PUREX SITE at MITCHEL FIELD
GROUNDWATER REMEDIATION

DEPARTMENT OF PUBLIC WORKS

Nassau County

Long Island, New York

PERIODIC REVIEW REPORT

2011

1.0 Introduction

A. The Mitchel Field Site was acquired from the Purex Corporation by Nassau County to accommodate the construction / expansion of the MSBA (Metropolitan Suburban Bus Authority) Garage site located in East Garden City, New York. During the course of the expansion project; while conducting investigations to evaluate potential new water supply sources, soil and groundwater contamination were discovered at the site in 1981. Following discovery, Nassau County and the Office of the New York State Attorney General initiated legal action against Purex Corporation. This action resulted in a Consent Order which was issued on August 21, 1985 which required Purex Corporation to design, build and operate a treatment system to restore local soil and groundwater to specified target conditions. The Mitchel Field Purex Groundwater Remediation Facility (MFPGRF), was constructed to extract contaminated groundwater from two separate areas (a highly contaminated source area which is surrounded by a hydraulic retaining wall and a more diffuse down gradient plume area), treat the water to meet the State's required standards, and discharge the treated water to a County recharge basin. Purex Corporation initiated groundwater treatment in 1990 and was required to operate the system for a minimum of 10 years. Upon completion of this operational requirement the Nassau County Department of Public Works assumed treatment operations on January 1, 2003 and continues to operate the facility.

B. Groundwater treatment operations at the site have been ongoing for over 21 years. Over this time period progress in meeting remedial objectives has been made in the following areas:

- The collection and treatment of volatile organic compounds (VOC's) in the Upper Glacial Aquifer has been completed.

- Total volatile organic compounds (TVOC), concentrations in the source area have been reduced from **600 ppm** to less than **1 ppm**.

- TVOC concentrations in all monitoring wells located in the lower portion of the Magothy aquifer have met the water condition specified in the cleanup criteria for the site; however recent concentrations ranging from 75 to 150 ppb have been observed in the influent from recovery well W-383D and treatment of a non-Purex source is ongoing.

- TVOC concentrations in those monitoring wells located in the Upper Magothy portion of the down gradient Purex Plume have met the water condition specified in the cleanup criteria (see Appendix).

C. The Purex-Mitchel Field site continues to operate in general compliance with all guidelines set forth in the original Order of Consent signed with the Purex Corporation and Nassau County. The concentrations of several volatile organic compounds in the plant's effluent have occasionally exceeded their discharge limitations however; this condition has been corrected through regularly scheduled cleaning of the stripping tower media.

The County of Nassau believes that cleanup of the Upper Magothy portion of the downgradient plume is complete; although TVOC concentrations in all Lower Magothy monitoring wells are less than 5 ppb, concentrations ranging from 75 to 150 ppb are being collected from recovery well W-383D, the source of this contamination, while unknown is not attributable to activities at Purex. TVOC concentrations greater than **200 ppb** have been observed in five separate lower Magothy well cluster locations upgradient of the Purex plume

D. Future modifications to the remedial effort should be considered focusing on the use of current treatment technology to abate any remaining contamination in the source area.

2.0 Site Overview

A. The MFPGRF is located adjacent to the five – acre Metropolitan Suburban Bus Authority (MSBA) bus garage site in East Garden City, New York (figure 1). The site is bounded on the north by Commercial Avenue, Oak Street to the west and Quentin Roosevelt Boulevard to the east. The industrial area immediately surrounding the MFPGRF is occupied by numerous remedial sites including but not limited to the former Commander Oil Corporation Site, the former Pasely Solvent Corporation Site, (EPA ID: NYD991292004), Win-Holt Equipment Corporation (NYSDEC Site# 130088/V-00243-1), Award Packaging Site (site No. 130155), the former Avis Headquarters Site (site No. C130206) and the Old Roosevelt Field Site (EPA Site No. NYSFN0204234), as well as several other small businesses and warehouses. The former Purex Site is also located within 1.5 miles of the Nassau Veterans Memorial Coliseum, Nassau Community College and Hofstra University.

The depth to groundwater in the Mitchel Field area ranges from 20 to 30 feet below grade. The first groundwater investigations conducted at the site in 1984 identified a plume of volatile organic compounds in both the Glacial and Upper portions of the Magothy Aquifer migrating south – southwest of the source area. Total volatile organic concentrations in the source area exceeded **600 ppm**; concentrations decreased in the plume area with increasing distance from the source. Specific organic compounds originally identified at the site included:

- 1, 2 Dichloroethane
- 1,1- Dichloroethylene
- Trans-1,2- Dichlorethylene
- Methylene Chloride
- Tetrachlorethylene
- Toluene
- 1,1,1- Trichloroethane
- Trichloroethylene
- Vinyl Chloride

The MFPGRF was designed by Canonie Environmental for Purex Corporation and included all process equipment associated with air stripping, pressure filtration, carbon adsorption and vapor emission treatment necessary for groundwater treatment and recharge.

B. The selected remedy for the Purex Mitchel Field Site included a remediation which was to be performed in two phases involving source area and plume recovery treatment schemes. During the first phase of operation 700 gpm of groundwater was withdrawn from the source area for treatment and recirculation. Flow into the source area was restricted by the installation of steel sheeting that was keyed into an existing clay confining layer at a depth of approximately 60 ft. below land surface. Simultaneously, 700 gpm of groundwater was recovered from plume area wells for treatment and discharge into the Oak Street recharge basin. The groundwater treatment facility was designed to individually treat these two distinct influent streams during the first phase of operation. This phase concentrated on restoration of the source area and plume recovery within the glacial aquifer.
As originally proposed; upon completion of the source area restoration, the second phase of the site remediation included further cleanup of the Glacial Aquifer as well as plume recovery from the Upper Magothy Formation. During the second phase, the treatment facility was designed to function as a single influent stream process operating at flow rates up to 1,400 gpm.

Due to the occurrence of low levels of individual volatile organic compounds and overall reductions in TVOC concentrations the MPPGRF continues to treat both source area and downgradient contamination at reduced flow rates using fewer recovery wells. Source area TVOC concentrations of up to **1 ppm** are being treated using recovery wells W-3 and W-4D at a combined flow rate of 300 gpm. Groundwater collected from the Upper Magothy plume at concentrations ranging from less than 5 ppb to 50 ppb is being treated using recovery well W-187 at a rate of 200 gpm; while Lower Magothy contamination which has been detected at a single location at concentrations ranging from 75 to 150 ppb is being collected by recovery well W-383D at a flow rate of 75 gpm.

3.0 Remedy Performance, Effectiveness, and Protectiveness

The overall remedy performance at the Purex-Mitchel Field Site has been very effective over the 21 years of treatment operations. Although volatile organic compounds (VOC's) remain in groundwater collected from the source area (which is surrounded by a hydraulic retaining wall); overall VOC concentrations have been reduced from over 600 ppm to less than 1 ppm. Cleanup of the Upper Glacial Plume of volatile organics has been completed.

Remaining groundwater contamination exists in a single narrow plume of low level VOC's originating from an upgradient source located in the Upper Magothy Aquifer and at a single recovery well location screened within the Lower Magothy Aquifer. The most recent groundwater samples were collected from twenty-seven (27) groundwater monitoring wells and from three recovery wells for each of the two (2) Semi-Annual sampling events conducted in 2011. The results of all groundwater sampling completed since the 2009 PRR including the 2011 Semi-Annual sampling analyses are presented and compared to site cleanup criteria (water condition) in the following tables. These tables list only those compounds that have been historically detected at the Purex site.

2009 Semi – Annual Sampling Results

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2009

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-234 DATE SAMPLED		WELL W-402 DATE SAMPLED		WELL W-405 DATE SAMPLED		WELL W-435 DATE SAMPLED		WELL W-461 DATE SAMPLED		WELL W-302 DATE SAMPLED		WELL W-305 DATE SAMPLED		WELL W-311R DATE SAMPLED	
	(ppb)	4/13/09	11/19/09	3/30/09	10/19/09	4/8/09	10/30/09	4/13/09	11/19/09	3/25/08	10/30/09	3/31/09	10/26/09	4/8/09	10/30/09	4/1/09	10/26/09
1,1,2,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.9	1.9
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.1
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	BDL	BDL	1.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	10.0	8.3
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4.9	5.2
cis-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	0.86	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.3	4.8	BDL	BDL	3.4	2.8
Dibromochloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	50	10.0B	6B	10.0B	2.3B	13B	5.2B	9.8B	1.7B	3.9B	4.3B	5.2B	2.9B	BDL	6.5B	10B	2.6B
o-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
t-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	4.0	4.2	2.6	3.6	BDL	2.4	3.2	5.4	2.4	2.3	54.0	1.5	BDL	0.95	3.4	2.9
Toluene	50	.83J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	50	3.4	1.1	BDL	1	BDL	1.1	1.8	1.7	1.5	1.8	16.0	1.4	BDL	BDL	18.0	7.6
Vinyl Chloride	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TVOC	100	7.4	6.2	2.6	6.0	0.0	3.5	5.0	7.1	3.9	4.1	72.3	7.7	0.0	1.0	43.6	29.8

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb.

