

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering

5/7/98 - let Brad
Wheeler@J.Co. know
that site couldn't be
SMAC'd due to lack of
compliance points.

May 5, 1998

Mr. Matt Moran, Site Project Manager
Sites Management Section
Vermont Department of Environmental Conservation
103 South Main Street, West Office
Waterbury, Vermont 05671-0404

- Told Brad about loan program
since Chet is paying JCO
via loans.

- Brad to call Chet to
discuss options (eg install
quality MWS + possibly
add ORC).

mm

Rc: Chet's Citgo, 417 West Street, Rutland, Vermont
Report of Soils and Groundwater Testing
JCO # 3-0301-1 (305) / VT DEC Site #95-1757

Dear Matt:

On April 14, 1998 The Johnson Company performed additional investigations at the Chet's Citgo Site in Rutland, Vermont. These investigations included the collection and analysis of groundwater samples from two existing monitoring wells, and also the collection of shallow soil samples and their evaluation by photoionization detector (PID) using the bag headspace procedure. The extent of the investigations was based upon your June 24, 1997 letter to Chet Broadwell. Based upon the results of these investigations, and upon the data collected previously at the Site, on behalf of the owner, Chet Broadwell, we formally request that the Site be granted Site Management Activity Completed (SMAC) status. This letter presents the methods and results of the investigations and further documentation to support our request.

Based upon the Underground Storage Tank (UST) Closure Report, and upon gas chromatograph "fingerprints" of contaminated soils, the probable sources of the contamination observed at the Site were the underground storage tanks and associated pipes and pumps closed in 1995. The closure of these USTs has removed the primary contamination sources from the Site. The extent of groundwater and soil contamination have been defined in previous reports including: the April 13, 1995 UST Closure report submitted to Ted Unkles, Vermont Underground Storage Tank Program; the May 3, 1995 report of groundwater and soils analytical results submitted to Matt Moran, Vermont Sites Management Section (SMS); and the October 15, 1996 report of groundwater levels, also submitted to Matt Moran).

The Site is not subject to Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act, or Vermont Hazardous Waste Management regulations. The property is currently used for the sale of used automobiles, and has been used for that purpose for several years.

Mr. Matt Moran, Site Project Manager
Sites Management Section
Vermont Department of Environmental Conservation
Waterbury, Vermont

May 5, 1998
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GROUNDWATER MONITORING

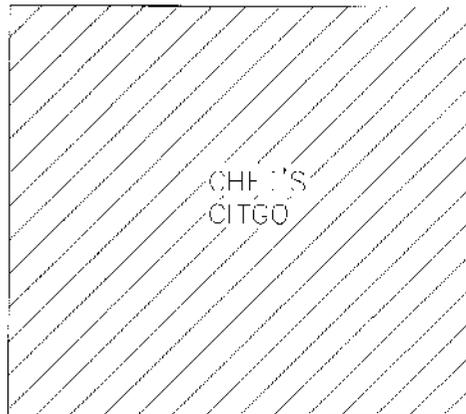
Groundwater samples were collected from monitoring wells MW-1 and MW-2 on April 14, 1998 (see Figure 1). The samples were collected using dedicated poly-ethylene bailers. Prior to sampling, the water levels in the wells were measured to the nearest 0.01 foot with an electronic water marker, and the wells were purged using the bailers. More than three well volumes of water were purged prior to sampling. The samples were collected in 40 mL glass vials with septum which were preserved with hydrochloric acid. The samples were transported under chain-of-custody procedures to Scitest Laboratories of Randolph, Vermont, where they were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl-tert-butyl-ether (MTBE) using EPA Method 8020. A duplicate sample was collected from well MW-1, and a field blank was prepared and analyzed for quality control purposes. The duplicate analyses show adequate repeatability in the sampling and analytical procedures. The field blank was prepared by running distilled water over the water marker probe into the vials. One part per billion toluene was the only volatile organic compound reported in the field blank. The laboratory analytical reports and the chain-of-custody form are provided in Attachment 1. The results of these analysis are provided below in Table 1. Also included in Table 1 is a summary of the results of previous groundwater analyses.

The groundwater level in monitoring well MW-1 was 21.36 feet below the top of casing (fbtoc). The level in MW-2 was 21.51 fbtoc, and the level in MW-3 20.96 fbtoc. Well MW-4 was buried, and could not be found.

