Lawler, Matusky & Skelly Engineers LLP
Environmental Science & Engineering Consultants

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File No: 446-325

Mr. Mauricio Roma
Environmental Analysis Bureau
New York State Department of Transportation
50 Wolf Road, POD # 41
Albany, New York 12232

RE: D015410, PIN 8806.51.301
Harrison Subresidency Site – NYSDEC Spill No: 94-07349
Town of Harrison Westchester County, New York
Petroleum Spill Remediation Summary Report

Dear Mr. Roma:

Lawler, Matusky & Skelly Engineers LLP (LMS) is pleased to submit this report for your use. The purpose of this report is to summarize the information necessary to assess groundwater conditions after the discontinuation of the air sparge/soil vapor extraction system in October 2002.

Prior to startup of the air sparging/soil vapor extraction system (May 2000) monitoring wells MW-1 though MW-9, sparge wells SP-1 through SP-4 and an off-site well PC-1 were sampled and analyzed for baseline concentrations of benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tert-butyl ether (MTBE). A temporary well, GP-2, was installed (and also sampled) subsequent to the January 2002 survey.

The system operated until October 2002 when it was shut down for the January 2003 groundwater survey and has remained off-line thereafter. Three sample surveys (Rounds 1 through 3, January 2001, May 2001 and January 2002) for BTEX/MTBE were conducted from system startup to system shut down. Three sample surveys (Rounds 4 though 6, January 2003, September 2003 and May 2004) for BTEX/MTBE have been conducted since the system was shut down.

Sampling Procedures

Please refer to previous reports for sampling procedures as they have not changed since baseline sampling was conducted in May 2000.

Summary of Analytical Results

Monitoring wells, sparge wells, an off-site well and one temporary well were sampled and analyzed for BTEX and MTBE (Attachment A). The following is a summary of the analytical data collected subsequent to system shut-down (Rounds 4 through 6). This data has been compared to baseline data and data collect prior to shut down (Rounds 1 though 3) to help assess the effectiveness of the process of natural attenuation on the degradation of BTEX and MTBE in the groundwater. All BTEX and MTBE analytical data (baseline though round six) is summarized in Table 1.

Total BTEX

MW-1

There have not been any total BTEX concentrations detected in this well since the system was shut down. Results from previous sampling rounds (1 though 3) also indicate that there were no detectable concentrations of total BTEX in the groundwater samples collected from this upgradient well.

MW-2

There have not been any total BTEX concentrations detected in this well since the system was shut down. MW-2 had a baseline BTEX concentration of 17 parts per billion (ppb) and a first round concentration of 4 ppb. All subsequent rounds (2 though 6) had non-detectable concentrations of total BTEX. A 100% reduction of total BTEX has been achieved at MW-2 since the baseline sampling event.

MW-3

The analytical results indicate that there was a decrease in the total BTEX concentration detected in MW-3 from 156 ppb (Round 3) to 132 ppb (Round 4). There was an increase the fifth round of sampling (181 ppb) and a decrease in the total BTEX concentration detected in MW-3 in the sixth round of sampling May 2004 (77 ppb). In general the total BTEX concentration detected in this well has decreased since the system was shut down. MW-3 is located at the center of the plume and a 92% reduction of total BTEX has been achieved at MW-3 since the baseline sampling event.

MW-4

The analytical results indicate that there was an increase in the total BTEX concentration detected in MW-4 from non-detected (Round 3) to 17 ppb (Round 4). There was a decrease in the fifth round of sampling conducted in September 2003 (ND) and an

insignificant increase in the total BTEX concentration detected in MW-4 in the sixth round of sampling May 2004 (1 ppb). In general, the total BTEX concentration detected in this well has decreased since the system was shut down. A 97% reduction of total BTEX has been achieved at MW-4 since the baseline sampling event.

MW-5

The analytical results indicate that there was an increase in the total BTEX concentration detected in MW-5 from 4 ppb (Round 3) to 250 ppb (Round 4). There was a decrease in the fifth round of sampling conducted in September 2003 (ND) and an increase in the total BTEX concentration detected in MW-5 in the sixth round of sampling conducted in May 2004 (143 ppb). The total BTEX concentration detected in this well has increased since the system was shut down. However, there have been spikes in the total BTEX concentration since May 2000 and the overall trend indicates there has been a decrease in total BTEX in MW-5 since the baseline sampling event (916 ppb). MW-5 is located in the center region of the plume and an 84% reduction of total BTEX has been achieved at MW-5 since the baseline sampling event.