- Compound detected at conc. above cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2009

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-361 DATE SAMPLED		WELL W-363 DATE SAMPLED		WELL W-366 DATE SAMPLED		WELL W-367 DATE SAMPLED		WELL W-368 DATE SAMPLED		WELL W-369 DATE SAMPLED		WELL W-370 DATE SAMPLED		WELL W-371 DATE SAMPLED	
	(ppb)	5/4/09	10/30/09	5 4/09	11/19/09	3/31/09	11/6/09	3/31/09	11/5/09	4/1/09	11/6/09	3/30/09	10/26/09	3/31/09	10/26/09	4/1/09	11/2/09
1,1,1,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	1.4	BDL	BDL	BDL	0.69	BDL	BDL	BDL	BDL	BDL	BDL
t,t2-Trichloro-t,t2-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	BDL	BDL	BDL	BDL	1.5	BDL	BDL	BDL	0.61	2.1	0.73	BDL	BDL	BDL	0.63
1,1-Dichloroethene	5	BDL	BDL	DL	BDL	BDL	BDL	BDL	2	1.6	2	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	B	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	5	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	B	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.9	1.4	2.8	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	2	BDL	BDL	B	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	BDL	B	BDL	BDL	0.87	BDL	BDL	3.1	4.4	62.0	13	BDL	1.8	1.5	6.7
Dibromochloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.6	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	50	3.8B	3.8B	4.1B	1.6B	13.0B	4.2B	3.2B	6.6B	11B	3.2B	9.0B	2.5B	6.4B	2.9B	11B	14B
o-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
t-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	5.2	3.7	B	BDL	2.9	2.4	BDL	BDL	4.5	3.3	37.0	11	2.4	2.7	BDL	1.9
Toluene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	50	1	BDL	BDL	BDL	15.0	16	BDL	0.94	6.8	6.5	6.2	2.8	BDL	1.3	BDL	2.5
Vinyl Chloride	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.9	1.6	BDL	BDL	BDL	2.8
TVOC	100	6.2	3.7	0.0	0.0	17.9	22.2	0.0	3.8	17.4	23.9	110.2	29.1	2.4	5.8	1.5	14.5

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb.

- Compound detected at conc. *above* cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2009

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-372 DATE SAMPLED		WELL W-373 DATE SAMPLED		WELL W-375 DATE SAMPLED		WELL W-377 DATE SAMPLED		WELL W-378 DAT SAMPLED		WELL W-380 DATE SAMPLED		WELL W-381 DATE SAMPLED		WELL W-382 DATE SAMPLED	
	(ppb)	4/8/09	11/2/09	4/8/09	11/5/09	4/7/09	11/2/09	4/7/09	11/5/09	4/7/09	11/5/09	4/6/09	11/9/09	4/6/09	11/9/09	4/6/09	11/6/09
1,1,1,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3 Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	1.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	BDL	BDL	BDL	BDL
Dibromochloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	50	BDL	11B	BDL	14B	1.9B	8.6B	2.8B	7.9B	3.2B	7.1B	3.5B	4.7B	2.6B	4.3B	3.3B	2.9B
o-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	BDL	BDL	BDL	BDL	BDL	1.2	BDL	0.68	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	50	BDL	0.94	BDL	BDL	0.66J	1.5	BDL	BDL	14.0	29	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	BDL	BDL	BDL	BDL	BDL
TVOC	100	0.0	2.2	0.0	0.0	0.0	2.7	0.0	0.7	14.0	29.0	1.6	1.6	0.0	0.0	0.0	0.0

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb.

- Compound detected at conc. above cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2009

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-383 DATE SAMPLED		WELL X-156 DATE SAMPLED		WELL X-157 DATE SAMPLED		RECOVERY WELL W-3 DATE SAMPLED		RECOVERY WELL W-4D DATE SAMPLED		RECOVERY WELL W-183 DATE SAMPLED		RECOVERY WELL W-184 DATE SAMPLED		RECOVERY WELL W-187 DATE SAMPLED		RECOVERY WELL W-383D DATE SAMPLED	
	(ppb)	4/7/09	10/26 09		12/4/09		12/4/09									4/13/09	11/19/09	4/13/09	
1,1,1,2-Tetrachloroethane	50	BDL	BDL	Well Scheduled for One Sample Per Year	BDL	Well Scheduled for One Sample Per Year	BDL	No Entry into Vault No Sample	No Entry into Vault No Sample	No Entry into Vault No Sample	No Entry into Vault No Sample	Pump Failure No Sample	Pump Failure No Sample	Well Off No Sample	Well Off No Sample	BDL	BDL	BDL	Pump Failure No Sample
1,1,1-Trichloroethane	50	BDL	BDL		3.7		29.0									BDL	BDL	8.3	
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL		BDL		1.5									BDL	BDL	BDL	
1,1,2-Trichloroethane	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
1,1-Dichloroethane	50	BDL	BDL		3.3		2.3									BDL	1.1	6.1	
1,1-Dichloroethene	5	BDL	BDL		4.4		130.0									BDL	1.6	15	
1,2-Dichloroethane	5	BDL	BDL		BDL		1.4									BDL	BDL	3.6	
1,4-Dichlorobenzene	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Benzene	5	BDL	BDL		BDL		BDL									BDL	BDL	.67J	
Bromodichloromethane	100*	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Bromoform	100*	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Carbon Tetrachloride	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Chlorobenzene	50	BDL	BDL		BDL		BDL									BDL	BDL	1.4	
Chloroform	100*	BDL	BDL		BDL		BDL									BDL	BDL	2.3	
cis-1,3-Dichloropropene	2	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
cis-1,2-Dichloroethylene	50	4.3	4.8		6.4		BDL									17.0	17.0	170	
Dibromochloromethane	100*	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Ethyl Benzene	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
m,p-Xylene	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Methylene Chloride	50	3.5B	2.9B		6.2B		9B									BDL	BDL	10B	
o-Xylene	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
trans-1,3 Dichloropropene	2	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
1-1,2 Dichloroethylene	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Tetrachloroethylene	50	BDL	1.5		94.0		2.3									7.5	6.4	170	
Toluene	50	BDL	BDL		BDL		BDL									BDL	BDL	BDL	
Trichloroethylene	50	BDL	1.4		8.3		10.0									12.0	11.0	180	
Vinyl Chloride	5	BDL	BDL		BDL		BDL									BDL	2.1	BDL	
TVOC	100	4.3	7.7	0.0	120.1	0.0	176.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.5	39.2	556.7	0.0

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb.

- Compound detected at conc. above cleanup criteria

2010 Semi – Annual Sampling Results

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2010

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-234 DATE SAMPLED		WELL W-402 DATE SAMPLED		WELL W-405 DATE SAMPLED		WELL W-435 DATE SAMPLED		WELL W-461 DATE SAMPLED		WELL W-302 DATE SAMPLED		WELL W-305 DATE SAMPLED		WELL W-311R DATE SAMPLED	
	(ppb)	4/13/09	12/16/10	5/7/10	10/18/10	5/21/10	12/3/10	4/26/10	12/16/10	5/7/10	10/21/10	5/13/10	10/18/10	4/8/09	12/3/10	5/1310	10/25/10
1.1,2,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1.1.1-Trichloroethane	50	BDL	.67J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.2	3.9
112-Trichloro-122-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.2	2.9
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	1.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1.1-Dichloroethene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	B	BDL	BDL	BDL	BDL	BDL	BDL	9.7	9.6
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.1	5.8
cis-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	8.2	2.0	BDL	BDL	BDL	BDL	.3J	BDL	BDL	2.4	3.0	BDL	BDL	3.9	4.1
Dibromochloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	50	10.0B	7.8B	3.7B	7B	5B	6.7B	6.7B	6.7B	1.6B	BDL	5.2B	BDL	BDL	7.7B	10B	BDL
o-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
t-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	4.0	11	BDL	.65J	.76J	2.2	BDL	1.1	BDL	3.1	18.0	5.3	BDL	BDL	4.7	3.7
Toluene	50	.83J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	50	3.4	2.9	BDL	1.1	BDL	0.75	BDL	1	1.4	3.8	3.9	4.6	BDL	DL	BDL	7.0
Vinyl Chloride	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TVOC	100	7.4	23.2	2.0	1.1	0.0	2.95	0.0	2.1	1.4	6.9	24.3	12.9	0.0	0.0	24.8	37.0

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. above cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2010

