681	4.3648	9.7488	0.1241
08/31/20	<b>0.181</b>	<b>0.937</b>	2.50	0.470	2.61	6.52	0.083
11/17/20	0.063	<b>1.81</b>	6.31	0.536	7.65	16.31	<b>0.219</b>
02/18/21	0.102	<b>0.832</b>	4.18	0.542	4.09	9.64	0.119
05/06/21	0.119	<b>1.30</b>	5.88	0.999	7.32	15.499	<b>0.197</b>
08/04/21	<0.001	<0.001	0.003	0.001	0.029	0.033	0.002
11/03/21	0.093	<b>0.657</b>	2.40	0.092	4.28	7.429	<b>0.197</b>
02/15/22	<0.001	0.003	0.016	0.002	0.033	0.054	0.006
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	0.001	<b>0.086</b>	0.296	0.044	0.521	0.947	0.020
11/28/22	0.046	<b>5.210</b>	<b>11.300</b>	0.866	15.200	32.576	<b>&lt;0.500</b>
02/14/23	<0.005	0.015	0.019	0.008	0.108	0.150	<0.005
05/22/23	0.081	<b>1.12</b>	2.60	<0.100	1.55	5.270	0.106
08/07/23	<b>1.21</b>	<b>10.2</b>	<b>36.6</b>	1.26	32.8	80.860	<b>0.401</b>
11/30/23	<b>&lt;0.500</b>	<b>0.876</b>	3.70	<0.500	21.5	26.076	<b>&lt;0.500</b>
02/06/24	0.007	0.016	0.069	0.007	0.513	0.605	0.015
05/28/24	<b>0.157</b>	<b>0.777</b>	0.503	0.146	4.43	5.856	0.099
GRP SSTLS:	<b>0.143</b>	<b>0.0357</b>	<b>7.14</b>	<b>5</b>	<b>71.4</b>	-	<b>0.143</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-2</b>		
INSTALLATION DATE:	08/03/09	WELL DEPTH (FT BTOC):	20.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.27 198.01	WELL TYPE: DIAMETER (IN):	II 4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
02/08/17	18.21	180.06	-	-
08/14/17	17.55	180.72	-	3.5
11/29/17	11.33	186.68	-	5.0
02/13/18	17.56	180.45	-	2.0
05/16/18	12.82	185.19	-	5.0
08/27/18	16.79	181.22	-	5.0
11/20/18	18.61	179.40	-	3.0
02/22/19	15.83	182.18	-	5.0
05/20/19	16.28	181.73	-	5.0
08/29/19	17.84	180.17	-	4.0
11/05/19	17.75	180.26	-	4.0
02/12/20	18.08	179.93	-	3.0
08/31/20	14.89	183.12	-	3.0
11/17/20	11.24	186.77	-	5.0
02/18/21	17.81	180.20	-	1.0
05/06/21	16.98	181.03	-	5.0
08/04/21	7.59	190.42	-	24.0
11/03/21	8.67	189.34	-	5.0
02/15/22	5.23	192.78	-	2.5
05/31/22	3.80	194.21	-	2.5
08/30/22	10.86	187.15	-	5.0
11/28/22	11.23	186.78	-	17.5
02/14/23	7.46	190.55	-	25.0
05/22/23	10.75	187.26	-	2.5
08/07/23	12.97	185.04	-	14.0
11/30/23	12.51	185.50	-	15.0
02/06/24	8.78	189.23	-	22.0
05/28/24	7.98	190.03	-	24.0

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
02/08/17	-	-	-
08/14/17	4.27	6.2	63
11/29/17	2.37	6.1	-82
02/13/18	2.52	5.7	49
05/16/18	2.77	5.9	104
08/27/18	2.45	5.7	98
11/20/18	2.65	6.7	-69
02/22/19	2.14	6.1	164
05/20/19	1.86	5.8	59
08/29/19	2.46	5.7	107
11/05/19	1.92	5.6	74
02/12/20	2.82	5.8	124
08/31/20	2.81	5.6	72
11/17/20	2.64	5.9	104
02/18/21	5.31	7.5	36
05/06/21	2.63	5.8	99
08/04/21	2.69	5.7	91
11/03/21	2.39	5.8	44
02/15/22	0.73	6.9	15
05/31/22	2.41	5.9	130
08/30/22	4.29	6.3	124
11/28/22	3.16	5.9	109
02/14/23	1.81	5.6	59
05/22/23	1.11	6.4	-85
08/07/23	1.87	5.7	59
11/30/23	1.84	5.8	92
02/06/24	1.59	5.8	47
05/28/24	4.10	6.2	138

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-2</b>		
INSTALLATION DATE:	08/03/09	WELL DEPTH (FT BTOC):	20.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.27	WELL TYPE:	II
							198.01	DIAMETER (IN):	4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
03/20/18	CA VIA AIR SPARGE						
05/16/18	<b>3.3379</b>	<b>8.0712</b>	<b>15.5846</b>	0.9484	8.7485	33.3527	<b>0.2509</b>
08/27/18	<b>2.4298</b>	<b>5.8596</b>	<b>12.0636</b>	0.8011	8.7592	27.4835	<b>0.3650</b>
11/20/18	<b>1.0167</b>	<b>0.8569</b>	1.9699	0.1621	1.4572	4.4461	0.1086
02/22/19	<b>2.8396</b>	<b>8.7830</b>	<b>18.4168</b>	1.2014	10.8908	39.2921	<b>0.3522</b>
05/20/19	<b>2.8214</b>	<b>10.5324</b>	<b>30.8676</b>	2.7153	20.3486	64.4639	<b>0.7236</b>
08/29/19	<b>0.7791</b>	<b>1.4789</b>	4.6994	0.3742	4.0197	10.5722	<b>0.2170</b>
11/05/19	<b>0.4065</b>	<b>0.4916</b>	1.5101	0.1954	1.4885	3.6856	0.0546
02/12/20	<b>1.3123</b>	<b>2.7406</b>	5.3505	0.4231	3.0767	11.5909	0.0889
05/07/20	NOT SAMPLED						
08/31/20	<b>1.77</b>	<b>1.68</b>	3.54	0.224	2.29	7.73	<0.200
11/17/20	<0.200	<b>0.615</b>	2.06	<0.200	2.23	4.905	<0.200
02/18/21	<b>1.56</b>	<b>3.37</b>	<b>10.4</b>	0.824	6.16	20.8	<b>0.271</b>
05/06/21	<b>1.83</b>	<b>5.74</b>	<b>18.8</b>	1.90	15.4	41.840	<b>0.419</b>
08/04/21	0.003	<b>0.041</b>	0.088	0.008	0.124	0.261	0.004
11/03/21	0.025	0.032	0.064	0.010	0.167	0.273	0.005
02/15/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	<b>0.820</b>	<b>3.83</b>	<b>8.14</b>	0.388	5.33	17.688	0.106
11/28/22	<b>0.640</b>	<b>2.41</b>	3.12	0.678	9.40	15.608	<b>0.298</b>
02/14/23	<b>0.789</b>	<b>2.52</b>	0.80	0.706	7.58	11.603	<b>&lt;0.250</b>
05/22/23	<b>0.590</b>	<b>1.12</b>	1.22	0.087	3.47	5.897	0.116
08/07/23	<b>0.607</b>	<b>0.614</b>	2.09	0.161	4.98	7.845	<b>0.214</b>
11/30/23	<b>&lt;0.250</b>	<b>0.748</b>	1.13	0.330	4.56	6.768	<b>&lt;0.250</b>
02/06/24	<b>0.161</b>	<b>0.601</b>	0.096	0.136	2.08	2.913	0.132
05/28/24	<0.020	<b>0.072</b>	0.254	0.050	0.346	0.722	0.020
GRP SSTLS:	<b>0.143</b>	<b>0.0357</b>	<b>7.14</b>	<b>5</b>	<b>71.4</b>	-	<b>0.143</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-3</b>		
INSTALLATION DATE:	08/03/09	WELL DEPTH (FT BTOC):	21.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	199.82	WELL TYPE:	II
							199.82	DIAMETER (IN):	4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
08/14/17	19.70	180.12	-	-
11/29/17	13.12	186.70	-	5.0
02/13/18	19.39	180.43	-	0.0
05/16/18	20.18	179.64	-	-
08/27/18	19.70	180.12	-	5.0
11/20/18	DRY			
02/22/19	DRY			
05/20/19	16.31	183.51	-	5.0
08/29/19	19.70	180.12	-	-
11/05/19	19.68	180.14	-	-
02/12/20	19.70	180.12	-	-
08/31/20	DRY			
11/17/20	13.41	186.41	-	5.0
02/18/21	19.45	180.37	-	-
05/06/21	19.58	180.24	-	-
08/04/21	9.70	190.12	-	19.0
11/03/21	10.82	189.00	-	5.0
02/15/22	6.31	193.51	-	2.5
05/31/22	5.98	193.84	-	26.0
08/30/22	11.86	187.96	-	5.0
11/28/22	13.47	186.35	-	12.5
02/14/23	9.04	190.78	-	21.0
05/22/23	11.20	188.62	-	2.5
08/07/23	16.14	183.68	-	7.0
11/30/23	14.51	185.31	-	10.5
02/06/24	10.61	189.21	-	17.7
05/28/24	10.14	189.68	-	19.0

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
08/14/17		DRY	
11/29/17	3.62	6.2	-52
02/13/18		DRY	
05/16/18		DRY	
08/27/18		DRY	
11/20/18		DRY	
02/22/19		DRY	
05/20/19	2.52	5.8	142
08/29/19	-	-	-
11/05/19	-	-	-
02/12/20	-	-	-
08/31/20		DRY	
11/17/20	1.93	6.1	23
02/18/21	-	-	-
05/06/21	-	-	-
08/04/21	2.75	5.9	98
11/03/21	2.54	5.8	79
02/15/22	0.17	7.7	113
05/31/22	2.46	5.8	129
08/30/22	2.84	5.9	149
11/28/22	2.46	5.7	82
02/14/23	1.64	5.7	71
05/22/23	5.51	5.7	64
08/07/23	2.42	5.8	47
11/30/23	2.37	5.7	72
02/06/24	1.86	5.7	72
05/28/24	3.07	6.0	115



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-3</b>		
INSTALLATION DATE:	08/03/09	WELL DEPTH (FT BTOC):	21.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	199.82	WELL TYPE:	II
							199.82	DIAMETER (IN):	4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
08/14/17	NOT SAMPLED (DRY)						
11/29/17	<b>1.3241</b>	<b>2.1549</b>	<b>11.1124</b>	0.4398	4.5697	18.2767	<b>0.1977</b>
02/13/18	NOT SAMPLED (DRY)						
03/20/18	CA VIA AIR SPARGE						
02/22/19	NOT SAMPLED (DRY)						
05/20/19	<b>1.6364</b>	<b>3.4267</b>	<b>16.5496</b>	0.9370	7.8244	28.7376	<b>0.4037</b>
08/29/19	NOT SAMPLED						
11/05/19	NOT SAMPLED						
02/12/20	NOT SAMPLED						
05/07/20	NOT SAMPLED						
08/31/20	NOT SAMPLED (DRY)						
11/17/20	<b>0.352</b>	<b>2.24</b>	<b>15.8</b>	0.428	6.27	24.738	<b>0.315</b>
02/21/18	NOT SAMPLED						
05/06/21	NOT SAMPLED						
08/04/21	<0.005	0.021	0.271	0.008	0.201	0.501	0.008
11/03/21	0.015	<b>0.036</b>	0.167	<0.005	0.451	0.654	0.032
02/15/22	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001
05/31/22	<0.001	<0.001	<0.001	<0.001	<0.001	BDL	<0.001
08/30/22	<b>1.68</b>	<b>3.06</b>	<b>21.3</b>	1.41	10.9	36.67	<b>0.388</b>
11/28/22	<0.250	<b>3.63</b>	<b>22.4</b>	0.777	8.90	35.71	<b>0.410</b>
02/14/23	0.01	<b>0.05</b>	0.1	<0.005	0.50	0.69	0.026
05/22/23	0.015	<b>0.041</b>	0.159	<0.005	0.116	0.316	<0.005
08/07/23	<b>1.34</b>	<b>0.968</b>	<b>27.0</b>	2.04	19.8	49.808	<b>1.15</b>
11/30/23	<b>0.328</b>	< <b>0.250</b>	2.58	<0.250	8.42	11.000	<b>0.594</b>
02/06/24	0.001	<0.001	0.002	<0.001	0.25	0.252	0.045
05/28/24	0.001	<b>0.036</b>	0.024	0.005	0.086	0.151	0.006
GRP SSTLS:	<b>0.143</b>	<b>0.0357</b>	<b>7.14</b>	<b>5</b>	<b>71.4</b>	-	<b>0.143</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-4</b>		
INSTALLATION DATE:	07/31/14	WELL DEPTH (FT BTOC):	25.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.57 198.55	WELL TYPE: DIAMETER (IN):	II 4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

POTENTIOMETRIC ELEVATION SUMMARY				
MEASUREMENT DATE	DEPTH TO WATER (FT BTOC)	ELEVATION (FT ABOVE MSL)	FREE PRODUCT THICKNESS (FT)	PCW GALLONS REMOVED
08/14/17	9.16	189.41	-	20.0
11/29/17	12.58	185.97	-	5.0
02/13/18	20.07	178.48	-	4.0
05/16/18	17.38	181.17	-	5.0
08/27/18	20.29	178.26	-	5.0
11/20/18	20.07	178.48	-	9.5
02/22/19	20.37	178.18	-	6.0
05/20/19	21.14	177.41	-	5.0
08/29/19	20.42	178.13	-	5.0
11/05/19	19.79	178.76	-	5.0
02/12/20	19.21	179.34	-	5.0
05/07/20	24.27	174.28	-	1.0
08/31/20	23.01	175.54	-	2.0
11/17/20	13.16	185.39	-	5.0
02/18/21	23.15	175.40	-	1.0
05/06/21	22.12	176.43	-	5.0
08/04/21	9.60	188.95	-	30.0
11/03/21	10.37	188.18	-	5.0
02/15/22	11.04	187.51	-	2.5
05/31/22	7.19	191.36	-	34.0
08/30/22	9.48	189.07	-	5.0
11/28/22	13.26	185.29	-	23.0
02/14/23	8.58	189.97	-	32.5
05/22/23	10.95	187.60	-	2.5
08/07/23	13.26	185.29	-	23.0
11/30/23	14.23	184.32	-	21.0
02/06/24	9.76	188.79	-	29.7
05/28/24	9.56	188.99	-	30.5

INTRINSIC GROUNDWATER DATA SUMMARY			
SAMPLE DATE	DISSOLVED OXYGEN (mg/L)	pH	REDOX POTENTIAL (mV)
08/14/17	1.53	5.6	-32
11/29/17	1.59	6.5	-74
02/13/18	2.96	5.9	86
05/16/18	2.91	5.7	109
08/27/18	2.31	5.5	59
11/20/18	2.09	6.2	-62
02/22/19	2.43	5.7	78
05/20/19	2.57	5.7	72
08/29/19	3.01	6.1	127
11/05/19	2.18	6.1	92
02/12/20	2.09	5.8	184
05/07/20	2.61	5.7	148
08/31/20	2.63	5.8	83
11/17/20	2.48	6.0	69
02/18/21	3.31	7.2	14
05/06/21	2.47	5.8	161
08/04/21	2.59	5.9	123
11/03/21	2.24	5.7	64
02/15/22	0.41	6.4	-119
05/31/22	3.10	5.7	140
08/30/22	4.37	6.4	166
11/28/22	3.52	6.1	142
02/14/23	3.24	5.9	137
05/22/23	5.19	5.9	9
08/07/23	2.64	5.9	82
11/30/23	2.76	5.9	84
02/06/24	2.49	5.9	94
05/28/24	4.03	6.2	178

## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-4</b>		
INSTALLATION DATE:	07/31/14	WELL DEPTH (FT BTOC):	25.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	198.57	WELL TYPE:	II
							198.55	DIAMETER (IN):	4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
<b>03/20/18</b>	<b>CA VIA AIR SPARGE</b>						
05/16/18	<b>0.6167</b>	<b>6.2879</b>	<b>19.0047</b>	2.3529	14.0563	41.7018	<b>0.2987</b>
08/27/18	<b>0.4564</b>	<b>6.3708</b>	<b>18.8867</b>	2.8682	17.4917	45.6174	<b>0.4498</b>
11/20/18	<b>0.5872</b>	<b>7.0373</b>	<b>21.6099</b>	3.2105	19.9429	51.8006	<b>0.6133</b>
02/22/19		<b>5.0453</b>	<b>18.4097</b>	3.1309	19.1599	45.7458	<b>0.5053</b>
05/20/19	<b>0.2895</b>	<b>2.7695</b>	<b>8.4690</b>	1.3507	10.9839	23.5731	<b>0.3827</b>
08/29/19	<b>0.4098</b>	<b>4.1135</b>	<b>12.7755</b>	1.6348	13.7105	32.2343	<b>0.4375</b>
11/05/19	<b>0.5460</b>	<b>7.4750</b>	<b>21.6369</b>	2.8750	19.0438	51.0307	<b>0.4407</b>
02/12/20	<b>0.4131</b>	<b>5.2505</b>	<b>16.1518</b>	2.3412	16.6243	40.3678	<b>0.4955</b>
05/07/20	<b>0.4517</b>	<b>3.7200</b>	<b>10.4085</b>	1.4967	10.8206	26.4457	<b>0.2489</b>
08/31/20	<b>0.187</b>	<b>2.67</b>	3.74	1.30	6.64	14.35	<b>0.210</b>
11/17/20	<b>0.471</b>	<b>3.68</b>	6.23	0.361	8.09	18.361	<b>0.223</b>
02/18/21	<b>0.550</b>	<b>6.72</b>	<b>12.4</b>	2.11	13.3	34.5	<b>0.436</b>
05/06/21	<b>0.293</b>	<b>4.80</b>	<b>9.93</b>	1.86	11.5	28.09	<b>0.311</b>
08/04/21	<b>0.192</b>	<b>1.95</b>	2.04	0.109	2.13	6.23	<0.100
11/03/21	<b>0.155</b>	<b>3.08</b>	5.15	0.289	6.98	15.499	<b>0.280</b>
02/15/22	<b>0.396</b>	<b>5.01</b>	0.606	0.528	7.71	13.854	<b>0.286</b>
05/31/22	0.050	<b>0.913</b>	0.235	0.083	1.38	2.611	0.103
08/30/22	0.114	<b>3.11</b>	0.446	0.120	4.45	8.126	<b>0.233</b>
11/28/22	<b>0.494</b>	<b>12.80</b>	<b>19.800</b>	0.702	15.30	48.602	<b>0.654</b>
02/14/23	<b>0.804</b>	<b>10.30</b>	1.870	1.100	16.40	29.670	<b>0.776</b>
05/22/23	<b>0.270</b>	<b>0.744</b>	2.64	<0.050	2.06	5.444	<0.050
08/07/23	<b>0.266</b>	<b>0.632</b>	1.76	0.065	2.41	4.867	<0.050
11/30/23	<0.100	<b>0.195</b>	0.359	<0.100	0.867	1.421	<0.100
02/06/24	<b>0.165</b>	<b>0.328</b>	0.175	<0.100	1.58	2.083	<0.100
05/28/24	0.112	<b>0.688</b>	1.04	0.225	2.28	4.233	<0.100
GRP SSTLS:	<b>0.138</b>	<b>0.0345</b>	<b>6.9</b>	<b>4.83</b>	<b>69</b>	-	<b>0.138</b>
Inhalation SSTLS:	<b>1,380</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-





## Monitoring Point Data Summary Table

SITE NAME:	Johnson's Grocery			UST NUMBER:	05-02-07	WELL ID:	<b>RW-5</b>		
INSTALLATION DATE:	11/27/17	WELL DEPTH (FT BTOC):	24.5	SCREEN LENGTH (FT):	15	CASING ELEV (FT ABOVE MSL):	199.23	WELL TYPE: DIAMETER (IN):	II 4

Notes: BTOC (Below Top of Casing); MSL (Mean Sea Level); BDL (Below Detection Limit); CA (Corrective Action)

GROUNDWATER ANALYTICAL SUMMARY (mg/L)							
SAMPLE DATE	MTBE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	TOTAL BTEX	NAPHTHALENE
09/02/09	CA VIA MPE						
11/29/17	NOT SAMPLED						
02/13/18	NOT SAMPLED						
03/20/18	CA VIA AIR SPARGE						
02/22/19	<b>3.5758</b>	<b>5.5248</b>	<b>27.6993</b>	1.7251	14.4699	49.4191	<b>0.5122</b>
05/20/19	<b>2.4925</b>	<b>3.6802</b>	<b>18.8366</b>	1.0495	9.2432	32.8093	<b>0.3020</b>
08/29/19	<b>2.5159</b>	<b>5.4466</b>	<b>29.3291</b>	1.4715	13.1642	49.4114	<b>0.3713</b>
11/05/19	<b>1.8873</b>	<b>4.4802</b>	<b>27.9954</b>	1.4068	14.1493	48.0317	<b>0.3431</b>
02/12/20	<b>2.8858</b>	<b>4.3810</b>	<b>20.0077</b>	1.2031	11.6920	37.2838	<b>0.302</b>
05/07/20	<b>1.7361</b>	<b>5.4329</b>	<b>24.6083</b>	1.4971	15.1080	46.6464	<b>0.3464</b>
08/31/20	<b>2.00</b>	<b>4.78</b>	<b>24.4</b>	1.49	13.4	44.1	<b>0.302</b>
11/17/20	<b>2.36</b>	<b>1.31</b>	<b>22.7</b>	1.02	13.0	38.03	<b>0.243</b>
02/18/21	NOT SAMPLED						
05/06/21	NOT SAMPLED						
08/04/21	<0.200	<0.200	3.52	0.393	6.25	10.16	<0.200
11/03/21	0.014	<0.010	0.217	0.021	0.979	1.217	0.038
02/15/22	0.012	<b>0.071</b>	2.53	0.475	6.76	9.836	<b>0.340</b>
05/31/22	<0.020	<b>0.090</b>	4.98	0.993	10.5	16.563	<b>0.628</b>
08/30/22	<b>0.382</b>	<b>1.89</b>	<b>21.9</b>	1.97	16.9	42.660	<b>0.515</b>
11/28/22	0.1280	<b>0.7860</b>	<b>20.0000</b>	2.0500	18.1000	40.936	<b>0.7310</b>
02/14/23	<0.200	<b>0.4300</b>	3.3800	1.2600	13.3000	18.370	<b>0.4600</b>
05/22/23	<0.200	<b>1.38</b>	4.01	<0.200	6.35	11.740	<0.200
08/07/23	0.060	0.031	1.72	0.123	1.33	3.204	0.076
11/30/23	0.082	<b>0.043</b>	0.901	0.050	2.54	3.534	<b>0.157</b>
02/06/24	<b>0.244</b>	<b>0.691</b>	0.073	0.232	1.99	2.986	0.085
05/28/24	<0.010	<b>0.040</b>	0.193	0.223	1.46	1.916	<b>0.147</b>
GRP SSTLS:	<b>0.143</b>	<b>0.0357</b>	<b>7.14</b>	<b>5</b>	<b>71.4</b>	-	<b>0.143</b>
Inhalation SSTLS:	<b>48,000</b>	<b>60.9</b>	<b>526</b>	<b>169</b>	<b>175</b>	-	-