MW-6

The analytical results indicate that there was an increase in the total BTEX concentration detected in MW-6 from 30 ppb (Round 3) to 94 ppb (Round 4). There was a decrease in the fifth round of sampling conducted in September 2003 (16 ppb) and an increase in the total BTEX concentration detected in MW-6 in the sixth round of sampling conducted in May 2004 (128 ppb). The total BTEX concentration detected in this well has increased since the system was shut down. However, the overall trend indicates there has been a decrease in total BTEX in MW-6 since the baseline sampling event (225 ppb). A 43% reduction of total BTEX has been achieved at MW-6 since the baseline sampling event.

MW-7

The analytical results indicate there have been no detections of total BTEX in this well since the baseline sampling event. A 100% reduction of total BTEX has been achieved at MW-7 since the baseline sampling event.

MW-8

The analytical results indicate that there was a decrease in the total BTEX concentration detected in MW-8 from 7 ppb (Round 3) to 3 ppb (Round 4). There was a decrease in the fifth round of sampling conducted in September 2003 (1 ppb) and an increase in the total BTEX concentration detected in MW-8 in the sixth round of sampling May 2004 (57 ppb). The total BTEX concentration detected in this well has increased since the system was shut down. However, the overall trend indicates there has been a decrease in total BTEX in MW-8 since the baseline sampling event (396 ppb). An 86% reduction of total BTEX has been achieved at MW-8 since the baseline sampling event.

MW-9

There have been no detections of total BTEX in MW-9.

PC-1

There have been no detections of total BTEX in the off-site well PC-1.

SP-1

The sparge well, SP-1, has silted up, almost to the water table. Therefore the analytical data (Round 4) is not reliable and samples were not collected from this well subsequent to this sampling round. This well has been abandoned.

SP-1B

The analytical results indicate that there has been an increase in the total BTEX concentration detected in SP-1B from 1 ppb (Round 2) to 11 ppb (Round 4). There was an increase in the total BTEX concentration in the fifth round of sampling in September 2003 (38 ppb) and a decrease in the total BTEX concentration in the sixth round of sampling May 2004 (10 ppb). The total BTEX concentration detected in this well has increased since the system was shut down. However, the overall trend indicates there has been a slight decrease in total BTEX in SP-1B since the baseline sampling event (11 ppb). A 9% reduction of total BTEX has been achieved at SP-1B since the baseline sampling event. However, the results indicate that although there has only been a 9% reduction of the BTEX concentration in this well since the system was shut down, the concentrations detected are below the target effluent criteria.

SP-2

The analytical results indicate that there was a decrease in the total BTEX concentration detected in SP-2 from 58 ppb (Round 3) to 15 ppb (Round 4). There was a decrease in the fifth round of sampling conducted in September 2003 (13 ppb) and an increase in the total BTEX concentration detected in SP-2 in the sixth round of sampling May 2004 (61 ppb). The total BTEX concentration detected in this well has slightly increased since the system was shut down. However, the overall trend indicates there has been a decrease in total BTEX in SP-2 since the baseline sampling event (217 ppb). A 72% reduction of total BTEX has been achieved at SP-2 since the baseline sampling event.

SP-3

The analytical results indicate there have bee no detections of total BTEX in SP-3 since the system was shut down. A 100% reduction of total BTEX has been achieved at SP-3 since the baseline sampling event.

SP-4

The analytical results indicate that there was an increase in the total BTEX concentration detected in SP-4 from 5 ppb (Round 3) to 34 ppb (Round 4). There was a decrease in the fifth and sixth sampling rounds (ND) conducted in September 2003 and May 2004. The total BTEX concentration detected in this well has decreased since the system was shut down. A 100% reduction of total BTEX has been achieved at SP-4 since the baseline sampling event.

GP-2

There have been no detections of total BTEX in the temporary well GP-2.

MTBE

With the exception of 6 ppb of MTBE detected in the off-site well, PC-1, and 3 ppb of MTBE detected in the temporary well, GP-2, in January 2003, there have been no detections of MTBE in the groundwater since the system was shut down. A 100% reduction of MTBE has been achieved in all wells since the baseline sampling event.

Biodegradation

In general, it appears that biodegradation activity at the site (especially involving denitrification) continues to occur but appears to have slowed down since the system was taken off-line in October 2002.

There is evidence that aerobic conditions existed in the groundwater prior to system shut down and anaerobic conditions exist in the groundwater subsequent to system shut down.