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-361 DATE SAMPLED		WELL W-363 DATE SAMPLED		WELL W-366 DATE SAMPLED		WELL W-367 DATE SAMPLED		WELL W-368 DATE SAMPLED		WELL W-369 DATE SAMPLED		WELL W-370 DATE SAMPLED		WELL W-371 DATE SAMPLED	
	(ppb)	5/6/10	10/12/10	5/4/09	11/1/10	5/21/10	10/22/10	5/3/10	10/22/10	5/3/10	10/22/10	4/30/10	10/18/10	3/31/09	10/21/10	5/17/10	10/25/10
1,1,1,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL	BDL	BDL	3.2	2.8	.82J	BDL	.46J	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	1.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	BDL	BDL	BDL	1	1.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	1.6	1.7	2	3	BDL	3	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	.86J	.76J
Benzene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL	BDL	BDL	BDL	BDL	.65J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	.53J	BDL	BDL	1.1	1.2	7.0	6.6	BDL	1.3	19.0	12.0
Dibromochloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	50	0.6B	BDL	4.1B	BDL	2.5B	BDL	0.49B	BDL	.48B	BDL	5.4B	9.4B	6.4B	BDL	BDL	BDL
o-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
t-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	.41J	3.7	BDL	BDL	1.3	2.9	1	1.2	2.7	2.6	6.6	1.9	2.4	1.7	7.5	4.4
Toluene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	50	BDL	BDL	BDL	BDL	14.0	13	1.6	2.2	1.9	3.9	3	5.1	BDL	2.1	6.0	6
Vinyl Chloride	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	7.3	8.6
TVOC	100	0.0	3.7	0.0	0.0	21.1	22.0	5.9	6.4	5.7	10.7	16.6	13.6	2.4	5.1	39.8	31.0

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. above cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2010

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-372 DATE SAMPLED		WELL W-373 DATE SAMPLED		WELL W-375 DATE SAMPLED		WELL W-377 DATE SAMPLED		WELL W-378 DATE SAMPLED		WELL W-380 DATE SAMPLED		WELL W-381 DATE SAMPLED		WELL W-382 DATE SAMPLED	
	(ppb)	5/17/10	10/25/10	5/17/10	11/1/10	5/20/10	11/1/10	4/7/09	12/16/10	5/17/10	10/29/10	3/29/10	12/9/10	3/29/10	12/9/10	3/29/10	12/9/10
1,1,1,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethlene	5	BDL	BDL	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	7.7	2	BDL	BDL	BDL	BDL
Benzene	5	BDL	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dibromochloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	50	BDL	BDL	BDL	BDL	.74JB	BDL	2.8B	82B	BDL	BDL	20.0B	6.78B	16.0B	3.78B	22B	3.9B
o-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
t-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	50	BDL	BDL	BDL	BDL	BDL	1.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	47.0	BDL	DL	DL	BDL	BDL	BDL	BDL
Vinyl Chloride	5	BDL	BDL	BDL	BDL	1.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TVOC	100	0.0	0.0	0.0	0.0	1.0	1.6	0.0	0.0	47.0	0.0	7.7	2.0	0.0	0.0	0.0	0.0

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. *above* cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2010

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria (ppb)	WELL W-383 DATE SAMPLED 4/9/10	WELL W-383 DATE SAMPLED 12/2/10	WELL X-156 DATE SAMPLED	WELL X-156 DATE SAMPLED 10/29/10	WELL X-157 DATE SAMPLED	WELL X-157 DATE SAMPLED 10/28/10	RECOVERY WELL W-3 DATE SAMPLED	RECOVERY WELL W-3 DATE SAMPLED	RECOVERY WELL W-4D DATE SAMPLED	RECOVERY WELL W-4D DATE SAMPLED	RECOVERY WELL W-183 DATE SAMPLED	RECOVERY WELL W-183 DATE SAMPLED	RECOVERY WELL W-184 DATE SAMPLED	RECOVERY WELL W-184 DATE SAMPLED	RECOVERY WELL W-187 DATE SAMPLED 5/20/10	RECOVERY WELL W-187 DATE SAMPLED 11/8/10	RECOVERY WELL W-383D DATE SAMPLED	RECOVERY WELL W-383D DATE SAMPLED 11/8/10
1,1,1,2-Tetrachloroethane	50	BDL			BDL		BDL									BDL	BDL		BDL
1,1,1-Trichloroethane	50	BDL		Well Scheduled for One Sample Per Year	4.4	Well Scheduled for One Sample Per Year	5.8	No Entry into Vault No Sample	No Entry into Vault No Sample	No Entry into Vault No Sample	No Entry into Vault No Sample	Pump Failure No Sample	Pump Failure No Sample	Well Off No Sample	Well Off No Sample	BDL	BDL	Pump Failure No Sample	6.1
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL			BDL		1.5									BDL	BDL		2.6
1,1,2-Trichloroethane	50	BDL			BDL		BDL									BDL	BDL		BDL
1,1-Dichloroethane	50	BDL			4.0		3.5									0.54	3.1		2.9
1,1-Dichloroethene	5	BDL			5.4		94.0									2.7	4		10.0
1,2-Dichloroethane	5	BDL			BDL		BDL									BDL	BDL		BDL
1,4-Dichlorobenzene	50	BDL			BDL		1.9									BDL	BDL		BDL
Benzene	5	BDL			BDL		BDL									BDL	BDL		BDL
Bromodichloromethane	100*	BDL			BDL		BDL									BDL	BDL		BDL
Bromoform	100*	BDL			BDL		BDL									BDL	BDL		BDL
Carbon Tetrachloride	50	BDL			BDL		5.2									BDL	BDL		BDL
Chlorobenzene	50	BDL			BDL		BDL									BDL	BDL		BDL
Chloroform	100*	BDL			BDL		3.8									.61J	2.8		3.2
cis-1,3-Dichloropropene	2	BDL			BDL		BDL									BDL	BDL		BDL
cis-1,2-Dichloroethylene	50	1.5	5.1		7.2		2.5									23.0	28.0		9.5
Dibromochloromethane	100*	BDL			BDL		BDL									BDL	BDL		BDL
Ethyl Benzene	50	BDL			BDL		BDL									BDL	BDL		BDL
m,p-Xylene	50	BDL			BDL		BDL									BDL	BDL		BDL
Methylene Chloride	50	3.5B			BDL		BDL									BDL	.66J		BDL
o-Xylene	50	BDL			BDL		BDL									BDL	BDL		BDL
trans-1,3 Dichloropropene	2	BDL			BDL		BDL									BDL	BDL		BDL
t-1,2 Dichloroethylene	50	BDL			BDL		BDL									BDL	BDL		BDL
Tetrachloroethylene	50	BDL	1.3		94.0		3.6									9.5	8		58
Toluene	50	BDL			BDL		BDL									BDL	BDL		BDL
Trichloroethylene	50	BDL			5.3		11.0									11.0	12.0		110
Vinyl Chloride	5	BDL	1.3		3.6		3.2									3.2	4.7		BDL
TVOC	100	1.5	7.7	0.0	123.9	0.0	136.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.9	62.6	0.0	202.3

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. **above** cleanup criteria

2011 Semi – Annual Sampling Results

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2011

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-234 DATE SAMPLED		WELL W-402 DATE SAMPLED		WELL W-405 DATE SAMPLED		WELL W-435 DATE SAMPLED		WELL W-461 DATE SAMPLED		WELL W-302 DATE SAMPLED		WELL W-305 DATE SAMPLED		WELL W-311R DATE SAMPLED	
	(ppb)	4/8/11	11/16/11	4/11/11	10/20/11	5/5/11	11/4/11	5/12/11	11/16/11	4/11/11	11/28/11	4/11/11	10/20/11	5/5/11	11/4/11	4/7/11	11/1/11
1,1,2,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	1.05J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.79J
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	.88J
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	1.74J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.7	6.36
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	BDL	BDL	B	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	100*	.70J	1.03J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.3	3.45J
cis-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	.57J	4.88	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.24J	BDL	BDL	.87J	8.1
Dibromochloromethane	100*	B	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	DL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.54J	B	BDL
Methylene Chloride	50	6.8B	BDL	5.2B	BDL	5.5B	BDL	4.8B	BDL	6.3B	BDL	4.8B	BDL	4.5B	BDL	5.8B	BDL
o-Xylene	50	BDL	BDL	BDL	B	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
t-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	8.4	38.1	1.3	2.5	.61J	1.96J	.85J	2.43J	.91J	2.25J	1.2	2.62J	BDL	4.71J	.76J	2.76J
Toluene	50	BDL	BDL	BDL	BDL	BDL	1.93J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	6.47	BDL	BDL
Trichloroethylene	50	.73J	6.18	BDL	BDL	BDL	BDL	1.1	2.79J	.70J	2.83J	BDL	BDL	BDL	BDL	2.5	16.3
Vinyl Chloride	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
TVOC	100	8.4	49.16	1.3	2.5	0.0	0	1.1	0.0	0.0	0.0	1.2	0.0	0.0	6.5	6.5	30.8