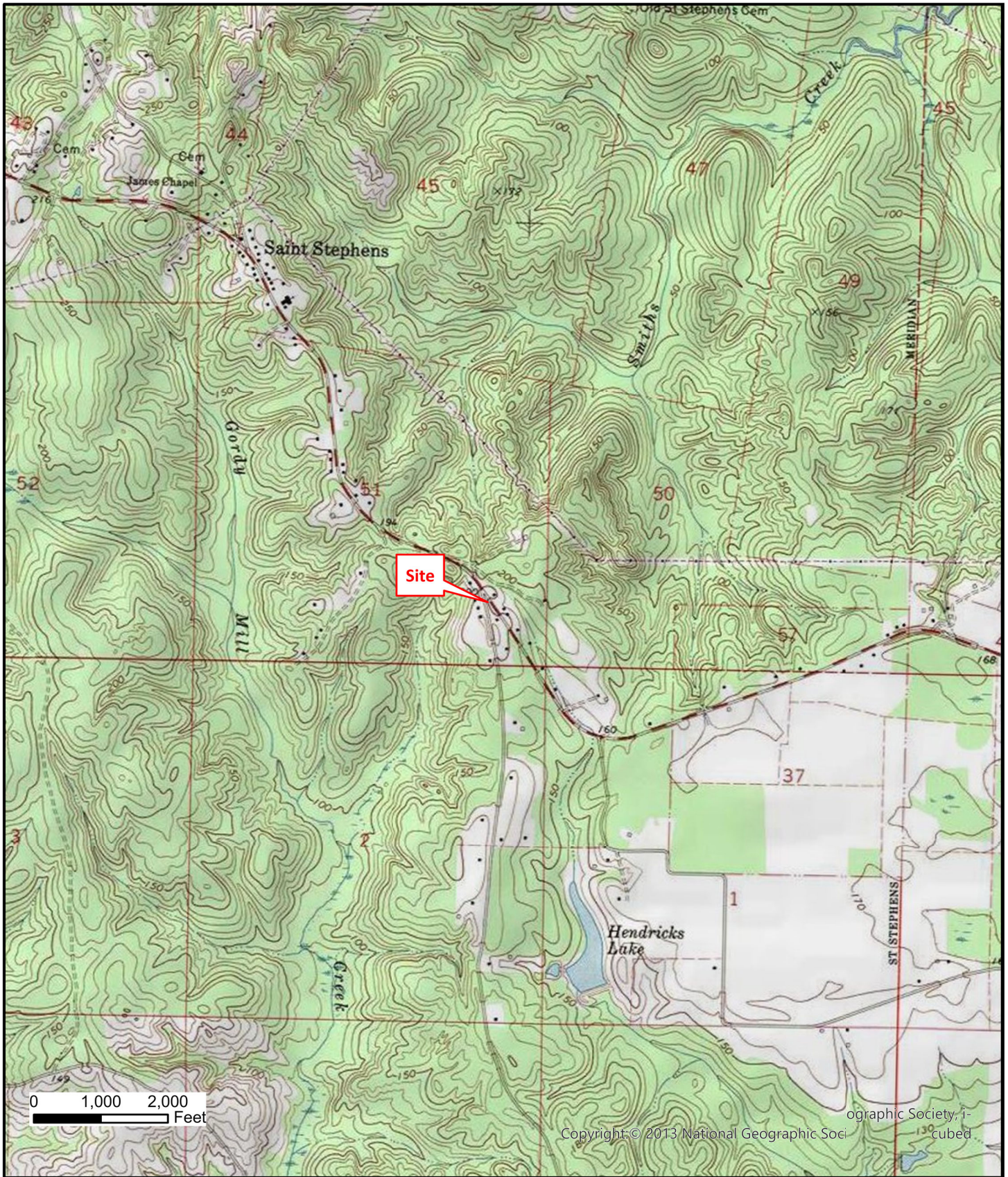




# FIGURES



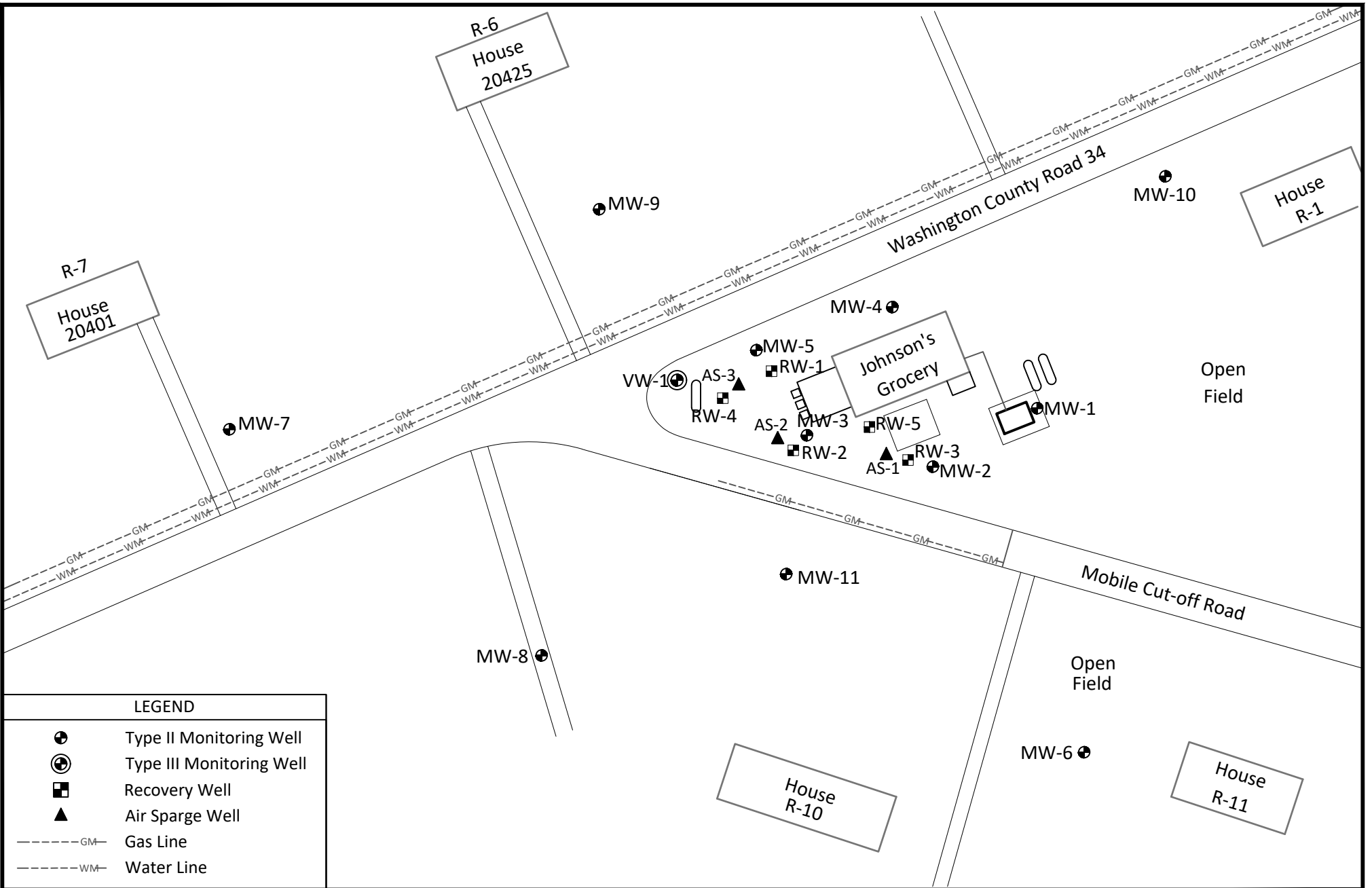
APPENDIX B







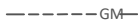

Site Location USGS Topographic Map

Johnson's Grocery  
 20444 County Road 34  
 St. Stephens, Washington County, AL





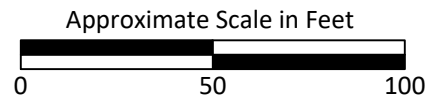
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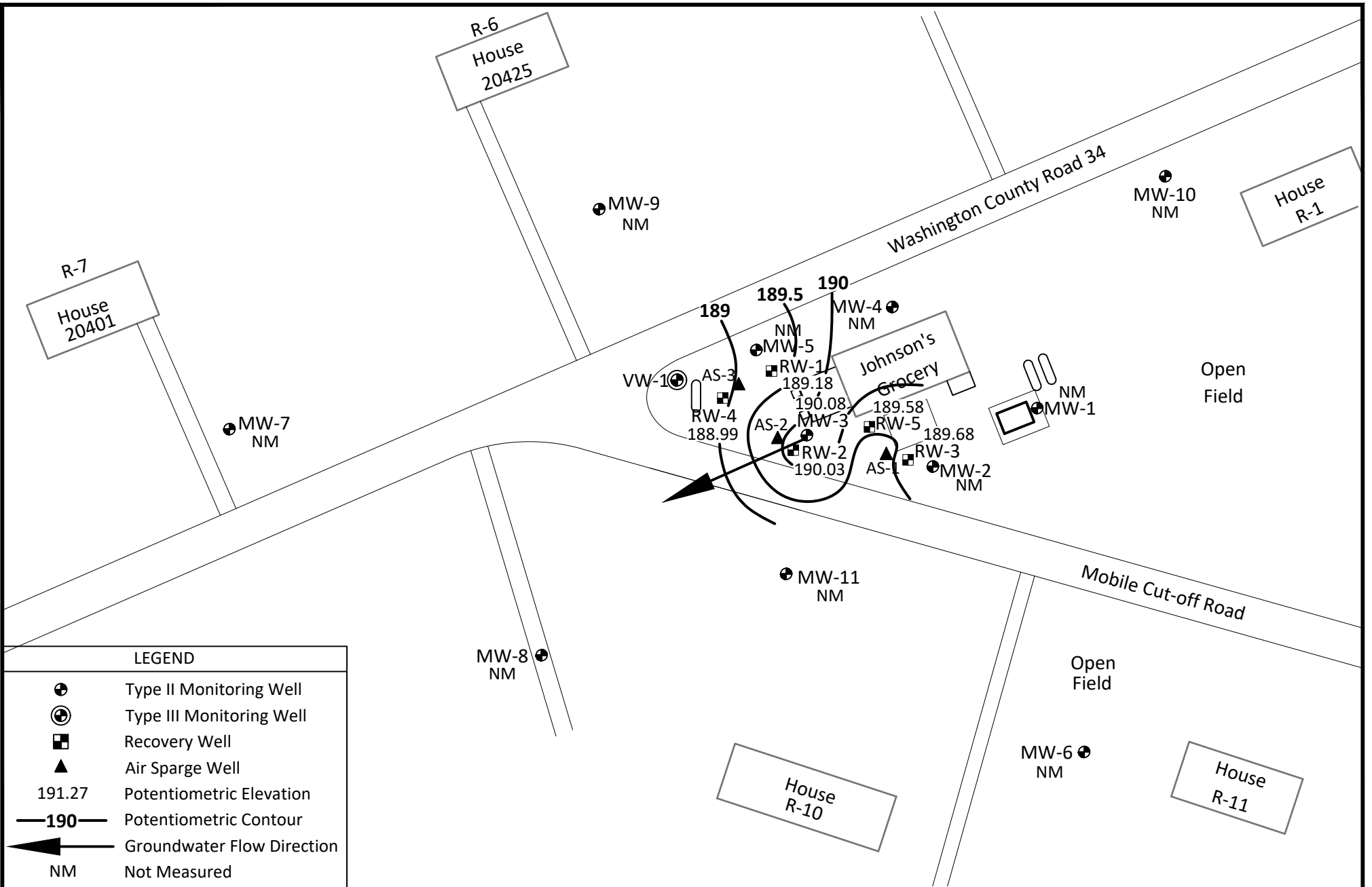
-  Type II Monitoring Well
-  Type III Monitoring Well
-  Recovery Well
-  Air Sparge Well
-  Gas Line
-  Water Line



Site Map with Utility and Well Locations

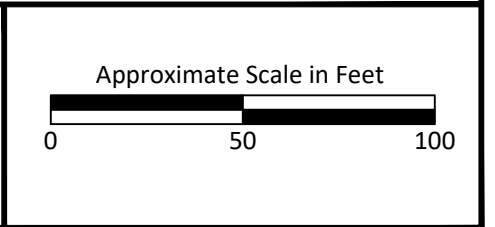
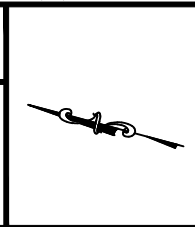
Johnson's Grocery  
 20444 County Road 34  
 St. Stephens, Washington County, AL

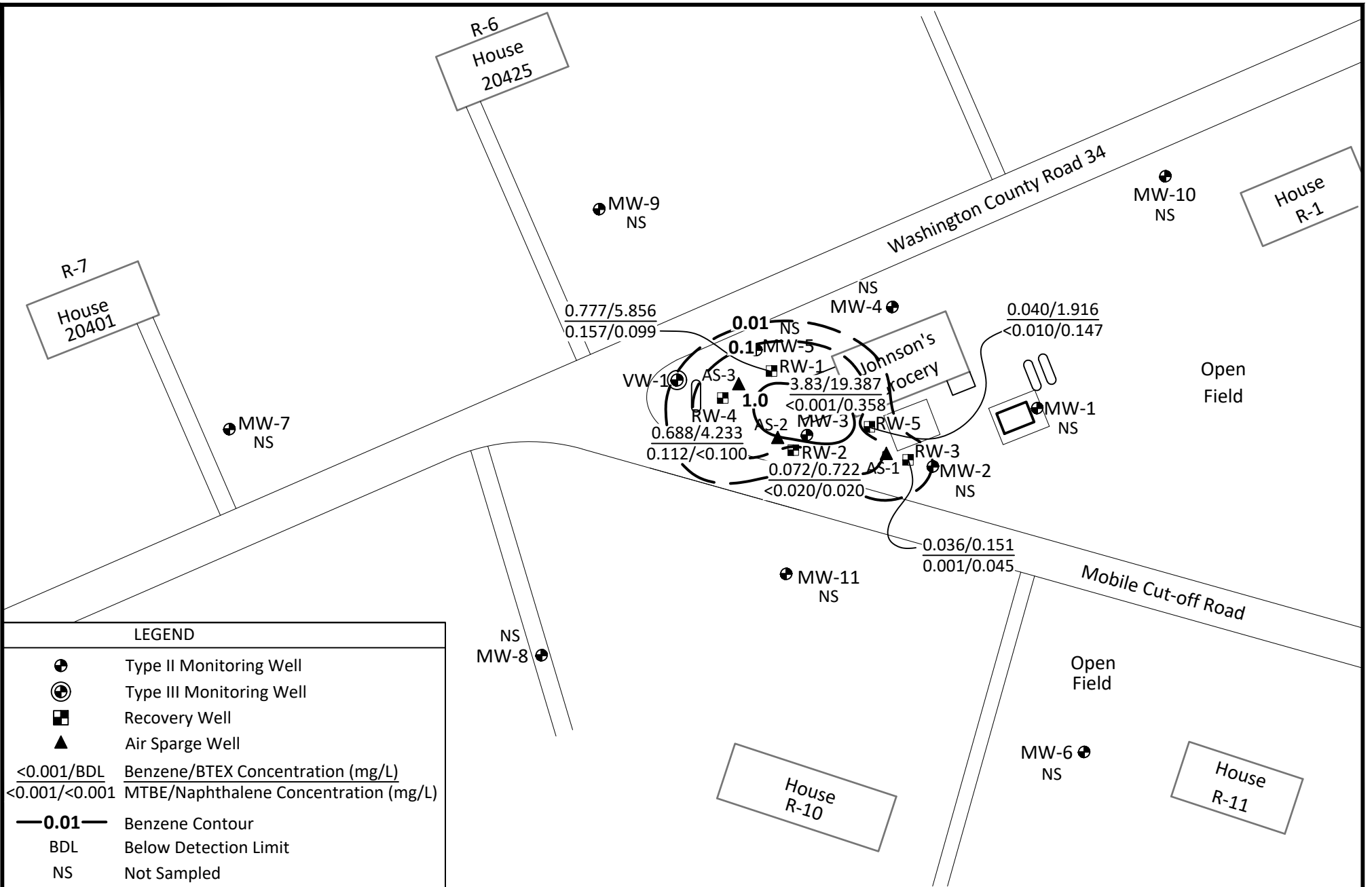




Potentiometric Surface Map  
May 28, 2024

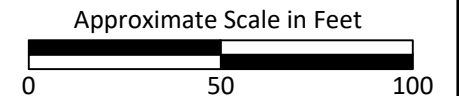
Johnson's Grocery  
20444 County Road 34  
St. Stephens, Washington County, AL