Conclusions and Recommendations

Conclusions

In conclusion, the data indicates that there has been a decrease in the total BTEX concentration in MW-3, MW-4 and SP-4 since the system was shut down in October 2002. There has been an increase in the total BTEX concentration in MW-5, MW-6, MW-8 and SP-2 since the system was shut down in October 2002. Data from the last sampling event (Round 6, May 2004) indicates that two wells MW-5 and MW-6 had concentrations of BTEX in excess of the Target Effluent Criteria for total BTEX (100 ppb). However, in general, the data indicates that there has been a decrease of total BTEX in the groundwater since the monitoring program began in May 2000. In addition, it appears that the BTEX contaminant plume has remained confined to a small area northwest of the former UST location and has not migrated off-site. The data indicates that BTEX biodegradation, though natural attenuation, continues in the groundwater but

does appear to have slowed down since the system was taken off-line. The data also indicates that there has been a 100% reduction of MTBE in the groundwater since the inception of the monitoring program.

Recommendations

To continue monitoring the effects of natural attenuation at the site it is recommended that the next sampling round (May 2005) include laboratory analyses for BTEX, MTBE, total iron, dissolved iron, nitrate-nitrite nitrogen, sulfate and CO_2.

In addition, all wells should be monitored in the field for pH, conductivity, turbidity, dissolved oxygen, temperature and oxidation-reduction potential.

If you have any questions please contact me at 845-294-2789.

Very truly yours,

Theresa M. Schneider

Theresa M. Schneider
Project Geologist

ATTACHMENT A

ATTACHMENT A
MONITORING WELL DATA SUMMARY
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Harrison Subresidency Spill Site

WELL ID: MW 1	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	ND	54	ND	ND	ND	ND	ND	50
Benzene	ND	ND	ND	ND	ND	ND	ND	-
Toluene	ND	ND	ND	ND	ND	ND	ND	-
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	-
m,p-Xylene	ND	ND	-	-	ND	ND	ND	-
O-Xylene	ND	ND	-	-	ND	ND	ND	-
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	-
TOTAL BTEX	ND	ND	ND	ND	ND	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	7,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	**27,000**	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	ND	♦	207	**3,760**	264	♦	♦	300
Iron (dissolved)	ND	♦	ND	298	35	85.1 B	56.5 B	300
Lead	ND	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	4,100	♦	**11,000**	3,000	7,700	6,200	6,800	10,000
Sulfate (ug/L)	15,000	♦	13,000	17,000	15,000	17,000	14,000	250,000
TOC (ug/L)	4,000	♦	9,000	8,000	ND	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	97,400	♦	59,000	42,000	30,000	16,000	45,000 H	N/A
Dissolved Oxygen (mg/L)	3.6	1.97	6.42	8.3	2.5	3.89	4.2	N/A

WELL ID: MW 2	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	5.5	15	ND	ND	ND	ND	ND	50
Benzene	2.1	ND	ND	ND	ND	ND	ND	-
Toluene	8.0	2	ND	ND	ND	ND	ND	-
Ethylbenzene	2.7	ND	ND	ND	ND	ND	ND	-
m,p-Xylene	ND	-	-	-	ND	ND	ND	-
O-Xylene	3.8	-	-	-	ND	ND	ND	-
Xylenes (total)	3.8	2	ND	ND	ND	ND	ND	-
TOTAL BTEX	16.6	4	ND	ND	ND	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	10,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	**22,000**	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	**6,330**	**75,600**	**10,400**	♦	♦	300
Iron (dissolved)	♦	♦	**646**	**4,240**	**2,770**	**5,860**	**6,780**	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND	ND *	81	58	70	10,000
Sulfate (ug/L)	♦	♦	14,000	150,000	25,000	15,000	15,000	250,000
TOC (ug/L)	♦	♦	17,000	18,000	ND	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	49,000	40,000	23,000	33,000	43,000 H	N/A
Dissolved Oxygen (mg/L)	2.6	3.08	4.23	3.6	1.5	1.07	1.3	N/A