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. *above* cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2011

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-361 DATE SAMPLED		WELL W-363 DATE SAMPLED		WELL W-366 DATE SAMPLED		WELL W-367 DATE SAMPLED		WELL W-368 DATE SAMPLED		WELL W-369 DATE SAMPLED		WELL W-370 DATE SAMPLED		WELL W-371 DATE SAMPLED	
	(ppb)	4/11/11	10/28/11		11/15/11	4/29/11	10/28/11	5/5/11	10/31/11	3/28/11		4/29/11	10/20/11	4/29/11	10/28/11	4/4/11	11/2/11
1,1,1,2-Tetrachloroethane	50	BDL	BDL		BDL	BDL	BDL	DI.	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL		BDL	.52J	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	DI.	BDL
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	50	BDL	BDL	Well Scheduled for One Sample Per Year	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	DI.		BDL	BDL	DI.	BDL	BDL	DI.	NA	BDL	DI.	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL		BDL	BDL	BDL	.70J	1.41J	.83J	NA	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	5	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	1.05	1.2	BDL
Benzene	5	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	DI	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL		BDL	BDL	BDL	DI.	BDL	.53J	NA	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	2	BDL	BDL		BDL	BDL	DI	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	BDL		1.95J	BDL	BDL	BDL	BDL	BDL	NA	1.2	2.21J	BDL	BDL	2.5	15.6
Dibromochloromethane	100*	DI.	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL		DI.	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL		BDL	BDL	DI	BDL	BDL	DI.	NA	BDL	DI	BDL	BDL	BDL	BDL
Methylene Chloride	50	5.4B	BDL		BDL	5.6B	BDL	4.3B	BDL	4.4B	NA	4.4B	BDL	6.8B	BDL	7.9B	BDL
o-Xylene	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	DI.	DI.	BDL
t-1,2 Dichloroethylene	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	2.4	6.6		2.22J	BDL	BDL	BDL	BDL	.54J	NA	1.6	4.92J	BDL	BDL	1.1	3.46BJ
Toluene	50	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	B
Trichloroethylene	50	BDL	1.14J		1.78J	1.7	3.74J	BDL	BDL	BDL	NA	2.8	8.03	BDL	BDL	1.2	3.68J
Vinyl Chloride	5	BDL	BDL		BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	8.29
TVOC	**100**	2.4	6.6	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	5.6	8.0	0.0	1.1	6.0	23.9

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb *- Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. above cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2011

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-372 DATE SAMPLED		WELL W-373 DATE SAMPLED		WELL W-375 DATE SAMPLED		WELL W-377 DATE SAMPLED		WELL W-378 DATE SAMPLED		WELL W-380 DATE SAMPLED		WELL W-381 DATE SAMPLED		WELL W-382 DATE SAMPLED	
	(ppb)	4/7/11	11/4/11	4/7/11	11/3/11	4/4/11	11/3/11	4/4/11	11/3/11	4/4/11	11/3/11	5/9/11	11/18/11	5/9/11	11/18/11	5/9/11	11/17/11
1,1,1,2-Tetrachloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.0	BDL	BDL	BDL	BDL	BDL
Benzene	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromodichloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bromoform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4.64J	BDL	BDL	BDL	BDL
Dibromochloromethane	100*	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	50	5.9B	BDL	5.7B	BDL	7.3B	BDL	8B	BDL	7.9B	BDL	5.1B	BDL	5.9B	BDL	5.4B	BDL
o-Xylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1-1,2 Dichloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethylene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	50	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethylene	50	BDL	BDL	BDL	BDL	1.0	1.04J	BDL	BDL	26	54.3	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.37J	BDL	BDL	BDL	BDL
TVOC	100	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	26.0	54.3	2.0	0.0	0.0	0.0	0.0	0.0

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. above cleanup criteria

PUREX SITE

CLEANUP CRITERIA (Groundwater Condition) vs. VOC's 2011

VOLATILE ORGANICS COMPOUNDS (ppb)

	Purex Cleanup Criteria	WELL W-383 DATE SAMPLED		WELL X-156 / N-9703 DATE SAMPLED		WELL X-157 / N-9713 DATE SAMPLED		RECOVERY WELL W-3 DATE SAMPLED		RECOVERY WELL W-4D DATE SAMPLED		RECOVERY WELL W-183 DATE SAMPLED		RECOVERY WELL W-184 DATE SAMPLED		RECOVERY WELL W-187 DATE SAMPLED		RECOVERY WELL W-383D DATE SAMPLED	
	(ppb)	4/7/11	11/3/11		11/14/11		11/14/11									4/8/11		4/8/11	11/16/11
1,1,1,2-Tetrachloroethane	50	BDL	BDL	Well Scheduled for One Sample Per Year	BDL	Well Scheduled for One Sample Per Year	BDL	No Entry into Vault No Sample	No Entry into Vault No Sample	No Entry into Vault No Sample	No Entry into Vault No Sample	Pump Failure No Sample	Pump Failure No Sample	Well Off No Sample	Well Off No Sample	BDL	Pump Failure No Sample	BDL	BDL
1,1,1-Trichloroethane	50	BDL	BDL		BDL		11.6									BDL		1.2	3.24J
1,2-Trichloro-1,2,2-trifluoroethane	50	BDL	BDL		BDL		4.86									BDL		BDL	BDL
1,1,2-Trichloroethane	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
1,1-Dichloroethane	50	BDL	BDL		2.11J		1.93J									BDL		1	4.57J
1,1-Dichloroethene	5	BDL	BDL		1.83J		58.7									.55J		2.5	9.3
1,2-Dichloroethane	5	BDL	BDL		BDL		BDL									BDL		BDL	1.83J
1,4-Dichlorobenzene	50	BDL	2.08J		BDL		BDL									BDL		BDL	9.5
Benzene	5	BDL	BDL		1.03J		BDL									BDL		BDL	BDL
Bromodichloromethane	100*	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Bromoform	100*	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Carbon Tetrachloride	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Chlorobenzene	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Chloroform	100*	BDL	BDL		BDL		1.74J									BDL		.51J	1.67J
cis-1,3-Dichloropropene	2	BDL	BDL		BDL		BDL									BDL		BDL	BDL
cis-1,2-Dichloroethylene	50	1.7	29.2		3.31J		BDL									6.5		20	93.7
Dibromochloromethane	100*	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Ethyl Benzene	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
m,p-Xylene	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Methylene Chloride	50	5.6B	BDL		BDL		BDL									7.1B		4.9B	8.5L
o-Xylene	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
trans-1,3 Dichloropropene	2	BDL	BDL		BDL		BDL									BDL		BDL	BDL
t-1,2 Dichloroethylene	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Tetrachloroethylene	50	BDL	5.56		37.2		3.3J									1.8		30	75.5
Toluene	50	BDL	BDL		BDL		BDL									BDL		BDL	BDL
Trichloroethylene	50	BDL	7.37		4.87J		8.5									2.9		44	136
Vinyl Chloride	5	BDL	10.7		1.24J		BDL									.66J		1.1	4.76J
TVOC	100	1.7	52.8	0.0	37.2	0.0	83.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2		99.8	324.0

BDL - Below detection limits B - Analyte detected in associated Method Blank All results in ppb * - Sum of these four compounds shall not exceed 100 ppb

- Compound detected at conc. *above* cleanup criteria

Upper Magothy Groundwater Conditions

The potentiometric surface for the Upper Magothy portion of the aquifer in the vicinity of the Purex site (figure 2) has been prepared using synoptic water level measurements collected from all available county monitoring wells on November 4, 2011. Review of the contours prepared for this date indicates that the overall direction of groundwater flow in this portion of the aquifer is from north-northeast to south-southeast. There are no observable effects created by pumpage from recovery wells in the area. The aerial plot of total volatile organic compound (TVOC), concentrations (> 10 ppb), prepared from the November 2011 monitoring well sampling results is included in figure 2. Review of this figure reveals a single narrow contiguous groundwater plume of volatile organics with concentrations ranging up to 54 ppb. The plume originates from offsite sources located upgradient and northeast of the former Purex site and its source area. The plume reaches its southern limit at monitoring well W-311R.