As can be seen in Table 1, only benzene concentrations were reported in the April, 1998 samples above the Vermont Enforcement Standards (ES). Benzene was reported at the ES of 5 parts per billion (ppb) in MW-2, and at 35 ppb in MW-1. The benzene and other compound concentrations measured in these wells in May, 1994 were significantly greater than that measured in April, 1998. It can therefore be presumed that groundwater contamination is declining, probably due to natural attenuation. Based upon the lack of near-by water supply wells and the distance to surface water, it can further be presumed that no unacceptable threat to human health or the environment exists as a result of groundwater contamination from the Site. Given the proximity of monitoring well MW-1 to the former UST location, additional natural attenuation may be occurring which could result in enforcement standards at being met at the property line, although this cannot be confirmed by the present monitoring well configuration.



APPROX NORTH
 APPROX SCALE:
 1" = 20'



MW-1
 (M)

SC8
 X
 0.3

SC7
 X
 1.0

SC10
 X
 0.3

SC11
 X
 0.8

SC5
 X
 0.5

SC3
 X
 0.3

SC4
 X
 0.8

SC2
 X
 0.6

SC6
 X
 0.3

SC1
 X
 0.3

MW-2
 (M)
 77.65

MW-3
 (M)
 77.62

MW-1
 (M)
 78.17

WEST STREET

KEY

- MW-3
 (M) MONITORING WELL LOCATION
- 77.62 4/14/98 GROUNDWATER ELEVATION (FT)
 BASED ON 100.00' ASSUMED DATUM
- SC10
 X
 0.3 SHALLOW SOIL SAMPLE LOCATION
 7/14/98 PID STABLE HEADSPACE (PPMV)

SITE SKETCH:
 CHET'S CITGO
 RUTLAND, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
 100 STATE STREET
 MONTPELIER, VT 05602

Mr. Matt Moran, Site Project Manager
 Sites Management Section
 Vermont Department of Environmental Conservation
 Waterbury, Vermont

Table 1
 Summary of Groundwater Quality Data

Well Name	Sample Collected on May 19, 1994				Sample Collected on April 10, 1995				Sample Collected on April 14, 1998						
	B	T	E	X	MTBE	B	T	E	X	MTBE	B	T	E	X	MTBE
MW-1	63	250	136	1530	39	NS	NS	NS	NS	NS	35	58	31	535	ND(10)
MW-2	1400	8340	2210	18210	<1000	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	5	102	22	310	ND(S)
MW-3	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4	NS	NS	NS	NS	NS	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	NS	NS	NS	NS	NS

Notes:
 Samples collected on May 19, 1994 were analyzed by EPA Method 602, all other samples were analyzed by EPA Method 8020.
 All concentrations are in parts per billion (ppb)
 ND indicates compounds was not detected, practical quantitation limits is provided in parenthesis
 NS indicates monitoring well was not sampled on that date
 B indicates benzene concentration (Vermont Enforcement Standard is 5 ppb)
 T indicates toluene concentration (Vermont Enforcement Standard is 1,000 ppb)
 E indicates ethylbenzene concentration (Vermont Enforcement Standard is 700 ppb)
 X indicates total xylenes concentration (Vermont Enforcement Standard is 10,000 ppb)
 MTBE indicates methyl-ter-butyl-ether concentration (Vermont Enforcement Standard is 40 ppb)

SOILS TESTING

On April 14, 1998 shallow soil samples were collected at eleven locations in the vicinity of the former USTs (see Figure 1). The day was clear and sunny, and the air temperature was approximately 65°F. The area is not paved, but is covered with a very dense sandy gravel fill. It is used as a parking lot. The soil samples were collected with a hand auger into resealable plastic bags. Samples were composites of soils from 0.4-0.8, 1.0-1.3, and 1.7-2.0 feet below ground surface (unless refusal was encountered). The bag was massaged for approximately one minute immediately after sample collection. The sample bag was then allowed to sit in the shade for 5-15 minutes, and was massaged a second time immediately prior to measurement. Measurement of the bag headspace was accomplished by inserting the wand of a Thermo-Environmental OVM PID into the bag. The PID was calibrated on-site prior to use to 100 parts per million by volume (ppmV) isobutylene. The background air PID reading was 0.3 ppmV. Peak readings and stable PID readings were noted and recorded. The results of the PID headspace testing are summarized in Table 2 below, and are also shown on Figure 1.