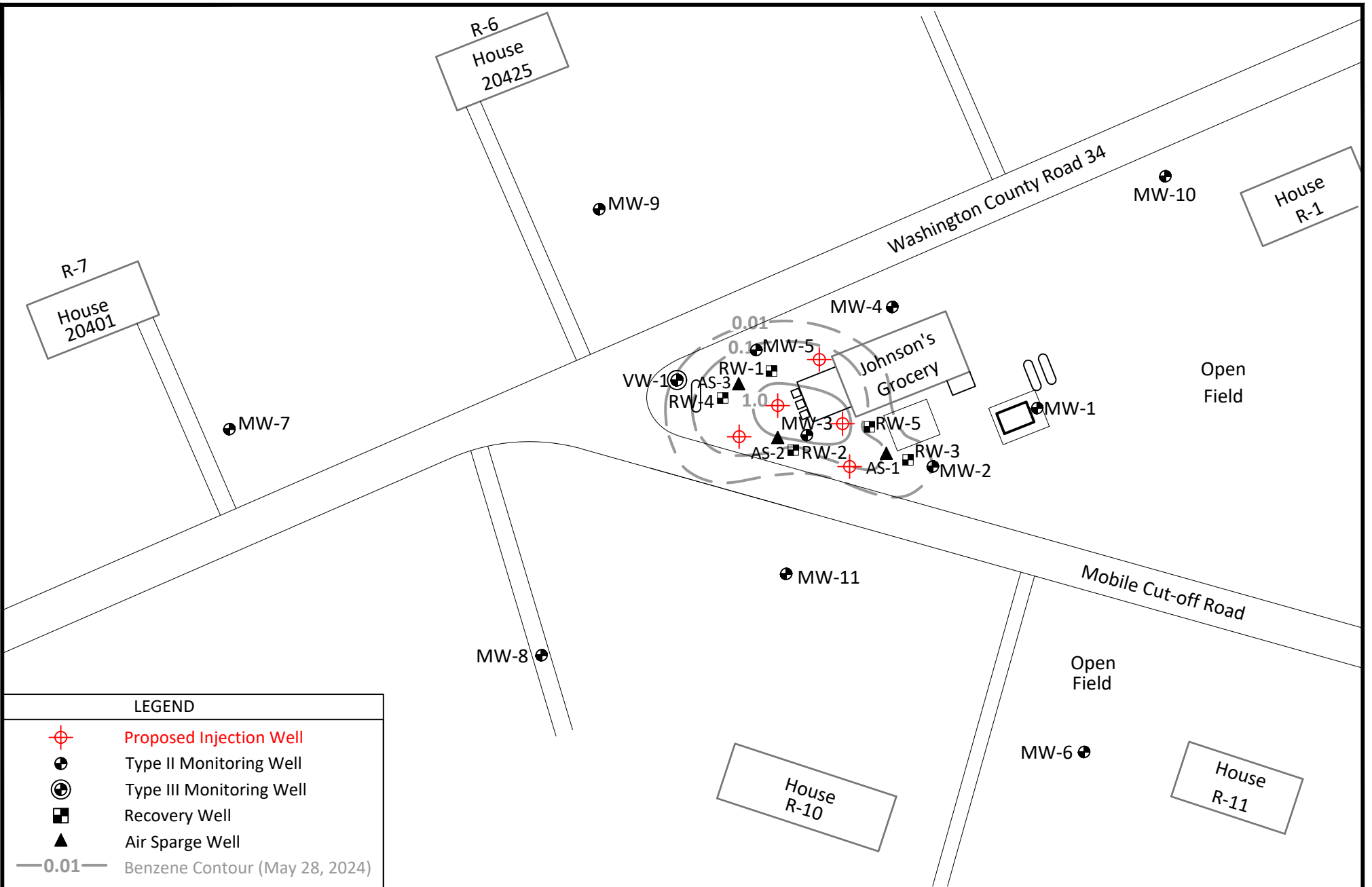










Groundwater Analytical and Benzene Contour Map  
May 28, 2024

Johnson's Grocery  
20444 County Road 34  
St. Stephens, Washington County, AL





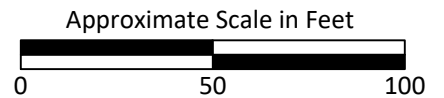
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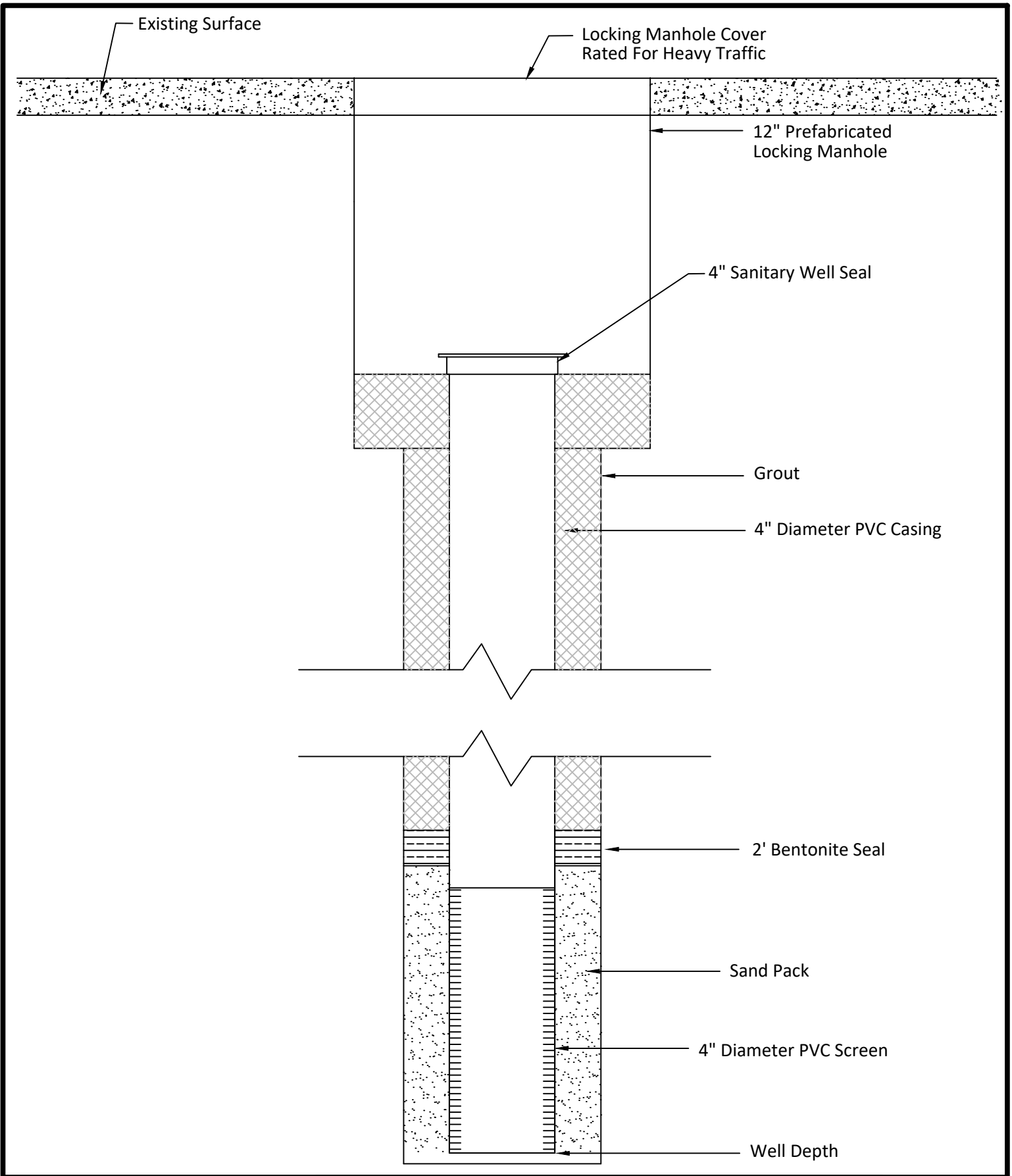
-  Proposed Injection Well
-  Type II Monitoring Well
-  Type III Monitoring Well
-  Recovery Well
-  Air Sparge Well
-  0.01 Benzene Contour (May 28, 2024)



**Proposed Well Locations Map**

Johnson's Grocery  
 20444 County Road 34  
 St. Stephens, Washington County, AL





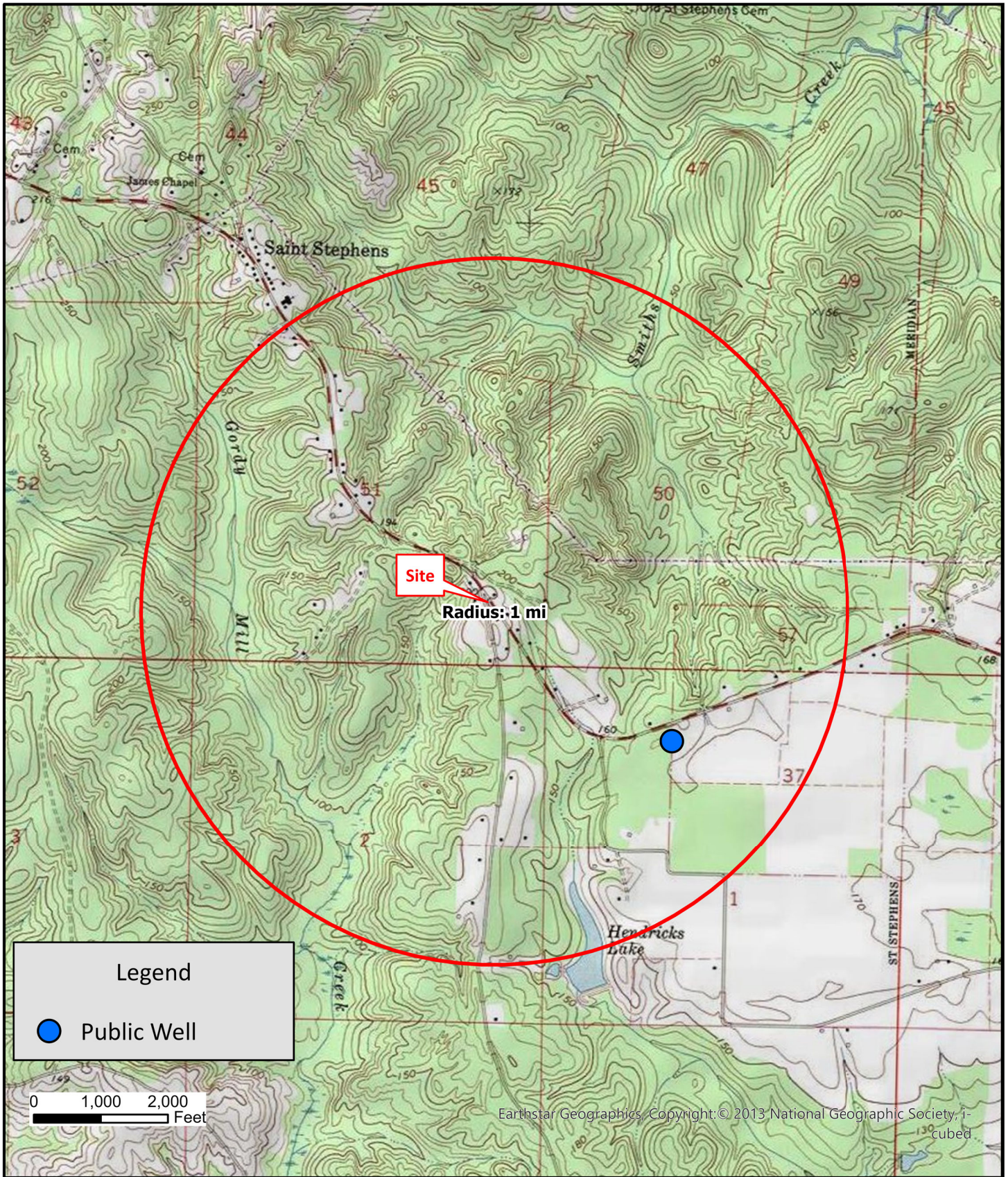
Typical Injection Well Construction Diagram



Johnson's Grocery  
 20444 County Road 34  
 St. Stephens, Washington County, AL

Not to Scale





Earthstar Geographics, Copyright: © 2013 National Geographic Society, i-cubed



Public Water Well Inventory Map

Johnson's Grocery  
 20444 County Road 34  
 St. Stephens, Washington County, AL



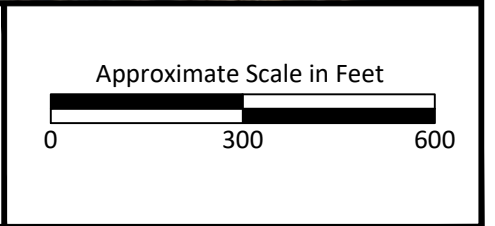
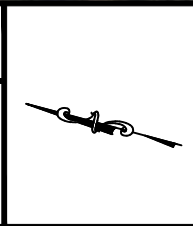


LEGEND	
	Private Well



Private Well Survey Map

Johnson's Grocery  
 20444 County Road 34  
 St. Stephens, Washington County, AL



# **UIC PERMIT APPLICATION**



**APPENDIX C**

# UIC Class V Individual Permit

version 1.5

(Submission #: HQ5-TVT5-9KSYB, version 1)

## Details

---

**Submission ID** HQ5-TVT5-9KSYB

**Status** In Process

## Fees

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**Fee** \$5,900.00

**Payments/Adjustments** (\$5,900.00)

**Balance Due** \$0.00 (Paid)

## Form Input

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### Permittee Information

#### Permittee

**Permittee Name**

*CDG, Inc.*

**Mailing Address**

PO BOX 278

ANDALUSIA, AL 36420

**Is the Property Owner the same as the Permittee?**

No

**Property Owner****Property Owner***Ethan Harris***Phone Type    Number                    Extension**

Mobile            334-455-1088

**Email**

harriscornerstorellc@gmail.com

**Address**

9821 County Road 34

Millry, AL 36558

**Responsible Official****Prefix***Mr.***First Name      Last Name**Robert            *Shepard***Title***Vice President***Organization Name***CDG, Inc.***Phone Type    Number                    Extension**

Business            334-222-9431

**Email**

robert.shepard@cdge.com

**Mailing Address**

PO BOX 278

ANDALUSIA, AL 36420

**This application must be signed by the responsible official who represents the permit applicant. Please check the appropriate box indicating the responsible official (only the people listed below may sign this application):**

In the case of a corporation, the principal executive officer of at least the level of vice-president

**Does the Responsible Official intend to delegate signatory authority to an individual (or to a company position) as a duly authorized representative (DAR) for this site?**

No

**Facility/Site Information**

**Facility/Site Name**  
Johnson's Grocery

**Facility/Site Address or Location Description**

20444 COUNTY ROAD 34  
ST STEPHENS, AL 36569

**Facility/Site Contact**

**Prefix**

*Mr.*

**First Name      Last Name**

Jack              *Johnson*

**Title**

*Owner*

**Organization Name**

*NONE PROVIDED*

**Phone Type      Number              Extension**

Mobile            251-589-5180

**Email**

april.harrelson@cdge.com

**Facility/Site County**

Washington

**Detailed Directions to the Facility/Site**

Intersection of Washington County Road 34 and Mobile Cut-off Road

**Please refer to the link below for Lat/Long map instruction help:**

[Map Instruction Help](#)

**Facility/Site Front Gate Latitude and Longitude**

31.52616900000000,-88.04338600000000

20444 County Rd 34, Saint Stephens, AL

**Additional Contacts (1 of 1)**

**Additional Contacts: Consultant**

**Contact Type**

Consultant

## Contact

**Prefix**

Mrs.

**First Name      Last Name**

April              Harrelson

**Title**

Project Manager

**Organization Name**

CDG, Inc.

**Phone Type      Number              Extension**

Business          334-222-9431

**Email**

april.harrelson@cdge.com

**Address**

PO BOX 278

ANDALUSIA, AL 36420

## Application Attachments

### Maps

[Johnson's Proposed Well Locations\(1.0\).pdf - 08/12/2024 10:28 AM](#)

[Johnson's Public Water Well Inventory Map\(1.0\).pdf - 08/12/2024 10:28 AM](#)

[Johnson's Private Well Survey Map\(1.0\).pdf - 08/12/2024 10:28 AM](#)

[Johnson's Potentiometric Surface Map 240528\(1.0\).pdf - 08/12/2024 10:28 AM](#)

**Comment**

NONE PROVIDED

### Injection Description

[PetroSolv SDS.pdf - 08/12/2024 10:31 AM](#)

[EZT-A2 SDS.pdf - 08/12/2024 10:31 AM](#)

[CBN SDS.pdf - 08/12/2024 10:31 AM](#)

[EZT-EA SDS.pdf - 08/12/2024 10:32 AM](#)

**Comment**

NONE PROVIDED

**Number of Injection Wells (each point is considered a separate well):**

9

### Engineering Plan

[UIC Engineering Plan.pdf - 08/15/2024 08:36 AM](#)

**Comment**

NONE PROVIDED

## Hydrogeological Data

UIC Engineering Plan.pdf - 08/15/2024 08:37 AM

### Comment

NONE PROVIDED

## Financial Viability

When required, the financial responsibility requirements in subparagraph (1)(h) of rule 335-6-8-.09 shall be demonstrated. A Permit application for discharge of treated sanitary waste must include a demonstration of compliance with any applicable requirements for financial viability certification.

**Is the permit application for the discharge of treated sanitary waste?**

No

## Additional Information

### Additional Information

NONE PROVIDED

### Comment

NONE PROVIDED

## Fees Assessed

The following itemized fees have been assessed based on the information provided in this application.

### **New Class V Issuance:**

4290

### **Greenfield Site Fee:**

1610

---

### **Total Amount Due:**

5900

## Attachments

---



<b>Date</b>	<b>Attachment Name</b>	<b>Context</b>	<b>Confidential?</b>	<b>User</b>
8/15/2024 8:37 AM	UIC Engineering Plan.pdf	Attachment	No	April Harrelson
8/15/2024 8:36 AM	UIC Engineering Plan.pdf	Attachment	No	April Harrelson
8/12/2024 10:32 AM	EZT-EA SDS.pdf	Attachment	No	April Harrelson
8/12/2024 10:31 AM	CBN SDS.pdf	Attachment	No	April Harrelson
8/12/2024 10:31 AM	EZT-A2 SDS.pdf	Attachment	No	April Harrelson
8/12/2024 10:31 AM	PetroSolv SDS.pdf	Attachment	No	April Harrelson
8/12/2024 10:28 AM	Johnson's Potentiometric Surface Map 240528(1.0).pdf	Attachment	No	April Harrelson
8/12/2024 10:28 AM	Johnson's Private Well Survey Map(1.0).pdf	Attachment	No	April Harrelson
8/12/2024 10:28 AM	Johnson's Public Water Well Inventory Map(1.0).pdf	Attachment	No	April Harrelson
8/12/2024 10:28 AM	Johnson's Proposed Well Locations(1.0).pdf	Attachment	No	April Harrelson

## Status History

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	<b>User</b>	<b>Processing Status</b>
8/12/2024 9:53:35 AM	April Harrelson	Draft
8/15/2024 8:38:25 AM	April Harrelson	Signing
8/15/2024 8:40:25 AM	Robert Shepard	Submitting
8/15/2024 8:44:26 AM	Robert Shepard	Submitted
8/15/2024 8:44:55 AM	Robert Shepard	In Process

# Agreements and Signature(s)

---

## SUBMISSION AGREEMENTS

- I am the owner of the account used to perform the electronic submission and signature.
- I have the authority to submit the data on behalf of the facility I am representing.
- I agree that providing the account credentials to sign the submission document constitutes an electronic signature equivalent to my written signature.
- I have reviewed the electronic form being submitted in its entirety, and agree to the validity and accuracy of the information contained within it to the best of my knowledge.

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

**Signed** Robert Shepard on 08/15/2024 at 8:40 AM  
**By**

# ETEC PROPOSAL



APPENDIX D



ADVANCED  
BIOREMEDIATION  
SOLUTIONS

August 2024

# Surfactant Enhanced Extraction & Bioremediation Injection Proposal

Johnson's Grocery - St. Stephens, AL

Version number 1.0

Proposal # 1024-035

---

Presented to  
**April Harrelson**  
CDG - Andalusia

Presented by  
**Kevin Moore**  
ETEC, Inc.