Of the twenty-seven (27) semi-annual monitoring wells sampled, twenty (20) wells had TVOC concentrations ranging from BDL to 10 ppb for both 2011 sampling events and seven (7) wells had at least one sampling event where its TVOC concentration was greater than 10 ppb but less than the site specific cleanup guideline of 100 ppb. Any remaining Upper Magothy volatile organic contamination originating from the former Purex site has been collected by recovery well W-187.
Historically, varying levels of volatile organic compounds have been observed to the south beyond the known extent of the Purex plume in the vicinity of monitoring wells MW-311R, MW-367 and 368. In 2011 these wells had TVOC concentrations ranging from BDL to 31 ppb. This contamination is believed to be associated with the former operation of a closed loop cooling system in the vicinity of 50 Charles Lindbergh Blvd. NYSDEC records indicate that two heating and cooling wells, N-10086 and N-10087 operated in the parking lot of the Reckson Building (50 Charles Lindbergh Blvd). These wells are approximately 900 feet southeast of Purex monitoring well W-311R. Any volatile organic compounds that might have been captured by these wells could be introduced to this portion of the aquifer during recharge. During the 2011 sampling rounds groundwater collected from monitoring well W-311R was found to contain up to eight (8) volatile organic compounds; however only one, 1,1 Dichloroethene (6 ppb) exceeded its site specific cleanup guideline of 5ppb. Historically, dichlorodiflouromethane has also been detected in groundwater samples collected from this well and W-368. This compound is not common to the Purex plume and is a form of Freon that can be linked to cooling system operation.

The extent of volatile organic groundwater contamination in the Upper Glacial and Upper Magothy portions of the aquifer downgradient of the former Purex Industries Site and its position relative to existing monitoring and recovery wells and the underlying sediments can be examined by reviewing geologic cross section A – A' (figure 3,4). This cross section was prepared using both lithologic and geophysical data obtained while installing each of the wells in the section. The section line covers a linear distance of over 4,600 feet. The northernmost well in the section line is county groundwater network monitoring well N-9703 (X-156). This well is upgradient of the former Purex site and its source area. The southernmost well in the section is former heating/cooling well N-10087, this well is located in the parking lot of the Reckson Associates building (50 Quentin Roosevelt Blvd.). From north to south there are seven groundwater monitoring wells (W-305, 369, 382, 381, 380, 311R) and one groundwater Recovery well (W-187) which lie along the section line.

Figure 4

The area beneath the Purex/Mitchel Field site is underlain by varying amounts of fill and 25 to 60 feet of unconsolidated sand and gravel, the water table occurs locally in natural sediments approximately 20 to 30 feet below grade. These materials are considered to be part of the Upper Glacial Aquifer. These sediments are moderately to highly permeable and they are immediately underlain by a relatively dense, silty grey clay. This unit averages from 6 to 12 feet in thickness and acts as a confining unit across much of the site. The clay is absent in the vicinity of groundwater monitoring well W-369. The top of the Magothy Formation is found immediately beneath the clay. In this area, the Magothy Formation consists of a well stratified, tan, brown fine to medium grained sand with occasional layers of silty sand and clay. Each of the monitoring wells in the cross section is screened in the upper portion of the Magothy Formation at depths ranging from 90 to 115 feet. The total volatile organic compound concentrations (ppb) detected in each of the wells during the November 2011 sampling event are posted near their individual screened intervals. Concentrations found in the former Purex plume area range from BDL to 37 ppb. Measured TVOC concentrations in all seven Upper Magothy plume wells were found to be below the "Water Condition" specified in the remediation criteria for the site.

The 37 ppb of volatile organic compounds detected in N- 9703 (X-156) are not part of the former Purex plume and are believed to originate from another source. Groundwater collected from monitoring well W-311R exceeded its individual "Water Condition" value of 5 ppb for 1, 1 Dichloroethene by 1 ppb. This well is believed to be impacted by volatile organics which have originated at offsite locations northeast of the former Purex site. Review of the monitoring well data collected during 2011 indicates that the location of the operating recovery wells is correct, provides hydraulic control and allows for efficient recovery of the remaining contaminated groundwater from the MFGRP site.

In 2011, the MFGRP was in its twenty-first (21st) year of the remediation. To illustrate the progress made in obtaining the site's clean-up objectives, historical sampling results from wells located within the Upper Magothy portion of the offsite plume that still exhibit measurable levels of contamination in 2011 have been summarized in the following table:

Historical High TVOC's

Monitoring Well	Concentration	Date	2011 Concentration
302	23,000 ppb	5/22/90	1 ppb
311R	34,600 ppb	7/20/89	7 ppb
371	22,756 ppb	1/5/95	6 ppb
380	32,780 ppb	10/26/95	2 ppb
381	7,870 ppb	10/25/95	0 ppb
383	23,814 ppb	10/26/95	2 ppb
234	11,411 ppb	7/29/93	8 ppb

Review of the data presented indicates that the Upper Magothy Remediation has been completed at the MFGRP site. The current aerial extent and the remaining levels of contamination down gradient of the MFGRP site reflect the sporadic occurrence and low concentrations associated with volatile organic contamination from other up gradient source(s).

Lower Magothy Groundwater Conditions

The potentiometric surface for the Lower Magothy portion of the aquifer in the vicinity of the Purex and Old Roosevelt Field sites (figure 5) has been prepared using synoptic water level measurements collected from all available federal (EPA) and county monitoring wells on November 3, 2011. Review of the contours prepared for this date indicates that the overall direction of groundwater flow in this portion of the aquifer is from north-northeast to south-southeast. The tighter spacing of the contours which is indicative of an increased groundwater flow gradient in the vicinity of the newly installed Extraction Wells for the Old Roosevelt Field Site (located in the northwest corner of the figure) and in the southeast corner of the figure near Town of Hempstead Public Supply wells; N-08474 and N-08475 suggests possible pumping effects created by these wells.

Groundwater conditions in the Lower Magothy portion of the aquifer downgradient of the former Purex site can also be examined using the Semi-annual groundwater data collected in 2011. There are four Lower Magothy downgradient wells which were sampled during this period; W-402, W-405, W-435, and W-461. TVOC concentrations in groundwater samples collected from these wells are very low; all four wells exhibited concentrations below 3 ppb for both the spring and fall sampling events. There are also six upgradient monitoring well clusters with monitoring wells screened within this deeper interval including Nassau County Groundwater Monitoring Well Network wells N-9713/X-157, N-9779/X-164 and N-10019 (see well construction info. in Appendix A).

Two of the six upgradient wells are located to the north and east of the original Purex source area along Quentin Roosevelt Blvd. and at the corner of Quentin Roosevelt Blvd. and Commercial Ave. (figure 6). These two monitoring wells located northeast of the Purex Containment Area exhibited much higher TVOC concentrations than the other monitoring wells in the cross section. Lower Magothy monitoring well N-9713/X-157 had a TVOC concentration of 84 ppb in groundwater with 59 ppb of 1,1 Dichloroethene, while Lower Magothy well N-9779/X-164 had a TVOC concentration in groundwater of 168 ppb, including 58 ppb of 1,1 Dichloroethene.

The four other upgradient wells N-10019, MW-1s, MW-2s and MW-3s, (three of which were installed as part of the "Old Roosevelt Field" site investigation) were sampled with the permission of the USEPA in December 2010. The TVOC concentrations detected in groundwater collected from these wells have been included in figure 5 to illustrate the potential for impacts on Purex groundwater recovery operations within the Lower Magothy Aquifer. Volatile organic compounds were detected in each of these upgradient well locations at concentrations ranging from 34 to 225ppb. Three wells N-10019 (218 ppb), MW-2s (225 ppb) and MW-3s (203 ppb) had TVOC concentrations greater than 200 ppb. Heating and cooling well N-8068 was sampled by the EPA and had a measured TVOC in groundwater of 486 ppb.

Groundwater monitoring wells located downgradient of the Source Area including EW-103 (see construction info. Appendix A) exhibited TVOC levels below the Water Condition ranging from BDL to 13 ppb. The single groundwater recovery well screened within this interval; W-383D had a measured TVOC concentration of 100 ppb in the April 2011 sampling round. The majority of this total was comprised of three volatile organic compounds: Tetrachloroethylene (30 ppb), Trichloroethylene (44 ppb) and cis – 1, 2 Dichloroethylene (20 ppb). The positions of these monitoring wells relative to the local underlying sediments and each other are depicted in geologic cross section B-B'(figures 6,7). The sediments present in the Lower Magothy are lithologically similar to those previously described for the Upper Magothy Formation which is largely composed of a tan-brown, fine to medium grained well sorted micaceous quartz sand with several layers of silty sand and clay.

Higher concentrations of volatile organic compounds are observed in upgradient wells N-9713 and N-9779 and recovery well W-383D. The occurrence of these VOC's is possibly dichotomous in nature, these concentrations may represent a continuous plume of volatile organics within this interval or portion of the local aquifer or a separate unknown source of volatile organics northeast of the former Purex site and a single hotspot of unknown origin in the immediate vicinity of recovery well W-383D. In either case these VOC's are not believed to be derived from a Purex source.