Table 2 Summary of Photo-Ionization Detector Bag Headspace Tests of Shallow Soils			
Sample Name	Sample Depth (fbgs)	Soil Description	Stable PID reading (ppmV)
SC-1	0-2.0	0-1.0' Brown dry very dense medium and coarse sand and gravel 1-2.0' Grey humid moderately dense fine sand and silt	0.3
SC-2	0-0.8	Brown dry very dense medium and coarse sand and gravel	0.6
SC-3	0-1.2	Brown dry very dense medium and coarse sand and gravel	0.3
SC-4	0-2.0	Brown dry very dense medium and coarse sand and gravel	0.8
SC-5	0-1.5	Brown dry very dense medium and coarse sand and gravel	0.3
SC-6	0-1.0	Brown dry very dense medium and coarse sand and gravel	0.3
SC-7	0-1.2	0-0.8' Brown dry very dense medium and coarse sand and gravel 0.8-1.2' Dark brown humid moderately dense fine sand and silt	11 {15.6}
SC-8	0-1.5	Brown dry very dense medium and coarse sand and gravel	0.3

Table 2 Summary of Photo-Ionization Detector Bag Headspace Tests of Shallow Soils			
Sample Name	Sample Depth (fbgs)	Soil Description	Stable PID reading (ppmV)
SC-9	0-2.0	0-0.8' Brown dry very dense medium and coarse sand and gravel 0.8-1.4' Grey humid moderately dense fine sand and silt 1.4-2.0' Dark brown humid medium and fine sand and gravel	8 {28}
SC-10	0-1.5	0-1.3' Brown dry very dense medium and coarse sand and gravel 1.3-1.5' Grey humid moderately dense fine sand and silt 1.5' Brown dry very dense medium and coarse sand and gravel	0.3
SC-11	0-1.4	0-1.1' Brown dry very dense medium and coarse sand and gravel 1.1-1.3' Grey humid moderately dense fine sand and silt 1.3-1.4' Brown dry very dense medium and coarse sand and gravel	0.8
Notes: fbgs = feet below ground surface Refusal was encountered in many locations, resulting in depths less than 2 fbgs Peak PID readings are shown in brackets			

The PID bag headspace data indicates that there is an isolated area (less than 12 square yards) of residual soil contamination present within two feet of the ground surface at the Site. With the exception of this area, the data suggest that soil contaminant cleanup guidelines of 20 ppm by the bag headspace method are met. However, the contaminated soil is covered by approximately one foot of very dense, compacted fill. The fill material is of such character that it is extremely difficult to penetrate, either with a shovel or an auger. Random physical contact with the contaminated soils is therefore extremely unlikely.

If any additional residual contaminated soils exist at depth, it is likely that the contamination will naturally attenuate over time. The groundwater is generally about 25 feet below ground surface, which allows oxygen to contact any contaminated soils and accelerate natural biological degradation. The groundwater data shows that groundwater contamination is decreasing over time. Risks due to inhalation of organic vapors are minimal or non-existent due to the absence of structures with cellars in the area of known contamination.

Mr. Matt Moran, Site Project Manager
Sites Management Section
Vermont Department of Environmental Conservation
Waterbury, Vermont

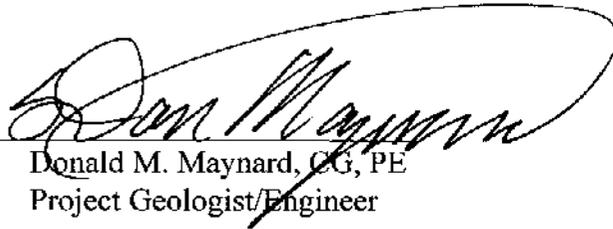
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Based upon the history of the Site and the information presented in this report we request that Site #95-1757 be granted Site Management Activity Completed (SMAC) status. If you have any questions, please do not hesitate to call me or Brad Wheeler at The Johnson Company, Inc..

Sincerely,

THE JOHNSON COMPANY, INC.

By:



Donald M. Maynard, CG, PE
Project Geologist/Engineer

cc: Chet Broadwell



ANALYTICAL REPORT
RECEIVED
 MAY - 1 1998
 JOHNSON CO. INC.
 MONTPELIER, VT

P.O. Box 339
 Randolph, Vermont 05060-0339
 (802) 728-6313

3-0301-1
 DMM

The Johnson Company
 100 State Street
 Montpelier, VT 05602

Work Order No.: 9804-01336

Project Name: Chet's Citgo (3-0301-1)
 Customer Nos.: 078611

Date Received: 4/14/98
 Date Reported: 4/29/98

Sample Desc.:	Method	Results	Units	Analyst	Analysis Date
MW-1					
Sample Nos: 001					
Test Performed					
Aromatic Volatile Organics	EPA 8020/602	< 10	ug/L	JPM	4/27/98
Methyl Tertiary Butyl Ether	EPA 602/8020	35	ug/L	JPM	4/27/98
Benzene	EPA 602/8020	58	ug/L	JPM	4/27/98
Toluene	EPA 602/8020	31	ug/L	JPM	4/27/98
Ethyl Benzene	EPA 602/8020	535	ug/L	JPM	4/27/98
Total Xylenes	EPA 602/8020	< 10	ug/L	JPM	4/27/98
Chlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
1,2-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
1,3-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
1,4-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
Surrogate: 8020		103	% Recovery	JPM	4/27/98
***Bromofluorobenzene-8020					

Sample Date: 4/14/98
 Collection Time: 12:00

Sample Desc.:	Method	Results	Units	Analyst	Analysis Date
MW-2					
Sample Nos: 002					
Test Performed					
Aromatic Volatile Organics	EPA 8020/602	< 5	ug/L	JPM	4/27/98
Methyl Tertiary Butyl Ether	EPA 602/8020	5	ug/L	JPM	4/27/98
Benzene	EPA 602/8020	102	ug/L	JPM	4/27/98
Toluene	EPA 602/8020	22	ug/L	JPM	4/27/98
Ethyl Benzene	EPA 602/8020	310	ug/L	JPM	4/27/98
Total Xylenes	EPA 602/8020	< 5	ug/L	JPM	4/27/98
Chlorobenzene	EPA 602/8020	< 5	ug/L	JPM	4/27/98
1,2-Dichlorobenzene	EPA 602/8020	< 5	ug/L	JPM	4/27/98
1,3-Dichlorobenzene	EPA 602/8020	< 5	ug/L	JPM	4/27/98
1,4-Dichlorobenzene	EPA 602/8020	< 5	ug/L	JPM	4/27/98
Surrogate: 8020		100	% Recovery	JPM	4/27/98
***Bromofluorobenzene-8020					

Sample Date: 4/14/98
 Collection Time: 12:15

Post-It* Fax Note 7671

Date	5/1/98	# of pages	▶
To	Brad Wheeler	From	Bolobj
Co./Dept.	JD	Co.	Scitest
Phone #		Phone #	728-6313

ANALYTICAL REPORT

Project Name: Chet's Citgo (3-0301-1)
 Project No.: 078611

Work Order No.: 9804-01336

Sample Desc.: MW-5 (Duplicate of MW-1)	Method	Results	Units	Analyst	Analysis Date
Sample Nos: 003				JPM	4/27/98
Test Performed	EPA 8020/602			JPM	4/27/98
Aromatic Volatile Organics	EPA 602/8020	< 10	ug/L	JPM	4/27/98
Methyl Tertiary Butyl Ether	EPA 602/8020	37	ug/L	JPM	4/27/98
Benzene	EPA 602/8020	54	ug/L	JPM	4/27/98
Toluene	EPA 602/8020	29	ug/L	JPM	4/27/98
Ethyl Benzene	EPA 602/8020	492	ug/L	JPM	4/27/98
Total Xylenes	EPA 602/8020	< 10	ug/L	JPM	4/27/98
Chlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
1,2-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
1,3-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
1,4-Dichlorobenzene	EPA 602/8020	< 10	ug/L	JPM	4/27/98
Surrogate: 8020		103	% Recovery	JPM	4/27/98
***Bromofluorobenzene-8020					

Sample Date: 4/14/98
 Collection Time: 13:00

Sample Desc.: Field Blank	Method	Results	Units	Analyst	Analysis Date
Sample Nos: 004				JPM	4/27/98
Test Performed	EPA 8020/602			JPM	4/27/98
Aromatic Volatile Organics	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
Methyl Tertiary Butyl Ether	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
Benzene	EPA 602/8020	1	ug/L	JPM	4/27/98
Toluene	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
Ethyl Benzene	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
Total Xylenes	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
Chlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
1,2-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
1,3-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
1,4-Dichlorobenzene	EPA 602/8020	BPQL	ug/L	JPM	4/27/98
Surrogate: 8020		97	% Recovery	JPM	4/27/98
***Bromofluorobenzene-8020					

Sample Date: 4/14/98
 Collection Time: 13:15

BPQL == Below Practical Quantitation Limit; 1 ug/L

Authorized by: Joann Stibod