## Introduction

As requested, this proposal provides recommendations for implementing in-situ remediation at the above referenced site. ETEC recommends conducting surfactant-enhanced recovery at highly impacted wells followed by injection of proprietary bioremediation products into onsite wells to enhance biological degradation of remaining contaminants at the site.

Bioremediation product injections are being proposed to ensure the development of a strong microbial community and ensure the appropriate amount of amendments are delivered to the subsurface, to achieve mass balance and reach remedial goals.

## Site Conditions

ETEC's approach for this site is based on the information provided by CDG and is summarized as follows:

- Dissolved phase petroleum hydrocarbon concentrations exceed site specific target levels at wells:

- MW-3
- RW-1
- RW-2
- RW-4
- RW-5
- DTW during recent monitoring events is around 10 ft bgs
- ETEC recommends an initial bioremediation event in addition to the surfactant-enhanced extraction event. The bioremediation event will be used to promote long-term degradation of the residual impacts following the initial surfactant event.
- Total estimated bioamendment quantities as follows:
  - PetroSolv™ - 75 gallons of PetroSolv™ for a total of 1,500 gallons of total solution at 5%. 1.5 to 2 times this quantity will be to be extracted by the onsite remediation system.
  - CBN™/PetroBac™ – 3,500 lbs. CBN™ and 110 gallons PetroBac™ based on the estimated mass of contaminants in the target treatment area.

We use the information provided to estimate required surfactant and bioamendment quantities.

## Our Approach

### Products



#### PetroSolv™

A naturally-formulated, non-toxic, biodegradable, non-ionic surfactant designed for temporary emulsification of hydrophobic constituents, like petroleum compounds.



#### PetroBac™

A facultative TPH degrading bacterial consortium plus rhamnolipid enhancement to improve bio-availability.



#### CBN™

Consists of a high percentage of electron acceptors that promote reducing conditions in the absence of dissolved oxygen, to biochemically reduce the petroleum to CO<sub>2</sub> and water. Also contains all required nutrients to sustain a robust bacterial population.

### Surfactant-enhanced recovery:

ETEC's surfactant PetroSolv™, will be used for the physical removal of contaminant mass. PetroSolv™ has been used successfully on countless gasoline, diesel, and heating oil impacted sites around the country for effective surfactant-enhanced extraction.

### Bioamendment injections to follow surfactant-enhanced recovery:

A combination of bioremediation promoting products (CBN™ and PetroBac™) will be injected into subsurface to promote degradation of the remaining petroleum impacts. These products work together to efficiently degrade BTEX, MTBE, and/or Naphthalene's, and their application will perform three critical in-situ functions, including:

1. Supply of a large population of pre-acclimated bacteria to optimize initial growth of a healthy, in-situ, hydrocarbon-degrading microbial population.
2. Maximize contact between the contaminants and the bacteria. Bioremediation is a contact technology – the bacteria must physically contact the petroleum food source and the electron acceptors (oxygen, nitrate, sulfate, etc.) to biochemically oxidize the petroleum to CO<sub>2</sub> and water.
3. Supply of critical nutrients like nitrogen and phosphorus to support ongoing biological growth. The nitrogen compounds act as secondary electron acceptors to ensure continuous contaminant degradation during absences of dissolved oxygen.

### **Recommended Application**

Assumes that existing site wells (RW-1, RW-2, RW-4, and RW-5) and 5 new injection wells will be utilized for extraction/injection to achieve contact with the remaining contaminants. See attached map.

### Surfactant application plan:

The exact injection/extraction sequencing will depend on the field conditions encountered, but ETEC has the following general recommendations:

1. Onsite potable water source will be utilized as makeup water to create a 5% PetroSolv™ surfactant solution. This solution will be injected into the target wells.
2. ETEC recommends using a surge block to aggressively surge each well several times during the injection process to increase distribution of the surfactant solution.
3. After allowing the surfactant solution to remain in the subsurface for up to 12 hours, begin extraction.
4. Direct extraction from each of the wells utilized for injection to remove as much surfactant laden groundwater as possible.
  - a. ETEC recommends a minimum of 1.5-2 times the injected surfactant volume be extracted from each well.

Once groundwater extraction has been completed, ETEC recommends completing the bioremediation product application as described in the next section. The application of

CBN™ and PetroBac™ will promote long-term biological degradation of dissolved-phase constituents that remain after the surfactant-enhanced extraction event.

Bioremediation product application plan:

1. Bioremediation product application will be completed immediately following the surfactant-enhanced extraction event.
2. Onsite potable water source will be utilized as makeup water for mixing of the bioremediation products.
3. CBN™ nutrient blend and PetroBac™ (A2™ and EA™) will be mixed with at an approximate ratio of 1 pound. CBN™: 1.5-2 gallon of makeup water: ~0.03-0.04 gallons of PetroBac™. The solution can be mixed in batches as needed.
  - a. The estimated total injection solution = 6,000 gallons, consisting of 3,500 lbs. CBN™ and 110 gallons of PetroBac™.
4. Injection should focus on the existing remediation wells exceeding regulatory limits as well as the newly installing injection wells. See attached map
5. Following the injection of the bioremediation products, the injection wells should be flushed with approximately 25-100 gallons of chase water to encourage distribution of the bioremediation products.

Exact product dosing for each location will be determined based on how readily the wells used for injection receive the bioremediation solution. The overall goal is to ensure distribution of the biological products throughout the target treatment zone. Below is a recommended guide for dosing:

Well	Size	PetroSolv	PetroSolv Solution	CBN	PetroBac	Makeup Water
RW-1	4"			300	10	600
RW-2	4"	25	500	500	15	750
RW-4	4"			300	10	600
RW-5	4"			500	15	750
Proposed Well	4"	25	500	500	15	750
Proposed Well	4"	25	500	500	15	750
Proposed Well	4"			300	10	600
Proposed Well	4"			300	10	600
Proposed Well	4"			300	10	600
	Totals	75	1,500	3,500	110	6,000

## Progress Monitoring Sampling Recommendation

To maximize the effectiveness of the proposed remedial approach and determine progress and subsequent injection requirements (if necessary), the collection of specific parameters is recommended by ETEC and are often required as part of a State issued injection approval. These parameters include:

FIELD READINGS	INORGANIC PARAMETERS
<ul style="list-style-type: none"><li>• pH</li><li>• ORP</li><li>• Conductivity</li><li>• DO</li></ul>	<ul style="list-style-type: none"><li>• Ammonia-nitrogen</li><li>• Nitrate-nitrogen</li><li>• Sulfate</li><li>• Dissolved iron</li><li>• Dissolved manganese</li></ul>

ETEC offers analysis of hydrocarbon degrading plate count for \$60 per sample. CDG - Andalusia would be responsible for overnight shipping of the samples on ice to the laboratory in Portland, Oregon.

ETEC recommends these parameters be sampled and analyzed from site wells within and around the remediation zone before and after the injections. ETEC typically observes the greatest reduction in concentrations between 3 to 6 months following the injections and recommends sampling be conducted accordingly.

GW monitoring will be the responsibility of CDG - Andalusia.

*Quote details on following page...*



# Product Quote

**1024-035**

**14 August 2024**

**ETEC, Inc.**

3307 Evergreen Way  
STE 707, PMB 133  
Washougal, WA 98671

**Bill to:**

**11 W Court Square  
Andalusia, AL 36420**

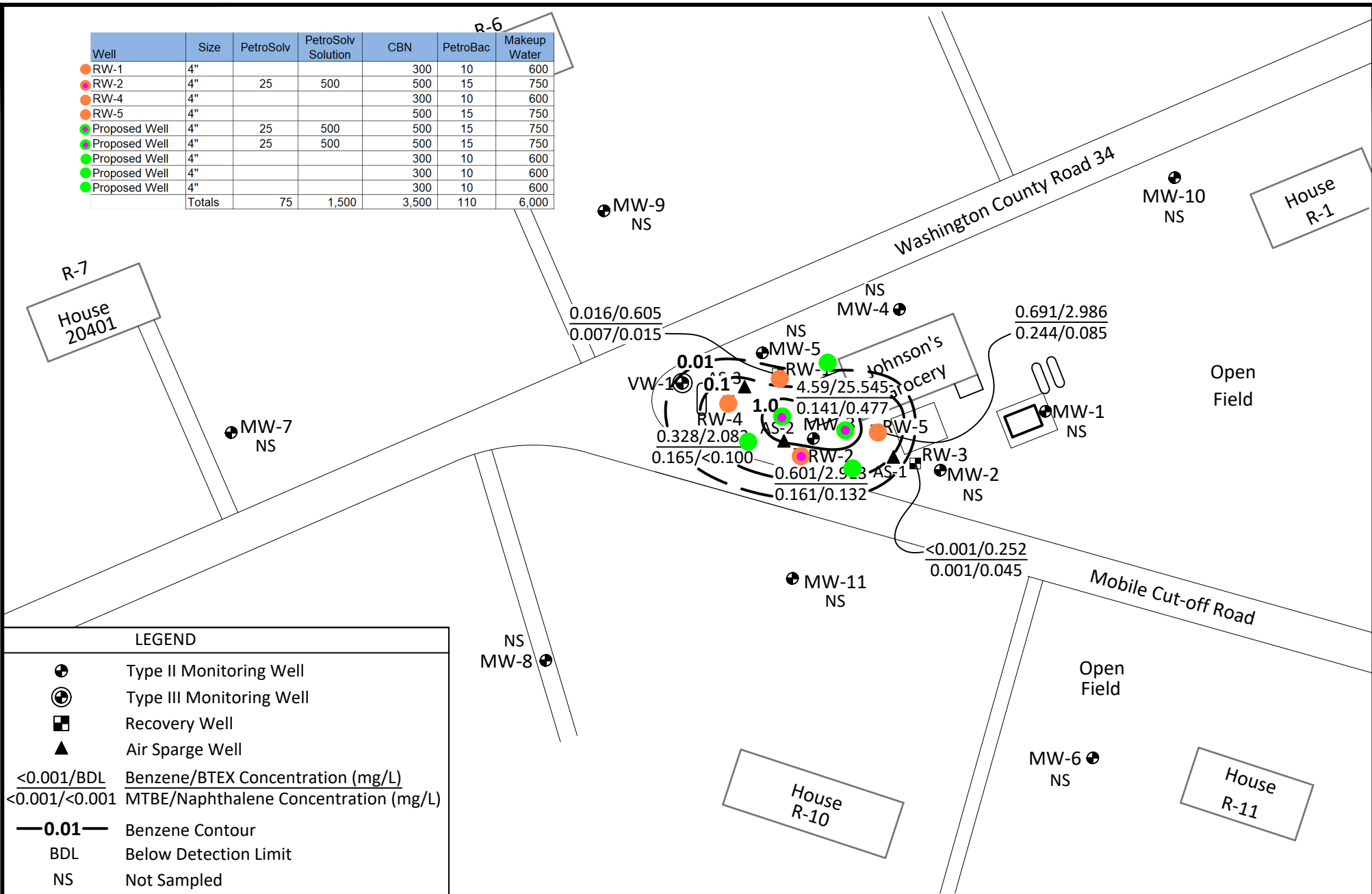
**Ship to:**

**20444 Co Rd 34  
St Stephens, AL 36569**

Project Reference	Prices Valid For	Standard Terms
Johnson's Grocery	120 Days	90 days

ITEM & DESCRIPTION	QTY	COST
PetroSolv	75 GAL	\$3,375.00
CBN	3,500 LB	\$16,100.00
PetroBac	110 GAL	\$17,050.00
Shipping Fee (Est.)	Lump	\$4,500.00
Mobilization & Demobilization	Lump	\$5,525.00
Field Services (2 person crew including lodging & per diem)	5 DAYS	\$16,250.00
Injection Trailer Rental	5 DAYS	\$6,250.00
	<b>Subtotal</b>	<b>\$69,050.00</b>
	<b>Sales Tax (5%)</b>	<b>\$3,452.50</b>
	<b>TOTAL</b>	<b>\$72,502.50</b>

Well	Size	PetroSolv	PetroSolv Solution	CBN	PetroBac	Makeup Water
RW-1	4"			300	10	600
RW-2	4"	25	500	500	15	750
RW-4	4"			300	10	600
RW-5	4"			500	15	750
Proposed Well	4"	25	500	500	15	750
Proposed Well	4"	25	500	500	15	750
Proposed Well	4"			300	10	600
Proposed Well	4"			300	10	600
Proposed Well	4"			300	10	600
Totals		75	1,500	3,500	110	6,000



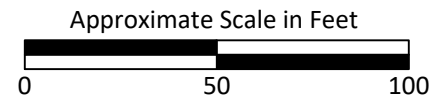
**LEGEND**

- ⊕ Type II Monitoring Well
- ⊕ Type III Monitoring Well
- ⊠ Recovery Well
- ▲ Air Sparge Well
- <0.001/BDL Benzene/BTEX Concentration (mg/L)
- <0.001/<0.001 MTBE/Naphthalene Concentration (mg/L)
- 0.01— Benzene Contour
- BDL Below Detection Limit
- NS Not Sampled



Groundwater Analytical and Benzene Contour Map  
February 6, 2024

Johnson's Grocery  
20444 County Road 34  
St. Stephens, Washington County, AL



# Health & Safety Plan



APPENDIX E

# Site Health and Safety Plan

**Johnson's Grocery  
20444 County Road 34  
St. Stephens, Washington County, Alabama  
Facility ID # 17107-129-008217  
UST No. 05-02-07**

***Prepared For:*  
Mr. Jack Johnson  
20515 County Road 34  
St. Stephens, Alabama 36569**

***Prepared By:*  
CDG, Inc.  
11 Court Square  
Andalusia, Alabama 36420**



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## **1.0 Introduction**

This Health and Safety Plan (HASP) has been prepared specifically for corrective action activities to be conducted by CDG, Inc. (CDG) for the Johnson’s Grocery site in St. Stephens, Washington County, Alabama. These activities include all fieldwork necessary to conduct soil and groundwater remediation of petroleum hydrocarbons at the site.

## **2.0 Purpose**

This HASP describes the preventative measures, person protection, and safety procedures to be followed by CDG personnel and subcontractors during all field activities. The HASP has been prepared in accordance with and meets the requirements of the Occupation Safety and Health Administration (OSHA) General Safety Standards for industry under 29 CFR 1910 and construction under 29 CFR 1926, the joint NIOSH/OSHA/USCG/EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, dated October 1985, and NFPA Safety Guidelines. Should any unexpected conditions arise; the HASP will be amended to accommodate site specific conditions.

## **3.0 Key Personnel and Responsibilities**

All CDG personnel have received an initial 40-hour HAZWOPER certification, which is updated annually through an 8-hour refresher course. This training course meets the requirements of the OSHA 29 CFR 1910.120 standards. CDG personnel assigned to the project include:

<b>NAME</b>	<b>TITLE</b>	<b>RESPONSIBILITIES</b>
James Alan Barck	Professional Geologist	Overall management of entire project from beginning to completion. Responsible for preparation and implementation of the HASP and reporting of all hazard incidents to appropriate enforcement agencies. Coordinates and oversees all field activities.
Anna Brunson	Project Manager	Performs all field activities and is responsible for recognizing site hazards and reporting hazard incidents to Corporate HSO.