Figure 7

4.0 IC / EC Compliance Report

IC / EC Requirements and Compliance

Institutional Controls (IC)

The Institutional Controls (IC) for the former Purex site are described in the Consent Order (CO) issued to the Purex Corporation on August 21, 1985.

Engineering Controls (EC)

The engineering Controls selected for the former Purex site were constructed to extract contaminated groundwater from two separate areas; a highly contaminated source area (which is surrounded by a hydraulic retaining wall) and a more diffuse down gradient plume area. A total of six (6) shallow recovery wells were installed in Upper Glacial sediments within the hydraulic retaining wall to a depth of approximately 60 feet, just above a naturally occurring clay layer. Source area treatment also included a shallow system of infiltration piping which flushed contaminated soils with treated effluent. Initial Treatment of the offsite plume(s) was accomplished through the installation of one (1) Upper Glacial groundwater recovery well (W-102) and four (4) Upper Magothy groundwater recovery wells (W – 183, W – 184, W – 185, W – 186). The treatment system was operated in this configuration from 1990 - 1994. The discovery of deeper DNAPL contamination in additional monitoring wells resulted in the installation of two additional groundwater recovery wells in 1999 (W-187 and W-383D). Purex Corporation initiated groundwater treatment in 1990 and was required to operate the system for a minimum of 10 years. Upon completion of this operational requirement the Nassau County Department of Public Works assumed treatment operations on January 1, 2003 and continues to operate the facility.

Corrective Measures

Offsite Groundwater Recovery and treatment

In response to a NYSDEC request generated following review of the 2009 PRR prepared for the Purex site, the Nassau County Department of Public Works – Water and Wastewater Engineering Unit prepared and forwarded a Corrective Measures Work Plan (CMWP) to the NYSDEC on May 14, 2010. The CMWP recommended termination of offsite groundwater treatment pending review of current groundwater conditions at the site.

Source Area Groundwater Recovery and treatment

As described in the CMWP, the 2011 Periodic Review Report (PRR) contains the results of a re-evaluation of Source Area groundwater conditions at the former Purex / Mitchel Field site. A total of eleven (11) groundwater monitoring wells located both inside and outside the slurry wall were located and sampled between February 17 and May 2, 2012 for the presence of volatile organic compounds. A sampling location map, hydrogeologic panel diagram and the results of this analysis are included in Appendix B. The TVOC concentrations observed both within the containment area and outside and below the containment area support the counties position that cleanup of the source area is essentially complete. There is no technical reason to resume

pumping the original recovery wells and the cleanup of any remaining volatile organics can be carried out more efficiently using a more current treatment technology in and around this localized (Containment) area.

B.) IC / EC Certification

To be supplied following NYSDEC review of source area conditions and selection of an appropriate treatment technology.

5.0 Monitoring Plan Compliance Report

A series of Remedial Investigations (RI's) conducted by Woodward-Clyde Consultants, Inc. (Woodward –Clyde) for Purex and by Camp, Dresser & Mckee (CDM) for Nassau County were conducted during 1983 and 1984. The results from these investigations have been compiled into a series of reports which formed the basis for the Consent Order to remediate the Purex / Mitchel Field Site which was issued on August 21, 1985.

The original Remediation Monitoring Plan (RMP) developed for the Purex / Mitchel Field groundwater site was developed and submitted to the New York State Department of Environmental Conservation on October 24, 1990. This plan required the sampling of both source area recovery wells (W-1 through W-6) and a select group of offsite or plume monitoring wells located in different portions of the Upper Glacial and Magothy Aquifers. These wells were to be sampled on a semi-annual basis for those compounds specified in the RMP. All wells have been sampled on according to the schedule specified in the RMP using approved methods and protocols from 1990 to the present (2011).

As the remediation proceeded source area recovery wells (W-1, W-2, W-4, W-5 and W-6), plume recovery wells (W-102, W-185 and W-186) and select monitoring wells which achieved groundwater cleanup objectives or conditions were removed from the sampling program and in most cases abandoned in place according to NYSDEC protocols.

The groundwater monitoring results collected during the current reporting period (June 2009 – June 2011) for those wells and compounds currently listed in the Remedial Monitoring Plan are compared with Water Condition or Clean up criteria and included in the 2011 Periodic Review Report (PRR).

Source Area Groundwater

A complete review of Source Area conditions is available in Appendix B. A total of eleven (11) existing monitoring wells within and around the former source area were sampled to evaluate the current extent of VOC contamination in groundwater in the vicinity of the containment Area. A total of three wells (W-152, W-156 and W-305) were sampled *within the containment area above the clay unit* located at a depth of 60 ft. All three wells had volatile organic concentrations below the "Water Condition" specified for closure in the sites consent order. TVOC concentrations in these wells ranged from 1.2 to 38 ppb. Three wells (W-251, W-253 and W-

254) were also sampled at adjacent locations *beneath the clay unit* found at the base of the containment area. These wells were screened at total depths ranging from 77 to 80 feet below land surface. The water condition(s) for volatile organic contaminants were exceeded at two of the three locations. Total volatile organic compound concentrations exceeded the limits specified for the water condition in groundwater collected from monitoring well W-253 which had a TVOC of 177 ppb. The water condition was also exceeded in monitoring well W-254 which had a total volatile organic concentration of 694 ppb. The majority of this total was comprised of three compounds, 1, 1, I Triclhloroethane (46 ppb), Tetrachloroethylene (55 ppb) and C-1, 2 Dichloroethylene (473 ppb). Three additional monitoring wells were sampled in a single cluster located beneath the MSBA garage, W-234, W-334 and W-434. Samples collected from groundwater monitoring well W-234 had a total volatile organic concentration of 81 ppb, which is below the specified water condition value for total VOC's (100 ppb), however the water condition for individual compound concentrations in this well were exceeded for Tetrachloroethylene by 8 ppb. The other two monitoring wells in the cluster W-334 (Upper Magothy) and W-434 (Lower Magothy) had TVOC concentrations in groundwater below detectable limits for all compounds analyzed and met water condition requirements. These results indicate the following:

- Residual volatile organic contamination exists in groundwater within the containment area in a small portion its southwest corner, less than half the original area.
- Volatile organic contamination below the basal clay unit is very limited in extent and has migrated less than 200 ft. southwest of the containment area.
- There may be a contribution from various offsite / upgradient sources in the shallow groundwater beneath the clay.

Plume Area Groundwater

Review of offsite groundwater quality in comparison to the Water Condition (WC) established in the Consent Order for the wells sampled as part of the monitoring program, indicate that individual compound and TVOC concentrations in those monitoring wells located in the Upper Magothy portion of the down gradient Purex Plume have met the water condition specified in the cleanup criteria for the site.

TVOC concentrations in all monitoring wells located in the lower portion of the Magothy aquifer have met the water condition specified in the cleanup criteria for the site; however most recently concentrations ranging from 75 to 150 ppb originating from an unknown source have been observed in the influent from recovery well W-383D and treatment is ongoing.

There were no monitoring deficiencies to report; all wells were sampled as required. Based on the results of the comparisons with Water Condition established in the Consent Order it is recommended that sampling and treatment of offsite groundwater in both the upper and lower portions of the Magothy Aquifer be discontinued.

6.0 Operation & Maintenance (O&M) Plan Compliance Report

A site specific operations and maintenance O&M plan was required for the former Purex site by the State as part of the Consent Order (August, 1985). The O & M plan was to be developed during the course of groundwater treatment plant construction. The O& M plan was to include: a ***list of spare parts and materials*** to be used in plant operation, a ***maintenance program***, detailing all preventative and breakdown maintenance as well as a maintenance schedule, a list of ***shakedown and start up procedures***, both ***emergency shut down and response procedures*** and provisions for ***vandalism and sabotage***.

The original O&M procedures were developed by Canonic Engineers for the site in August 1993. The Mitchel Field Remedial Action Treatment Facility was installed and designed to operate on a continuous basis. Provisions have been made over time to remove specific system components from the overall treatment process as they became unnecessary due to successful system performance and treatment while the system as a whole continues to run. Preventative maintenance is performed on various remedial components at the frequency recommended by the manufacturers. Some of the components and their scheduled maintenance activities are listed below:

Item / Component	Description of Required Maintenance	Frequency
Supply Air Blowers	check condition	weekly
Effluent Pumps	lubricate / re-pack annually	weekly
Intermediate Pumps	lubricate / re-pack annually	weekly
Vent Duct Fan	check belt	weekly
Intermediate Pump Motors	lubricate	monthly
Blower Motors	lubricate	monthly
Heating Pumps	lubricate	monthly
Heating Pump Motors	lubricate	monthly
Backwash Pump	operate unit	quarterly
Hot water Re-circulator	lubricate	quarterly
Effluent Pump Motors	change oil	annual

All O&M activities were completed as specified during the reporting period. All remedial components contained within the treatment plant performed nominally throughout the reporting period. Source Area recovery well W-3 failed on January 18, 2010 and the pump in recovery well W-4A ceased operation on December 6, 2010. There is no maintenance schedule for these submersible pumps as they are designed for continuous service. There is also no scheduled maintenance for the recovery wells as they are re-developed anytime a pump fails through normal use. These components include solid state electronics and do not require maintenance and their failure does not reflect deficiencies with the sites O&M plan.
The operational problems which occurred at the site during this reporting period (June 2009 – June 2011) are not related to any deficiencies in the Operations and Maintenance practices used at the site and there are no revisions proposed at this time.