WELL ID: MW 3	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	50	21	ND	ND	ND	ND	ND	50
Benzene	64	ND	2	3	ND	ND	ND	-
Toluene	21	ND	2	3	ND	ND	ND	-
Ethylbenzene	350	ND	ND	40	82	120	61	-
m,p-Xylene	460	-	-	-	44	56	15	-
O-Xylene	65	-	-	-	6	5	1 J	-
Xylenes (total)	525	2	170	110	50	61	16	-
TOTAL BTEX	960.0	2	174	156	132	181	77	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene	♦		ND	♦	♦	♦	♦	50
Napthalene	160		4 J	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	24,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	43,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	18,000	♦	8,880	35,100	14,400	♦	♦	300
Iron (dissolved)	ND	♦	2,410	4,000	7,250	6,870	7,030	300
Lead	8	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	ND	♦	ND	ND *	ND	ND	ND	10,000
Sulfate (ug/L)	ND	♦	18,000	24,000	27,000	6,500	7,300	250,000
TOC (ug/L)	10,000	♦	27,000	70,000	6,300	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	9,200	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	105,000	♦	48,000	70,000	45,000	84,000	51,000 H	N/A
Dissolved Oxygen (mg/L)	2.1	2.93	1.89	3.0	1.1	1.36	1.04	N/A

WELL ID: MW 4	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	13	3	ND	ND	ND	ND	ND	50
Benzene	4.4	ND	ND	ND	ND	ND	ND	-
Toluene	ND	ND	ND	ND	ND	ND	ND	-
Ethylbenzene	22	2	2	ND	16	ND	1 J	-
m,p-Xylene	♦	-	-	-	1	ND	ND	-
O-Xylene	♦	-	-	-	ND	ND	ND	-
Xylenes (total)	13	ND	1	ND	1	ND	ND	-
TOTAL BTEX	39.4	2	3	ND	17	ND	1	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	8,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	22,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	1,360	1,330	3,480	♦	♦	300
Iron (dissolved)	♦	♦	1,010	ND	2,740	61.0 B	635	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND	3,200	ND	2400	530	10,000
Sulfate (ug/L)	♦	♦	15,000	22,000	21,000	18,000	13,000	250,000
TOC (ug/L)	♦	♦	14,000	13,000	44,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	55,000	40,000	55,000	21,000	65,000 H	N/A
Dissolved Oxygen (mg/L)	3.5	2.35	4.29	3.9	0.82	1.42	2	N/A

WELL ID: MW 5	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	150	ND	ND	ND	ND	ND	ND	50
Benzene	14	ND	1	ND	ND	ND	ND	-
Toluene	32	2	2	ND	2	ND	ND	-
Ethylbenzene	410	ND	ND	ND	150	ND	99	-
m,p-Xylene	♦	-	-	-	93	ND	42	-
O-Xylene	♦	-	-	-	5	ND	2 J	-
Xylenes (total)	460	43	230	4	98	ND	44	-
TOTAL BTEX	916	45	233	4	250	ND	143	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			10	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	60,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	32,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	9,630	3,910	4,500	♦	♦	300
Iron (dissolved)	♦	♦	2,930	1,820	1,240	7,070	4,560	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Nitrogen, Nitrate (ug/L)	♦	♦	ND	620	210	ND	ND	10,000
Sulfate (ug/L)	♦	♦	17,000	12,000	16,000	42,000	8,500	250,000
TOC (ug/L)	♦	♦	23,000	14,000	12,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	68,000	12,000	28,000	100,000	73,000 H	N/A
Dissolved Oxygen (mg/L)	3.4	3.09	6.12	9.0	1.6	1.19	1.73	N/A

WELL ID: MW 6	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	73	20	ND	ND	ND	ND	ND	50
Benzene	7.9	ND	ND	ND	ND	ND	ND	-
Toluene	7	ND	ND	ND	ND	ND	ND	-
Ethylbenzene	98	ND	ND	3	61	ND	88	-
m,p-Xylene	♦	-	-		30	14	37	-
O-Xylene	♦	-	-		2	1	3 J	-
Xylenes (total)	112	21	6	27	33	16	40	-
TOTAL BTEX	224.9	21	6	30	94	16	128	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	40,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	33,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	1,720	2,410	2,750	♦	♦	300
Iron (dissolved)	♦	♦	475	2,060	874	1,080	1,620	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND	ND *	ND	ND	ND	10,000
Sulfate (ug/L)	♦	♦	17,000	19,000	22,000	10,000	7,400	250,000
TOC (ug/L)	♦	♦	17,000	25,000	ND	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	60,000	32,000	27,000	33,000	48,000	N/A
Dissolved Oxygen (mg/L)	3.1	6.05	4.1	3.5	0.89	1.41	2.9	N/A