## **4.0 Scope of Work**

Work to be performed will include groundwater monitoring activities, system operation and maintenance activities, and well installation activities.

### **4.1 Installation Activities**

Installation activities generally involve preparing the site for installation activities and also the construction of the MPVE unit onsite. More specifically this will include:

- Preparing the site for work to be performed
- Saw-cutting concrete surface, excavating, and installing well vaults
- Directional boring and installing polyvinyl chloride (PVC) extraction piping and subsurface utility lines
- Installing piping connections from extraction piping to wellhead
- Overseeing placing and leveling of remediation system
- Completing all piping connections from extraction and utility lines to remediation unit
- Completing all electrical connections
- Installing wooden security fence
- Inspecting rotation on all electric motors
- Inspecting PVC piping, extraction lines, treatment system, and associated connections for leaks at start up

### **4.2 Operation and Maintenance Activities**

Subsequent to the construction and installation of the MPE unit, the unit must periodically undergo inspections or maintenance. CDG field personnel will inspect the unit on a weekly basis, taking certain instrument readings necessary to determine the progress of the remediation being performed at that particular site. Maintenance of the unit is performed on an as needed basis. The following applies to operation and maintenance activities associated with the MPE unit:

- Inspecting proper working condition of telemetry system
- Lubricating motors



- Inspecting piping for leaks
- Inspecting belts on Liquid Ring Vacuum Pump (LRVP) system
- Periodic cleaning of equipment and components
- Periodic inspections of electrical connections
- Measuring induced vacuum in on site monitoring wells
- Removing silt and sludge buildup from knockout pot air stripper, filtration system and other system components
- Measuring air flow from MPE unit
- Measuring liquid levels in wells
- Sampling effluent for discharge parameters
- Measuring volume of liquids removed and discharged

## ***5.0 Chemical Hazards***

When conducting the corrective action activities, the primary chemicals of concern are gasoline.

### ***5.1 Gasoline***

Gasoline is a substance to be potentially encountered in the soil and groundwater at the site. Gasoline components include benzene, toluene, ethylbenzene, and xylenes (BTEX).

### ***5.2 Hazard Identification***

During the corrective action activities, many hazards or potential hazards may be encountered when dealing with gasoline or diesel. This section serves as a guideline in recognizing hazards associated with these chemicals that exist or may potentially arise during field activities. Recognition is the first step in eliminating exposure to these hazards.

Occasionally, methyl-tertiary butyl ether (MTBE) is encountered. MTBE has been used since 1979 as an oxygenate to gasoline in order to decrease carbon monoxide production in cars, particularly older model cars; however, MTBE has been determined to be a potential carcinogen. MTBE has low taste and odor thresholds, which can make a water supply non-potable even at low concentrations.

Exposure to MTBE will only be seen through exposure to gasoline containing MTBE and the effects of gasoline containing MTBE are relatively similar to gasoline not containing MTBE. The following are hazards associated with exposure to gasoline:

- Contact may irritate or burn the skin and eyes and absorption through the skin may be poisonous
- Vapors may be poisonous if inhaled and are irritating to the respiratory tract
- Vapors are an explosion hazard and may travel to a source of ignition and produce flashback
- A gasoline fire may produce irritating and poisonous gases
- Gasoline and diesel are flammable/combustible materials that may be ignited by heat, sparks, or flames, and a gasoline container may explode when exposed to heat or fire

The primary hazard associated with exposure to gasoline is the inhalation of vapors.

### **5.3 Hazard Prevention**

Preventing exposure to chemical hazards generally requires the use of personal protective equipment (PPE). Level D equipment will provide the protection necessary to prevent exposure to these hazards. Level D equipment is discussed further in Section 10.1, Personal Protective Equipment.

### **5.4 Symptoms and First Aid Procedures**

Many of the constituents found in gasoline and diesel act as central nervous system (CNS) depressants. The following table includes first aid measures for CNS depressants, which affect a person through inhalation (breathing), dermal (skin), or ingestion (mouth) exposure. In addition, the eye can be very sensitive to exposure to chemicals and is therefore included in the following table:

<b>ROUTES OF EXPOSURE</b>	<b>SYMPTOMS</b>	<b>TREATMENT</b>
Inhalation	Dizziness, nausea, lack of coordination, headache, irregular and rapid breathing, weakness, loss of	Bring victim to fresh air. Rinse eyes or throat with plenty of water, if irritated. If symptoms are severe (victim

	consciousness, coma	vomits, is very dizzy or groggy, etc.), evacuate to hospital. Be prepared to administer CPR if certified. Monitor victim for at least 48 hours.
Dermal	Irritation, rash, or burning	Flush affected area with water for at least 15 minutes. Apply clean dressing and get medical attention.
Ingestion	Dizziness, nausea with stomach, cramps, loss of consciousness, coma	Evacuate victim to hospital. Do not induce vomiting.
Eye	Redness, irritation, pain, impaired vision	Flush with an abundant amount of water for at least 15 minutes. If severe, seek medical attention immediately.

## ***6.0 Equipment/Operational Hazards***

The following sections will address the hazards, preventative measures, and first aid procedures associated with the drill rig, backhoes, and other heavy equipment. The drill rig used during these field activities generally requires the use of augers for probing. These augers are designed to rotate in a circular motion while being forced downward through the soil. Field personnel are required to assemble and disassemble these parts. Contact with these rotating parts is one recognized hazard. In addition, the machinery also contains parts that become increasingly heated during operation.

### ***6.1 Hazard Identification***

There are several hazardous associated with use of any type of drill rig and heavy machinery while performing corrective action activities. Generally during these field operations, the general public may become fascinated with the operation and approach the work area. All unauthorized personnel are required to remain 100 feet away from the work area. The site HSO officer will be responsible for keeping all unauthorized personnel away from the work area. The hazardous associated with the use of a drill rig or other heavy machinery is as follows:

- Gasoline vapors from nearby dispensers can potentially enter the diesel-operated engine thereby causing fire/explosion hazards
- Rotating augers may catch onto gloves or clothing thereby pulling hands arms into the rotating machinery
- Drilling equipment may rupture hydraulic hoses thereby releasing hydraulic fluids
- Engine and exhaust system of an engine are extremely hot during and following operation
- Potential contact with overhead and underground utilities
- Open excavations/boreholes can be the source of trips and falls
- Digging machinery such as backhoes may puncture subsurface utilities
- Operators of heavy machinery may be unable to locate pedestrians near the operating equipment; therefore, all field personnel are to remain with eye contact of the operator at all times during operation

## **6.2 Hazard Prevention**

Hazards associated with heavy machinery can easily be avoided with additional planning. The key to avoiding these hazards includes being familiar with the equipment and the process. In addition, being familiar with and implementing the precautionary measures listed below may reduce or eliminate the risks of a hazardous situation.

- Wear hard hat when working near or around the machinery
- Wear safety glasses when performing maintenance to machinery or power tools
- Shut down the machine engine when repairing or adjusting equipment
- Prevent accidental starting of engine during maintenance procedures by removing or tagging ignition key
- Block wheels or lower leveling jacks and set hand brakes to prevent equipment from moving during drilling procedures
- When possible, release all pressure on hydraulic systems, drilling fluid systems, and air pressure systems of heavy machinery prior to performing maintenance
- Know the location of the emergency shut-off switch for all equipment
- Avoid contact with engine or exhaust system of engine following its operation

- Avoid using gasoline or other volatile/flammable liquids as a cleaning agent on or around heavy machinery
- Replace all caps, filler plugs, protective guards or panels, and high-pressure hose clamps, chains or cables moved during maintenance prior to excavation
- Avoid wearing rings or jewelry during drilling or installation procedures
- Be aware of all overhead and underground utilities
- Avoid alcohol or other CNS depressants or stimulants prior to excavation
- Avoid contact with equipment parts during freezing weather. Freezing of moist skin to metal can occur almost instantaneously
- Shut all field operations during an electrical storm
- Do not operate heavy equipment within 20 feet of overhead power lines

### ***6.3 Symptoms and First Aid Procedure***

Hazards associated with heavy equipment were identified in Section 6.1. Unlike hazards associated with temperature or chemicals, symptoms will not be apparent with these types of hazards. In addition, these hazards will occur rapidly as opposed to over a period of time. Due to the size and composition of hydraulic vehicles, exposure to these hazards will range from extremely serious to life-threatening; therefore CDG requires that exposed field personnel seek medical attention at the nearest medical facility and the Project Manager be notified immediately. A site location map to the nearest hospital is presented in the back.

## ***7.0 Temperature Hazards***

Another hazard associated with corrective action activities involves working in extreme weather conditions. Temperatures in the Southeast USA during the spring, summer, and occasionally the fall seasons can vary from mild to extremely hot. During this season, extra precautions are necessary to prevent hazards associated with elevated temperatures, which result in various forms of heat stress. In addition, the Southeast is known for its rather mild winter condition; however, on occasion, the Southeast may experience freezing conditions; therefore, precautions are also necessary to prevent hazards associated with these extreme temperatures.

## **7.1 Heat**

As stated in OSHA's regulatory guidelines for heat exposure operations involving high air temperatures, radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities have a high potential for inducing heat stress. Additional factors to consider in the determination of heat stress on an individual include age, weight, degree of physical fitness, degree of acclimatization, metabolism, use of alcohol or drugs, and a variety of medical conditions such as hypertension (high blood pressure). The following sections will identify the hazards associated with heat stress, the measures needed in order to prevent exposure to these hazards, and first aid procedures in the event exposure to these hazards should occur.

### **7.1.1 Hazard Identification**

Heat stress is a major hazard, especially for workers wearing protective clothing. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly—within as little as 15 minutes. The key to preventing excessive heat stress is educating personnel on the hazards associated with working in heat and the benefits of implementing proper controls and work practices. The hazards associated with heat stress range from heat fatigue (mild discomfort) to heat stroke (extreme danger, which may result in death, and are discussed in the following sections.

#### **7.1.1.1 Heat Fatigue**

Heat fatigue occurs due to a lack of acclimatization (adjusting one's tolerance to work in elevated temperatures). Acclimatization is a gradual process. This process should include all field personnel being permitted to work in elevated temperatures in specified increments. On a daily basis, the maximum allowable work period should gradually be increased until the worker is able to perform his/her duties more proficiently under these conditions. The use of an acclimatization program is recommended in the regulatory guidelines established by OSHA.

#### **7.1.1.2 Heat Rash**

Heat rash (prickly heat) is the most common heat stress factor, and may result from continuous exposure to heat or humid air where the skin remains wet due to lack of evaporation. Under these conditions, sweat ducts become plugged, and a skin rash appears, generally in areas

where clothing is restrictive. This uncomfortable rash can be prevented by resting in a cool place during breaks and by implementing good daily personal hygiene.

### **7.1.1.3 Heat Collapse**

Heat collapse is commonly referred to as “fainting.” Fainting generally occurs when the brain does not receive enough oxygen. As a result of this condition, the exposed individual may lose consciousness. Heat collapse is rapid and unpredictable; therefore, acclimatization is an important factor in preventing this condition.

### **7.1.1.4 Heat Cramps**

Heat cramps are muscular spasms, which usually occur in the abdomen or limbs due to loss of electrolytes following profuse sweating. Cramps are caused by either too much or too little salt intake. During the sweating process, salt exits the body; therefore, without the proper replenishment, the body experiences an electrolyte imbalance thereby inducing heat cramps. Thirst cannot be relied upon as a guide to the need for water. When working in hot environments, water must be replenished every 15 to 20 minutes.

### **7.1.1.5 Heat Exhaustion**

Heat exhaustion is a result of overexertion in hot or warm weather. It is highly possible for an onsite worker to experience heat exhaustion due to the use of worker-protective coveralls, boots, gloves, and respirator protection, even when ambient temperatures are mild. Fainting may also occur with heat exhaustion. This can become an extreme hazard if operating heavy machinery.

**Caution:** Individuals with heart problems or on a “low sodium” diet who work in these environments should consult a physician and Corporate HSO prior to working in these conditions.

### **7.1.1.6 Heat Stroke**

Heat stroke is the most severe form of heat stress. The body’s temperature control system is maintained through sweat production. Perspiration is a cooling process for the body and keeps the body core temperature within a stable range. During heat stroke, sweat production is

inhibited and the body temperature begins to rapidly rise. Brain damage and death may occur if body core temperature is extremely elevated and is not reduced.

### **7.1.2 Hazard Prevention**

Hazards associated with temperature extremes can also be prevented with additional planning and preparation. The hazards associated with temperature can range from heat fatigue to heat stroke as described previously in Section 7.1.1. Measures to ensure the prevention of temperature hazards are as follows:

- Adhere to acclimatization process by exposing field personnel to progressively longer periods of time in hot environments.
- Schedule work for early morning or evening during warm weather
- Work in shifts; limit exposure time of personnel and allow frequent breaks
- Have cool liquids at an Exclusion Zone border for exposed personnel to continuously replace body fluids. As stated in the previous section, OSHA recommends that fluids, preferably water and/or a water-electrolyte solution be replenished every 15 to 20 minutes.
- Avoid caffeine and alcoholic beverages both during work hours and 24 hours prior to performing field activities

The site HSO or designee should continually monitor personnel for signs of heat stress. If any signs of heat disorders are apparent, all field personnel must immediately rest and replenish fluids until body core temperature is lowered and remains stable.

### **7.1.3 Symptoms and First Aid Procedures**

As discussed previously in Section 7.1.1, hazards associated with heat stress range from heat fatigue to heat stroke. Taking precautionary measures to ensure that personnel are not exposed to extreme temperatures for long periods of time can prevent these hazards. First aid measures for heat fatigue, heat rash, and heat collapse include taking frequent breaks so that the body core temperature can cool down. The following table includes first aid measures for signs of overexposure to heat.



TEMPERATURE HAZARDS	SYMPTOMS	TREATMENT
Heat Fatigue	Impaired performance of skilled sensorimotor, mental or vigilance jobs	No known treatment. Victim should be placed under cooler conditions until body core temperature lowers.
Heat Rash	Rash due to plugged sweat ducts, generally where clothing is restrictive	Keep dry towels or paper towels at the site to dry skin when excessive sweating occurs. Rash usually disappears when affected individual returns to cooler environment.
Heat Collapse	Loss of consciousness	Attempt to awaken individual. Relocate victim to a cooler area until body core temperature lowers and replenish fluids. Victim should rest for a few days.
Heat Cramps	Uncontrollable muscle spasms	Apply warm, moist heat and pressure to reduce pain. Give electrolyte drinks by mouth. Victim should intake additional potassium (Bananas are good potassium source).
Heat Exhaustion	Pale, clammy skin, profuse perspiration, weakness, headache, and nausea	Get victim into shade or cooler place. Immediately remove any protective clothing. Victim should drink plenty of fluids. Victim should lie down with feet raised. Fan and cool victim with wet compresses. If vomiting occurs, transport to hospital. Victim should rest for a few days.
Heat Stroke	Pale, dry skin due to lack of perspiration, weakness, unconsciousness	Immediately take precautions to cool body core temperature by removing clothing and sponging body with cool water, or placing in tub of cool water until temperature is lowered sufficiently (102°F). Stop cooling and observe victim for 10 minutes. Once temperature remains lowered, dry person off. Use fans or air conditioning, if available. Do not give the victim stimulants. Transfer to medical facility. Under no condition is the victim to be left unattended unless authorized by a physician.