7.0 Overall PRR Conclusions and Recommendations

A. The original remedy (pump and treat used in combination with soil flushing and impermeable barriers) selected for the site in 1985 has proven to be highly effective. Levels of TVOCs have been significantly reduced in groundwater, unsaturated soils remediated and hydraulic control within the containment area maintained. The twenty – one (21) years of treatment have eliminated TVOC contamination from the ***Upper Glacial*** portion of the offsite plume, reduced volatile organic concentrations in the ***Upper Magothy*** portion of the offsite plume to levels below the "Water Condition" established in the remedial criteria section of the original Consent Judgment at all monitoring and recovery well locations. Those wells which exceed the "Water Condition" have stabilized volatile organic concentrations and appear to have been impacted by other contaminated sites. Contamination in the ***Lower Magothy*** portion of the aquifer appears to be confined to a single recovery well location and this well also appears to have been impacted by other industrial source(s).

B. Overall, the objectives of the remedial plan have been met. The offsite monitoring wells VOC concentrations are below the Water Condition. The source area contamination has been reduced significantly and controlled by the remedial program defined in the Consent Order. There is a concern on behalf of the County that numerous sources of volatile organics (including Old Roosevelt Field) are contributing to the overall extent of contamination in the area and should be investigated further by a regulatory agency. Additionally, the remaining ***source area*** groundwater conditions should be re-evaluated and an updated form of treatment should be selected from current NYSDEC approved treatment technologies.

C. It is recommended that the frequency of the PRR for this site remain at an annual basis. The County believes that with the exception of the ***Source Area,*** the requirements for site closure have been achieved because the offsite wells are below the site specific Water Condition. The County is concerned that the treatment plant equipment, offsite piping and recovery wells are all reaching the end of their useful life and will require a significant capital investment to continue to operate. The County does not believe such an investment is warranted based upon the level of any residual contamination remaining from the former Purex site. The County would like to initiate discussions on what additional documentation if any, is required to support a decision to ***discontinue the treatment of the former offsite plume.*** Additionally, the County would like to initiate discussions based on the results of the Evaluation of Source Area Conditions and the potential for the implementation of an alternative treatment technology, if required, to remediate the remaining TVOC contamination in the Source Area.

Appendix A

PUREX / ORF LOWER MAGOTHY WELL CONSTRUCTION DETAILS w/TVOC RESULTS

Site	Well Number	Method of Installation	Date of Installation	Total Depth	Depth To Water	MP Elevation	Casing Diameter	Casing Material	Screen Type	Slot Size	Screen Length	Port Number	Screen Interval elevation (ft.)	10-12/10 TVOC (PPB)
Early Warning Wells														
Purex	EW-101	Mud Rotary	12/4/1984	384.00	16.63	71.41	2 in.	PVC	SS	10 slot	10 ft.		-303 to -313	
Purex	EW-102	Mud Rotary		298.00	16.76	71.57	2 in.	PVC	SS	10 slot	10 ft.		-216 to -226	
Purex	EW-103	Mud Rotary		239.00	16.56	71.75	2 in.	PVC	SS	10 slot	10 ft.		-157 to -167	19.0
Purex	EW-201	Mud Rotary	1/4/1985	426.00	17.30	70.78	2 in.	PVC	SS	10 slot	10 ft.		-345 to -355	
Purex	EW-202	Mud Rotary		347.00	17.20	71.00	2 in.	PVC	SS	10 slot	10 ft.		-266 to -276	
Purex	EW-203	Mud Rotary		229.00	17.15	71.32	2 in.	PVC	SS	10 slot	10 ft.		-148 to -158	112.0
Upgradient Wells														
Purex	X-156(N-9703)	Mud Rotary	Jul-80	106.15	26.87	87.12	4 in.	Blk. Steel	SS-cont. wrap	20 slot	10 ft.		-3 to -13	
Purex	X-157(N-9713)	Mud Rotary	Jul-80	218.45	27.60	87.15	4 in.	Blk. Steel	SS-cont. wrap	20 slot	10 ft.		-118 to -128	155.0
Purex	X-162(N-9777)	Mud Rotary	Oct-80	51.20	22.01	81.90	4 in.	Blk. Steel	SS-cont. wrap	20 slot	10 ft.		41 to 31	
Purex	X-163(N-9778)	Mud Rotary	Oct-80	82.90	22.20	81.73	4 in.	Blk. Steel	SS-cont. wrap	20slot	10 ft.		9 to 1	
Purex	X-164(N-9779)	Mud Rotary	Oct-80	257.60	24.20	82.33	4 in.	Blk. Steel	SS-cont. wrap	20 slot	10 ft.		-160 to -170	201.0
NCDPW	(GWX)N-10019	Mud Rotary	08/23/82	237.00	35.00	86.46	4 in.	Blk. Steel	SS-cont. wrap	24 slot	5 ft.		-137 to-142	218.0
NCDPW	(GWX)N-10020	Mud Rotary	08/30/82	188.11	27.62	83.12	4 in.	Blk. Steel	SS-cont. wrap		5 ft.		-100 to -105	
ORF	MW-1s	Mud Rotary	06/10/10	255.00	30.00	85.50	4 in.	SS (304)	SS-cont. wrap	10 slot	10 ft.		-150 to -160	34.0
ORF	MW-1i	Mud Rotary	06/16/10	325.00	30.00	85.50	4 in.	SS (304)	SS-cont. wrap	10 slot	10 ft.		-220 to -230	
ORF	MW-2s	Mud Rotary	05/27/10	255.00	22.00	86.00	4 in.	SS (304)	SS-cont. wrap	10 slot	10 ft.		-150 to -160	225.0
ORF	MW-2i	Mud Rotary	06/03/10	326.00	30.00	86.00	4 in.	SS (304)	SS ont. wrap	10 slot	10 ft.		-220 to -230	
ORF	MW-3s	Mud Rotary	05/18/10	252.00	25.00	84.00	4 in.	SS (304)	SS-cont. wrap	10 slot	10 ft.		-150 to -160	203.0
ORF	MW-3i	Mud Rotary	05/21/10	322.00	25.00	84.00	4 in.	SS (304)	SS-cont. wrap	10 slot	10 ft.		-220 to -230	
ORF	SVP-1.6	Mud Rotary		253.00	22.76	86.58	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-166	
ORF	SVP-2.6	Mud Rotary		253.00	28.90	88.39	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-165	
ORF	SVP-4.6	Mud Rotary		248.00	27.52	88.85	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-159	
ORF	SVP-5.6	Mud Rotary		253.00	25.53	85.55	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-167	
ORF	SVP-6.3	Mud Rotary		250.00	13.83	60.88	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	3	-189	
ORF	SVP-8.3	Mud Rotary		238.00	12.63	62.26	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	3	-176	
ORF	SVP-9.6	Mud Rotary		247.00	28.87	90.27	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-157	
ORF	SVP-10.6	Mud Rotary		247.00	28.83	87.83	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-159	
ORF	SVP-11.6	Mud Rotary		247.00	22.90	80.32	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-167	
ORF	SVP-12.6	Mud Rotary		245.00	20.11	76.20	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-169	
ORF	SVP-13.6	Mud Rotary		245.00	17.67	74.06	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-171	
ORF	SVP-14.6	Mud Rotary		250.00	18.01	69.07	4 in.	SS (304)	SS-cont. wrap	10 slot	5 ft.	6	-181	
Supply Wells														
Uniondale	N-08474 (No.5)	Mud Rotary		556.00	NA			Blk. Steel	SS-cont. wrap		71 ft.		-405 to -476	
Uniondale	N-08475 (No.6)	Mud Rotary		481.00	NA			Blk. Steel	SS-cont. wrap		72 ft.		-329 to -401	
Recovery Wells														
Purex	W-383D	Mud Rotary	Jun-96	211.00	NA	76.00	4 in.	Blk. Steel	SS-cont. wrap	20slot	20 ft.		-115 to -135	202.0
Heating & Cooling Wells														
	N-8068	Rotary	6/14/66	291.00	19.00	83 (est)	10 in.	Blk. Steel	SS-cont. wrap	50 slot	26 ft.		-182 TO -208	
Purex MW Wells														
Purex	W-402	Mud Rotary	3/12/84	217.00	38.05	81.67	4 in.	PVC	SS-cont. wrap	10 slot	10 ft.		-125 to -135	1.0
Purex	W-405	Mud Rotary	7/20/83	214.00	31.95	80.72	4 in.	PVC	SS-cont. wrap		10 ft.		-123 to -133	3.0
Purex	W-435	Mud Rotary	7/29/86	160.00	29.43	77.96	4 in.	PVC	SS-cont. wrap	20 slot	10 ft.		-72 to -82	
Purex	W-461	Auger	9/27/87	171.00	28.34	76.02	4 in.	PVC	SS-cont. wrap	20 slot	10 ft.		85 to -95	