## **8.0 Explosion/Electrocution Hazards**

As stated previously in Section 4.1, extensive efforts are made in order to determine the location of subsurface utilities prior to corrective action activities. Efforts are made to obtain the location of underground utilities through the Line Locator Services, and utility companies are notified in advance to perform a site inspection and utility marking; however, the potential for a subsurface utility to go unnoticed exists. Therefore, the hazards associated with exposure to these utilities are identified and preventative measures and first aid procedures are discussed further in the following sections.

## **8.1 Explosion**

Primarily when dealing with subsurface utilities, two potentially life-threatening hazards exist. The first hazards identified in association with subsurface utilities during excavation activities are discussed further in the following section.

### **8.1.1 Hazard Identification**

The main hazard associated with puncturing a subsurface utility gas line is explosion. By releasing gas (usually natural gas, which is generally methane gas or propane gas) into the atmosphere, explosive conditions are favorable; therefore, ignition sources must be immediately eliminated in the event a gas release occurs. Due to the flammability of gasoline, ignition sources will be minimized; however, the engines are needed during field activities. Therefore, the only alternative to reducing the explosion hazard is to stop the release as soon as possible. However, when dealing with gases under pressure, the volatilization process may occur at such a rapid speed that an explosive situation is inevitable.

### **8.1.2 Hazard Prevention**

Preventative measures are ensured prior to field activities. These measures generally encompass locating subsurface utilities. In addition, CDG will request local utility companies to perform site inspections and mark all subsurface utilities. In addition to this notification, if a particular subsurface utility is not identified and CDG suspects the utility to exist, CDG will take additional precautionary measures to ensure the suspected utility does not exist. These measures generally include locating utility meter boxes, etc. In addition, a field technician or subcontractor will generally probe the ground with a small rod in order to possibly identify the existence of subsurface utilities. This is conducted usually when machinery reaches 2-3 feet below the ground surface (ft-bgs).

## **8.2 Electrocutation**

### **8.2.1 Hazard Identification**

The main hazard associated with puncturing a subsurface electrical line or coming into contact

with an overhead power line is electrocution. When dealing with electricity, all things are classified as either conductors or insulators. Conductors allow electricity to pass through them while insulators prevent electricity to pass through. Examples of conductors are metals, wood, and water, and examples of insulators are rubber and PVC. Humans are also classified as conductors; therefore, contact with electrical sources can be fatal.

Because the heavy machinery is metal, which has been classified as one of the best sources of electrical conduction, contact with exposed electrical lines will allow current to flow. The National Electrical Code (NEC) has determined that 20 milliamps (mA) of current can be fatal. For comparison, a common household circuit breaker may conduct 15, 20, or 30 amps of electrical current.

### ***8.2.2 Hazard Prevention***

As stated previously in Section 8.1.2, preventative measures to locate subsurface and overhead electrical lines prior to corrective action activities are required by CDG. CDG will notify local utility companies to provide a site inspection and mark any existing subsurface electrical lines. In addition, CDG will contact the local power provider to insulate overhead lines if necessary. When dealing with the electrical components of the dewatering system, the following precautionary measures may prevent exposure to electrocution:

- Avoid contact with exposed connections/wiring and other related components
- If unfamiliar with the system, do not attempt contact with any component
- Call the Project Manager if unsure of any connections associated with the operations of the system.

### ***8.2.3 Symptoms and First Aid Procedures***

As discussed previously in Section 8.2.1, the hazard associated with puncturing subsurface electrical utilities and contacting electrical components of dewatering system is electrocution. The primary route of exposure is contact. The transmission of electricity is allowed because the metal equipment serves as a conductor for electrical current. Symptoms and treatment for exposure to electrical current is presented in the following table:

**Caution:** NEVER attempt to dislodge or remove someone that is contacting a high voltage line. Use an insulating material (PVC) to release the victim from the electrocution source.

## **9.0 *Miscellaneous Hazards***

The last hazard identified when performing corrective action activities has been classified as miscellaneous hazards due to the variety of these hazards. These hazards generally are nothing more than nuisances and with additional planning should be entirely avoidable; however, there are instances in which exposure to these hazards will occur. Therefore, these hazards are identified and preventative measures and first aid procedures are discussed in further detail in the following sections.

### **9.1 *Hazard Identification***

Occasionally, exposure to common nuisances may potentially result in a life-threatening situation. For example, a wasp or bee sting for some individuals only causes irritation or localized soreness; however, to others with little tolerance for wasp or bee venom, an allergic reaction can result which could potentially lead to death if not treated immediately. Therefore, allergic reactions to these insects have been identified as a potential hazard. In addition to the insects, contact with black widow spiders (red hourglass), brown recluse spiders (violin shape on back), and snakes are also potential hazard.

### **9.2 *Hazard Prevention***

Prevention, with regards to miscellaneous hazards, is more difficult to plan ahead. Generally, prior to conducting corrective action activities, the primary location for the activities has been established; therefore, barricades such as cones and company vehicles can be placed around the work area to prevent exposure to incoming and ongoing vehicles. However, the limitation to using cones is that they are often small and unnoticeable to drivers once inside the vehicles; therefore, the best prevention with regards to this miscellaneous hazard is to constantly be aware of your surroundings. This preventative measure can also be applied to exposure to insects, snakes, and spiders. Be aware of your surrounding when working around dark, secluded areas such as cracks and crevices, where snakes, spiders, and mice like to hide.

### **9.3 Symptoms and First Aid Procedures**

If an employee or subcontractor shows any signs of an allergic reaction (anaphylactic shock, hives, or difficulty breathing) to a sting or bite, immediately seek medical attention at the nearest hospital. In the event that an operating vehicle strikes a person, seek medical attention immediately. In the meantime, a first aid kit and eye wash bottle will be provided by CDG and should be kept in all company vehicles. If field personnel are aware of their allergic reactions to insect bites, CDG requires that medication be kept on hand during field activities and at least one other field technician be made aware of the medication in the event of an allergic reaction should occur.

## **10.0 Additional Precautions**

Additional precautions have been implemented in order to ensure overall safety for all field personnel. The safety protocols listed in this segment are to be considered the minimum requirements to be met by all field personnel engaging in corrective action activities.

### **10.1 Personal Protective Equipment**

PPE is the most effective measure to prevent exposure to chemical hazards. There are four levels of PPE protection ranging from Level A to Level D equipment. Level A protection serves as the most conservative protective equipment, and Level D protection serves as the least conservative protective equipment. These levels are described further in the following table:

<b>LEVELS OF PPE PROTECTION</b>	<b>PPE REQUIREMENTS</b>
Level A	Worn when the highest level of respiratory, skin, and eye protection is necessary.
Level B	Worn when the highest level of respiratory protection is needed, but a lesser level of skin protection is necessary.
Level C	Worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is necessary.
Level D	Refers to work conducted without respiratory protection. This level should be used only when the atmosphere contains no known or suspected airborne chemical or radiological contaminants and oxygen concentrations are between 19.5 % and 23.0%

Level D protective clothing, as indicated below, shall be considered the minimum requirements for installation and excavation operations:

- Hard hat
- Coveralls\*
- Non permeable gloves
- Steel-toe, non-permeable boots
- Hearing protection\*
- Safety goggles (chemical)\*

\*These items are mandatory on an “as needed” basis. Generally, normal site conditions do not warrant the use of this equipment; however, under certain conditions where large amounts of free product are encountered, the issue of coveralls and safety goggles may be warranted. Safety goggles and hearing protection are mandatory when near the drill rig to reduce stress on the ear and also prevent objects from the soil or drill rig from lodging in the eye.

Equipment may be upgraded to Level C depending on the site conditions and/or monitoring results. Level C protection, in addition to Level D protection, includes the following:

- Rubber/chemical resistant outer gloves
- Face-shield if splash hazards exists
- Outer disposable booties
- Half-mask respirator

## ***10.2 Signs, Signals, and Barricades***

As stated previously in Section 9.1, corrective action activities are generally conducted at retail gasoline facilities and convenience stores, and are therefore, high traffic areas. All CDG field personnel must be aware of his/her surroundings at all times. In addition, the items listed below will be provided to secure the area in order to protect all field personnel as well as the general public.

- Utilize barricades to protect workers, pedestrians and vehicles from work activities

- Post area for “NO SMOKING”
- Utilize cones to protect workers from incoming and ongoing vehicles

### **10.3 Fire Protection and Prevention**

As stated previously in Section 5.1, gasoline is a highly flammable substance. CDG requires that the work area be posted with “NO SMOKING” signs in an attempt to prevent fires from occurring; however, as a secondary precaution CDG plans to implement the following:

- Maintain a 20 lb. ABC Dry Chemical fire extinguisher on site at all times
- Eliminate ALL ignition sources in the vicinity of any releases
- The contractor will clean up all small spills using absorbent materials or by pumping

### **10.4 Storage and Decontamination**

During the corrective action activities, impacted soils will be encountered. Groundwater will be treated and pumped to an NPDES outfall. Contaminated soil will be temporarily stored until transported for disposal. Decontamination procedures will be implemented should chemical exposure occur. The procedures are detailed below:

- Avoid contact with liquid gasoline or diesel
- Place contaminated soil on visqueen and cover once removed from the excavation
- Change any product contaminated soil immediately
- Wash any contaminated skin surfaces immediately with soap and water

**Caution:** All personnel are required to wash hands at the completion of work, before and after restroom use and before eating in order to prevent dermal contact with or ingestion of contaminants encountered during field activities.

## **11.0 Emergency Contingency Plan**

If an incident occurs that requires declaring an emergency, all personnel will assemble at a designated emergency meeting location for further instruction. Arrangement for decontamination, evacuation and/or transport will be made at that time. The client and

appropriate CDG personnel will be notified of the incident as soon as possible.

### ***11.1 Notification/Reporting Procedures***

In the event of an emergency, CDG Project Manager will be notified as soon as possible regarding the nature of the incident and emergency service contact will be notified as needed (see Section 11.7, Contingency Contacts). It is the responsibility of the Site HSO to report all incidents to the CDG Corporate HSO so that the required reporting procedures may be implemented.

### ***11.2 Hazardous Substance Release***

In the event that potentially hazardous substances migrate from the work zone and potentially endanger unprotected personnel or the community all on site activities will cease until the release is brought under control. CDG will immediately notify the proper authorities so that they may be able to ensure that public health and safety is maintained throughout this process event to the extent of evacuation if necessary.

### ***11.3 Personnel Injury***

In the event of an injury, all personnel will assemble at the designated emergency meeting location. The Site HSO, prior to the beginning of field activities should designate this location. If the injured person is immobile one or more persons should remain nearby to provide any necessary first aid techniques. If medical help is necessary, the Site HSO will summon the appropriate assistance for transportation to the nearest medical facility. Due to the potential for these situations, CDG recommends that at least one qualified person be CPR/First Aid certified.

### ***11.4 Evacuation Plan***

Gasoline and diesel are flammable substances; therefore, a fire/explosion potential exists during the excavation activities. In the event of an onsite evacuation, the following plan will be implemented:

- A signal consisting of one continuous blast of a vehicle or air horn will be used



- All personnel will immediately evacuate the area and report to the designated emergency meeting location for further instruction

### **11.5 Spill Prevention and Response**

In the event of a leak or spill, the area will be blocked using barricades, and the spill contained until absorbed and removed by authorized personnel. Unauthorized persons will be denied access to the area until all spills have been removed and field operations completed. CDG will follow prescribed procedures for reporting and responding to large releases by notifying the National Response Center (see Section 11.7). All materials will be disposed of according to regulatory guidelines.

### **11.6 Emergency Communication**

In the event of an emergency situation, the following standard hand signals will be used onsite as a means of communication:

- Hand gripping throat- (cannot breathe)
- Grip partner’s wrist or both hands around waist- (leave area immediately)
- Hands on top of head- (need assistance)
- Thumbs up- (OK, I am all right, I understand)
- Thumbs down- (No, negative)

### **11.7 Contingency Contacts**

In the event of an emergency, CDG has provided several emergency contacts. These contacts, along with phone numbers, are listed in the following table. The Site HSO will be responsible for the notification of these contacts in the event of an emergency.

<b>AGENCY</b>	<b>CONTACT</b>	<b>TELEPHONE NO.</b>
Fire Department	St. Stephens Volunteer Fire Dept.	251-246-3946
Police Department	Mobile Police Dept.	251-208-8021
Ambulance	Medevac Alabama, Inc.	251-348-7684
Hospital	Washington County Hospital	251-847-2223
Corporate HSO	Robert Shepard	334-222-9431
Project Manager	April Harrelson	334-222-9431
EPA RCRA-Superfund Hotline		800-424-9346
Chemtrec (24 hours)		800-424-9300

Bureau of Explosives (24 hours)		202-293-4048
Centers for Disease Control (Biological Agents)		404-633-5353
National Response Center		800-424-8802

### **11.8 Medical Facility**

Name of Hospital: Washington County Hospital

Address: 14600 St. Stephens Ave.  
 Chatom, AL 36518

Phone: 251-847-2223

Route to Hospital:

1. Depart Johnson’s Grocery on County Road 34 and head northwest for 1.9 miles
2. Turn Left onto County Road 28 for 10.9 miles
3. Turn RIGHT onto AL-56 for 2.8 miles
4. Turn left in 495 feet
5. Arrive at 14600 St. Stephens Ave., Chatom, AL 36518
6. Hospital is on the LEFT

Travel Time from Site: 20 minutes

Distance to Hospital: 15.7 miles

Name/Number of 24-hour Ambulance Service: 911

In cases of construction accidents, rapid notification to OSHA is required.

# **Quality Assurance/ Quality Control Plan**



**APPENDIX F**

# QA/QC MONITORING/SAMPLING PLAN

## FIELD ACTIVITIES

### **Groundwater Monitoring/Sampling Activity Protocols**

Groundwater monitoring/sampling includes the following associated activities:

- 1) Measurement of free product if present;
- 2) Measurement of static water level;
- 3) Calculation of standing water volume (in well);
- 4) Collection of samples; and
- 5) Decontamination of equipment

Groundwater sampling parameters are recorded in the field on a monitoring well sampling record form. The details for each of the above referenced monitoring/sampling activities are described in the following sections.

### **Calculation of Standing Water Volume**

The standing water volume in a monitoring well is calculated using the equation:

$v = 3.14 \times r^2 \times l$  (where  $v$  = well volume,  $r$  = well radius, and  $l$  = length of the column of water in the well).

The column of water in the well can be calculated using the equation:

$l = w - d$  (where  $w$  = distance from the top of casing to the bottom of the well and  $d$  = distance from the top of casing to the top of the water).

### **Well Evacuation**

Well evacuation is initiated after the static water level is measured and the standing water volume has been calculated. Well evacuation is conducted by either using a new disposable (single-use) bailer, a well-dedicated PVC bailer, or a surface mounted pneumatic operated diaphragm pump (a diaphragm pump is only used in deep wells

(greater than 25 feet) or in wells that yield such large volumes that hand-bailing is not practical).