Appendix B

PUREX SOURCE AREA WELLS *available for sampling*

Site	Well Number	Method of Installation	Date of Installation	Current Total Depth	Depth To Water 4/19/2010	MP Elevation	Casing Diameter	Casing Material	Screen Type	Slot Size	Screen Length	Screen Interval ft. below grd.	TVOC PPB
Source Piezometers													
Purex	W-152	Auger	9/17/1987	54.40	18.30++	77.80#	4 in.	PVC (schd. 80)	PVC	.020 in.	10 ft.	47 - 57	1.0
Purex	W-251	Auger	10/8/1987	77.70	18.52++	77.80#	4 in.	PVC (schd. 80)	PVC	.020 in.	10 ft.	70 - 80	2.0
Purex	W-156	Auger	9/3/1987	54.40	21.50	81.33#	4 in.	PVC (schd. 80)	PVC	.020 in.	10 ft.	45 - 55	38.0
Purex	W-253	Auger	9/2/1987	79.85	20.25	81.60#	4 in.	PVC (schd. 80)	PVC	.020 in.	10 ft.	69.5 - 79.5	171.0
Purex	W-159	Auger	10/16/1987	56.40	21.40+	78.80#	4 in.	PVC (schd. 80)	PVC	.020 in.	10 ft.	45 - 55	38.0
Purex	W-254	Auger	10/12/1987	79.98	21.62+	79.70#	4 in.	PVC (schd. 80)	PVC	.020 in.	10 ft.	70 - 80	694.0
Upper Glacial Wells													
Purex	W-234	Mud Rotary	8/17/1986	60.00	21.96	79.50	6 in.	Blk. Steel	SS (304)	NA	20 ft.	40 - 60	81.0
Upper Magothy Wells													
Purex	W-305*	Mud Rotary	7/5/1983	90.00	30.67	79.73	4 in.	PVC/schd.80	PVC-slotted	.020 in.	10 ft.	80 - 90	7.0
Purex	W-334	Mud Rotary	8/17/1986	95.00	25.73	79.41	4 in.	Blk. Steel	SS (304)	.020 in.	10 ft.	85 - 95	0.0
Lower Magothy Wells													
Purex	W-405*	Mud Rotary	7/20/1983	214.00	31.95	80.72	3 in.	PVC/schd.40	PVC-slotted	.020 in.	10 ft.	204 - 214	2.0
Purex	W-434	Mud Rotary	8/8/1986	160.00	23.10	79.81	4 in.	Blk. Steel	SS (304)	.020 in.	10 ft.	150 - 160	0.0
Recovery Wells													
Purex	W-2	Reverse Rotary	3/18/1987	57.20	NA	77.50#	8 in.	Blk. Steel	SS (304)	.050 in.	20 ft.	34 - 54	***CNS***
Purex	W-3	Reverse Rotary	3/17/1987	57.90	18.12	77.70	8 in.	Blk. Steel	SS (304)	.050 in.	20 ft.	34.7 - 54.7	***CNS***
Purex	W-4	Reverse Rotary	3/16/1987	60.40	19.65	77.00#	8 in.	Blk. Steel	SS (304)	.050 in.	20 ft.	37.2 - 57.2	***CNS***
Purex	W-4D*	Mud Rotary	12/13/1994	89.20	41.32	79.31	8 in.	Blk. Steel	SS (304)	.050 in.	20 ft.	69.2 - 89.2	***CNS***
Purex	W-5	Reverse Rotary	3/25/1987	59.20	NA	79.00#	8 in.	Blk. Steel	SS (304)	.050 in.	20 ft.	36 - 56	***CNS***

* Non-Source Area well
\# measured to grade
\+ measured 2/3/12
++ measured 2/10/12

CNS - could not sample

PUREX - Corrective Measures Workplan

2012 Source Area Re-evaluation sampling results

VOLATILE ORGANICS COMPOUNDS (ppb)

	WELL W-152 DATE SAMPLED		WELL W-251 DATE SAMPLED		WELL W-156 DATE SAMPLED		WELL W-253 DATE SAMPLED		WELL W-159 DATE SAMPLED		WELL W-254 DATE SAMPLED		WELL W-305 DATE SAMPLED		WELL MW-234 DATE SAMPLED		WELL MW-334 DATE SAMPLED		WELL MW- 34 DATE SAMPLED	
	2/17/12		2/17/12		2/23/12		2/23/12		2/28/12		2/28/12		11/4/11	4/19/12	11/16/11	5/2/12	5/2/12		5/2/12	
1,1,1,2-Tetrachloroethane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,1,1-Trichloroethane	BDL		BDL		BDL		12.8		BDL		45.7		BDL	BDL	1.05J	1.53J	BDL		BDL	
1,1,2-Trichloro-1,1,2-trifluoroethane	BDL		BDL		BDL		BDL		BDL		1.83		BDL	BDL	BDL	BDL	BDL		BDL	
1,1,2-Trichloroethane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,1-Dichloroethane	BDL		BDL		BDL		BDL		5.07		11.8		BDL	BDL	1.74J	2.72J	BDL		BDL	
1,1-Dichloroethene	BDL		BDL		BDL		BDL		BDL		2.5		BDL	BDL	BDL	BDL	BDL		BDL	
1,2,3-Trichlorobenzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,2,3-Trichloropropane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,2,4,5-Tetramethylbenzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,2,4-Trimethylbenzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,2-Dichlorobenzene	BDL		BDL		BDL		BDL		BDL		8.95		BDL	BDL	BDL	BDL	BDL		BDL	
1,2-Dichloroethane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,2-T-Dichloroethene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,3,5-Trimethylbenzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,3-Dichlorobenzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
1,4-Dichlorobenzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Benzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Bromochloromethane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Carbon Tetrachloride	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Chlorobenzene	BDL		BDL		BDL		BDL		BDL		8.38		BDL	BDL	BDL	BDL	BDL		BDL	
Chlorodifluoromethane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Chloroform	BDL		BDL		BDL		BDL		BDL		7.39		BDL	BDL	1.03J	BDL	BDL		BDL	
Chloromenthane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
cis-1,2-Dichloroethylene	1.19		BDL		BDL		66.9		6.96		473		BDL	BDL	4.88J	12.9	BDL		BDL	
Dichlorodifluoromethane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Ethyl Benzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Isopropylbenzene	BDL		BDL		BDL		BDL		BDL		2.96		BDL	BDL	BDL	BDL	BDL		BDL	
m,p-Xylene	BDL		BDL		BDL		BDL		BDL		BDL		3.45J	BDL	BDL	BDL	BDL		BDL	
Methyl t-Butylether (MTBE)	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Methylene Chloride	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Naphthalene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
n-Butyl Benzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
n-Propylbenzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
o-Xylene	BDL		BDL		BDL		BDL		BDL		BDL		2.06J	BDL	BDL	BDL	BDL		BDL	
p-Ethyltoluene	BDL		BDL		BDL		BDL		BDL		BDL		1.09J	BDL	BDL	BDL	BDL		BDL	
p-Isopropyltoluene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
sec-Butyl Benzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
t-1,2 Dichloroethene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
tert-Butyl Benzene	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Tetrachloroethylene	BDL		1.77		29.7		68.7		14.2		55.3		4.71J	.87J	38.1	58.1	BDL		BDL	
Toluene	BDL		BDL		BDL		BDL		BDL		BDL		6.47	BDL	BDL	BDL	BDL		BDL	
Trichlorofluoromethane	BDL		BDL		BDL		BDL		BDL		BDL		BDL	BDL	BDL	BDL	BDL		BDL	
Trichloroethylene	BDL		BDL		8.53		22.9		11.6		40.7		BDL	BDL	6.18	10.1	BDL		BDL	
Vinyl Chloride	BDL		BDL		BDL		BDL		BDL		35.2		BDL	BDL	BDL	BDL	BDL		BDL	
TVOC	**1.2**	0.0	**1.8**	0.0	**38.2**	0.0	**171.3**	0.0	**37.8**	0.0	**693.7**	0.0	**6.5**	0.0	**44.3**	**81.1**	**0.0**	0.0	**0.0**	0.0

BDL - Below detection limits

B - Analyte detected in associated Method Blank

All results in ppb

* Petroleum related compound