Well evacuation with a bailer is performed by attaching a new nylon line to the bailer, and then lowering the bailer in to the well until the bailer is submerged. The bailer is then retrieved from the well in such a manner that the bailer and nylon line do not contact the ground or surrounding vegetation (to prevent contaminating the bailer or line). The water removed from the well is poured into a graduated bucket so that the amount of water removed can be determined. This procedure is repeated until three well volumes of water are removed, or until the well is purged dry. For wells that recharge very slowly, the purge water is limited to one well volume. The volume of groundwater purged from each well will be recorded.

Well evacuation with a diaphragm pump is conducted by lowering disposable tubing (hose) into the well, to sufficient depth. For deeper wells, a PVC pipe, equipped with a foot valve (to stage-lift the water out of the well) will be employed. The piping will be dedicated to each well to prevent cross-contamination. Pumping will be performed until at least three well volumes are recovered (purge volume will be recorded).

Petroleum contaminated water (PCW) purged from wells in conjunction with groundwater monitoring/sampling activities will be treated using a portable granular activated carbon (GAC) unit prior to being discharged on-site unless free-phase product is observed to be present. A sample of the treated purge water effluent from the GAC unit will be collected for benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), and naphthalene analysis to verify that the carbon does not have breakthrough. Any recovered free-phase product will be containerized for subsequent pick-up and disposal at a permitted facility.

### **Groundwater Sample Collection**

Groundwater samples are collected from monitoring wells not containing free-phase hydrocarbons unless otherwise directed by the ADEM. Groundwater sampling is performed using a new disposable bailer for each sampled well. The disposable bailers are purchased in individually wrapped packages, and are not opened until ready to use. Once opened, the bailers are attached to a length of new nylon string. The bailer and string are not allowed to touch the ground or vegetation, and are disposed of after each well. Sampling is accomplished by slowly lowering the bailer into the well to a depth where the bailer is almost completely submerged. The bailer is then slowly retrieved from the well to minimize agitation of the sample. Once collected, the water sample is immediately transferred (poured slowly to minimize agitation and formation of air bubbles) into the designated sample containers.

Groundwater samples collected for BTEX/MTBE/Naphthalene analysis (volatile organics) are poured very slowly down the inside of the sample vial to avoid aeration. The sample vials, consisting of 40 ml glass with a Teflon septum cap, are provided directly from the CDG analytical laboratory. The groundwater sample is added to the vial until a convex meniscus is formed across the top of the vial. The Teflon septum cap is placed on the vial and the vial is upended to check for trapped air bubbles. If bubbles are present, the sample container is opened, and topped off again until an air-free sample is obtained. If the vial cannot be closed "air-free" after three tries, it is discarded. Two samples are collected for each BTEX/MTBE/Naphthalene (volatile) analysis. The preservation employed for BTEX/MTBE/Naphthalene (volatile) analysis will include either of the following (depending on holding time constraints):

- Cool collected sample to 4°C and maintain (7-day holding time), or
- Add 4 drops concentrated HCl to sample vial (typically the acid is pre-added by the laboratory to the sample vial) and then cool sample to 4°C and maintain (14-day holding time).

Immediately following collection of each groundwater sample, the sample is labeled, placed in bubble pack (to prevent the glass vial from breaking during shipping), and stored in an ice chest with sufficient ice. Each sample label includes the site location, sample identification number, name of collector, date/time of collection, and parameter(s) requested.

Following collection of all samples, the ice chest will be sealed and transported to the laboratory following appropriate chain of custody protocols (refer to description of Chain of Custody protocols provided below).

#### **Decontamination of Groundwater Sampling Equipment**

All equipment used for groundwater sampling is either well-dedicated or is used only once and disposed of. As a result, cleaning/decontamination of sampling equipment is minimal.

### **QA/QC PROCEDURES DISCUSSION**

#### **Chain of Custody**

Sample custody begins with the CDG laboratory when sample kits are prepared and shipped for field personnel use at a specified project location. Responsibility for sample container materials and preparation lies with the CDG laboratory. Upon receipt of the kits, CDG field personnel complete an inventory of the contents to confirm that the containers, etc. are adequate for the number of wells and specified analytes. Sample bottles may be pre-labeled and contain the proper preservative. The individual sample vials and/or other sample containers are not opened until used in the field. CDG will secure the sample kits inside the office until the specific sampling project is to be performed.

The samples remain in the custody of the CDG field personnel representative until delivered to the CDG laboratory or dispatched via common carrier for shipment to the laboratory. In cases where samples leave the direct control of CDG personnel, such as shipment to a laboratory by a common carrier (FedEx, UPS, etc.), a seal will be provided on the shipping container or individual sample bottles to ensure that the samples have not been opened or otherwise disturbed during transportation.

To establish and maintain the documentation necessary to trace sample possession from the time of collection, a chain of custody record will be completed and will accompany every sample. The record contains the following types of information:

- Sample number
- Signature of collector
- Date and time of collection
- Sample type (soil, groundwater, air, etc.)
- Identification of well
- Number of containers
- Parameters requested for analysis
- Required detection limit
- Signature of person(s) involved in the chain of possession.

### **Field QA/QC Program**

Various types of field blanks are collected to verify that the sample collection and handling process has not affected the quality or integrity of the samples.

- 1) Trip Blanks – A trip blank is a field blank that is transported from the laboratory to the sampling site, handled in the same manner as other samples, and then returned to the laboratory for analysis in determining QA/QC of sample handling procedures. The trip blank is prepared in the laboratory with distilled/organic



free water and is utilized at a frequency of 1 trip blank for each cooler (or other shipping container) used to transport samples from the laboratory to the field and back to the laboratory.

- 2) Duplicate Sample – Duplicate samples are collected simultaneously from the same source, under identical conditions, into separate sample containers. These samples provide a check on the sampling techniques as well as laboratory equipment. Duplicate samples are only collected on groundwater samples at a frequency of one sample per sampling event.

The results of the analysis of the blanks will not be used to correct the groundwater data. If contaminants are found in the blanks, an attempt to identify the source of contamination will be initiated and corrective action, including re-sampling if necessary, will be evaluated.

After completing a sampling program, the field data package (field logs, calibration records, chain of custody forms, etc.) will be reviewed for completeness and accuracy. Some of the items considered in the Field Data Package Validation Procedure include but are not limited to the following:

- A completeness review of field data contained on water and soil sampling logs;
- A verification that sampler blanks were properly prepared, identified, and analyzed;
- A check on field analyses for equipment calibration and condition; and
- A review of chain of custody forms for proper completion, signatures of field personnel and the laboratory sample custodian, and dates.

### **Laboratory QA/QC Program**

The selection of a contract laboratory can be directed either by the client or by CDG. In either case, the selection of the laboratory is typically based upon several facts

including cost, laboratory certification, quality of data and reporting, and turn around time. The most critical factor in the selection of an analytical laboratory by CDG is the quality of data and reporting provided by the laboratory. Typically, the results of analytical laboratory testing dictate the activities conducted at a site. The activities conducted when selecting a laboratory include discussions with current and past customers, discussions with regulatory agencies, and review of laboratory QA/QC practices.

The normal turn around for samples will be two weeks for most samples. Prior to contracting a laboratory to conduct analysis, an estimate of the turn around time is obtained. If the expected turn around is in excess of three weeks then a backup laboratory is contacted to determine their availability. A decision of which laboratory to use in a particular instance is made on a case-by-case basis.

Once an analytical report is received by CDG, validation of the analytical data package will be performed. The Analytical Data Package Validation procedure will include but is not limited to the following:

- A comparison of the Data Package to the reporting level requirements designed for the project, to ensure completeness;
- A comparison of sampling dates, sample extraction dates, and analysis dates to determine if samples were extracted and/or analyzed within the proper holding times' as failure in this area may render the data unusable;
- A review of analytical methods and required detection limits to verify that they agree with set standards; as failure in this area may render the data unusable;
- A review of sample blanks to evaluate possible sources of contamination. The preparation techniques and frequencies, and the analytical results (if appropriate) will be considered; and

- A review of blanks (trip blanks, reagent blanks, method blanks, and extraction blanks) to assure that they are contamination free at the lowest possible detection limit. All blank contaminants must be explained or the data applicable to those blanks will be labeled suspect and may only be sufficient for qualitative purposes.
- A review of detection limits, to ensure sample results are accurate to below the levels specified as ADEM Initial Screening Levels.
- A review of data “qualifiers” reported by the laboratory for significance to the results.

# ADEM Forms

APPENDIX G

# UST RELEASE FACT SHEET

**GENERAL INFORMATION:**

SITE NAME: Johnson's Grocery

ADDRESS: 20444 County Road 34, St. Stephens, Washington County, Alabama

FACILITY I.D. NO.: 17107-129-008217

UST INCIDENT NO.: UST05-02-07

**RESULTS OF EXPOSURE ASSESSMENT:**

How many private drinking water wells are located within 1,000 ft. of site?	2
How many public water supply wells are located within 1 mile of the site?	1
Have any drinking water supply wells been impacted by contamination from this release?	No
Is there an imminent threat of contamination to any drinking water wells?	{ } Yes {X} No
Have vapors or contaminated groundwater posed a threat to the public?	{ } Yes {X} No
Are any underground utilities impacted or imminently threatened by the release?	{ } Yes {X} No
Have surface waters been impacted by the release?	{ } Yes {X} No
Is there an imminent threat of contamination to surface waters?	{ } Yes {X} No
What is the type of surrounding population?	Rural

**CONTAMINATION DESCRIPTION:**

Type of contamination at site: {x} Gasoline, {x} Diesel, { } Waste Oil  
 { } Kerosene, { } Other \_\_\_\_\_

Free product present in wells? { } Yes {x} No Maximum thickness measured: 0.88' in RW-2 on 05/10/12

Maximum TPH concentrations measured in soil: 339 ppm (BOT-1)

Maximum BTEX or PAH concentrations measured in groundwater: 275.023 mg/L BTEX in MW-3 on 05/30/13

ADEM GROUNDWATER BRANCH  
UST SITE CLASSIFICATION SYSTEM  
CHECKLIST

Please read all of the following statements and mark either yes or no if the statement applies to your site. If you have conducted a Preliminary or Secondary Investigation, all questions should be answered. Closure site assessment reports may not provide you with all the necessary information but answer the statements with the knowledge obtained during the closure site assessment.

SITE NAME: Johnson's Grocery  
 SITE ADDRESS: 20444 County Road 34  
St. Stephens, Washington County, Alabama  
 FACILITY I.D. NO.: 17107-129-008217  
 UST INCIDENT NO.: UST 05-02-07

OWNER NAME: Mr. Jack Johnson  
 OWNER ADDRESS: P.O. Box 56  
St. Stephens, Alabama 36569

NAME & ADDRESS OF PERSON  
 COMPLETING THIS FORM: April Harrelson, Project Manager  
CDG, Inc.  
P.O. Box 278  
Andalusia, AL 36420

<b>CLASSIFICATION</b>	<b>DESCRIPTION</b>	<b>YES</b>	<b>NO</b>
<b>CLASS A</b>	<b>IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR</b>		
A.1	Vapor concentrations at or approaching explosive levels that could cause health effects, are present in a residence or building.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A.2	Vapor concentrations at or approaching explosive levels are present in subsurface utility system(s), but no buildings or residences are impacted.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CLASS B</b>	<b>IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR</b>		
B.1	An active public water supply well, public water supply line or public surface water intake is impacted or immediately threatened.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.2	An active domestic water supply well, domestic water supply line or domestic surface water intake is impacted or immediately threatened.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B.3	The release is located within a designated Wellhead Protection Area I.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CLASS C</b>	<b>IMMEDIATE THREAT TO HUMAN HEALTH, HUMAN SAFETY OR SENSITIVE ENVIRONMENTAL RECEPTOR</b>		
C.1	Ambient vapor/particulate concentrations exceed concentrations of concern from an acute exposure, or safety viewpoint.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C.2	Free product is present on the groundwater, at ground surface, on surface water bodies, in utilities other than water supply lines, or in surface water runoff.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<b>CLASSIFICATION</b>	<b>DESCRIPTION</b>	<b>YES</b>	<b>NO</b>
<b>CLASS D</b>	<b>SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS</b>		
D.1	There is a potential for explosive levels, or concentrations of vapors that could cause acute effects, to accumulate in a residence or other building.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D.2	A non-potable water supply well is impacted or immediately threatened.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D.3	Shallow contaminated surface soils are open to public access, and dwellings, parks, playgrounds, day care centers, schools or similar use facilities are within 500 feet of those soils.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CLASS E</b>	<b>SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS</b>		
E.1	A sensitive habitat or sensitive resources (sport fish, economically important species, threatened and endangered species, etc.) are impacted and affected.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CLASS F</b>	<b>SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS</b>		
F.1	Groundwater is impacted, and a public well is located within 1 mile of the site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F.2	Groundwater is impacted and a domestic well is located within 1,000 feet of the site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
F.3	Contaminated soils and/or groundwater are located within designated Wellhead Protection Areas (Areas II or III).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CLASS G</b>	<b>SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS</b>		
G.1	Contaminated soils and/or groundwater are located within areas vulnerable to contamination from surface sources.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CLASS H</b>	<b>SHORT TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS</b>		
H.1	Impacted surface water, storm water or groundwater discharges within 500 feet of a surface water body used for human drinking water, whole body water-contact sports, or habitat to a protected or listed endangered plant and animal species.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>CLASS I</b>	<b>LONG TERM THREAT TO HUMAN HEALTH, SAFETY, OR SENSITIVE ENVIRONMENTAL RECEPTORS</b>		
I.1.	Site has contaminated soils and/or groundwater but does not meet any of the above-mentioned criteria.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**ADDITIONAL COMMENTS:**

One active private well (garden use only) is located within 1,000 feet of the site and one active public well is located within 1 mile of the site.

**Complete the classification evaluation questions listed above. Upon completion, determine the highest rank of the site (A.1 is the highest rank) based on the statements answered with a yes.**

Enter the determined classification ranking:	F.1
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# TASKS PERFORMANCE SUMMARY



APPENDIX H



## TASK PERFORMANCE SUMMARY

Modified Corrective Action Plan

(CP-81)

Johnson's Grocery

20444 County Road 34

St. Stephens, Washington Co., AL

Task Completed by Personnel/Title:	Project Management	Work Plan Preparation/ Review	Cost Proposal Preparation/ Review	Field Work	Data Interpretation/ Tabulations	Drafting	Report Preparation/ Review	Payment Request Preparation/ Review
Alan Barck, PG		X			X		X	
Michelle Grantham, PM								X
April Harrelson, PM	X	X	X					X
Ray Hollinghead, Drafter						X		
Megan Sasser, Admin								X
Kim Ballard, Admin		X	X					
Michelle Wilson, Admin								X
Leigh Caylor, Admin		X	X					X
Patricia Horwath, Admin		X	X		X		X	

**Notes:**

DO=Drilling Oversight

BL=Boring Log Description/Soil Classification

WG=Well Gauging

GSC=Groundwater Sample Collection

MEME=MEME Oversight

PM=Project Management

O&M=Routine Operation & Maintenance

HRS=High Resolution Study

VM=Vapor Monitoring

FC=Fan Check