WELL ID: MW 7	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	16	38	17	ND	ND	ND	ND	50
Benzene	3.4	ND	ND	ND	ND	ND	ND	-
Toluene	4	ND	ND	ND	ND	ND	ND	-
Ethylbenzene	5.7	ND	ND	ND	ND	ND	ND	-
m,p-Xylene	♦	-	-	-	ND	ND	ND	-
O-Xylene	♦	-	-	-	ND	ND	ND	-
Xylenes (total)	4.8	ND	ND	ND	ND	ND	ND	-
TOTAL BTEX	17.9	ND	ND	ND	ND	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	40,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	**35,000**	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	**2,700**	**30,000**	**3,080**	♦	♦	300
Iron (dissolved)	♦	♦	**1,880**	**4,020**	**2,380**	**2,190**	**2,640**	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND	ND*	150	ND	160	10,000
Sulfate (ug/L)	♦	♦	15,000	38,000	20,000	8,200	13,000	250,000
TOC (ug/L)	♦	♦	16,000	21,000	11,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	78,000	35,000	37,000	27,000	42,000	N/A
Dissolved Oxygen (mg/L)	3.2	3.12	4.43	3.4	1.0	2.2	1.8	N/A

WELL ID: MW 8	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	**68**	6	ND	ND	ND	ND	ND	50
Benzene	110	ND	ND	ND	ND	ND	ND	-
Toluene	26	ND	2	ND	ND	ND	2 J	-
Ethylbenzene	60	ND	ND	ND	2	1	41	-
m,p-Xylene	160	-	-	-	1	ND	12	-
O-Xylene	40	-	-	-	ND	ND	2 J	-
Xylenes (total)	200	ND	34	7	1	ND	14	-
TOTAL BTEX	**396**	ND	36	7	3	1	57	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene	♦		ND	♦	♦	♦	♦	50
Napthalene	**34**		ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	5,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	**63,000**	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	**8,600**	♦	**545**	**4,370**	**3,320**	♦	♦	300
Iron (dissolved)	230	♦	ND	48.7 B	ND	**1,890**	**3,310**	300
Lead	ND	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	33	♦	ND	ND *	190	ND	ND	10,000
Sulfate (ug/L)	ND	♦	31,000	ND	ND	ND	3,800	250,000
TOC (ug/L)	12,000	♦	21,000	25,000	ND	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	7,600	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	264,000	♦	37,000	22,000	19,000	30,000	56,000	N/A
Dissolved Oxygen (mg/L)	1.5	6.3	4.6	4.5	0.89	0.88	2.18	N/A

WELL ID: MW 9	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	ND	ND	ND	ND	ND	ND	ND	50
Benzene	ND	ND	ND	ND	ND	ND	ND	-
Toluene	ND	ND	ND	ND	ND	ND	ND	-
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	-
m,p-Xylene	♦	-	-	-	ND	ND	ND	-
O-Xylene	♦	-	-	-	ND	ND	ND	-
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	-
TOTAL BTEX	ND	ND	ND	ND	ND	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			2 J	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	260,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	160,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	4,570	7,870	12,600	♦	♦	300
Iron (dissolved)	♦	♦	ND	ND	ND	32.2 B	ND	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND	690	340	730	870	10,000
Sulfate (ug/L)	♦	♦	21,000	23,000	19,000	12,000	12,000	250,000
TOC (ug/L)	♦	♦	18,000	15,000	9,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	ND	ND *	ND	ND	ND	N/A
Dissolved Oxygen (mg/L)	3.3	7.5	5.49	12.3	6.30	3.65	7.60	N/A

WELL ID: PC 1	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	ND	ND	NA	NA	6	ND	ND	50
Benzene	ND	ND	NA	NA	ND	ND	ND	-
Toluene	ND	ND	NA	NA	ND	ND	ND	-
Ethylbenzene	ND	ND	NA	NA	ND	ND	ND	-
m,p-Xylene	ND	ND	NA	NA	ND	ND	ND	-
O-Xylene	ND	ND	NA	NA	ND	ND	ND	-
Xylenes (total)	ND	ND	NA	NA	ND	ND	ND	-
TOTAL BTEX	ND	ND	NA	NA	ND	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			NA	NA	♦	♦	♦	50
Napthalene			NA	NA	♦	♦	♦	25
Metals (ug/L)								
Chloride	34,000	♦	NA	NA	♦	♦	♦	250,000
Sodium	120,000	♦	NA	NA	♦	♦	♦	20,000
Iron (total)	17,000	♦	NA	NA	2,930	♦	♦	300
Iron (dissolved)	ND	♦	NA	NA	ND	44.5 B	286	300
Lead	7	♦	NA	NA	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	ND	♦	NA	NA	170	ND	ND	10,000
Sulfate (ug/L)	23,000	♦	NA	NA	70,000	58,000	32,000	250,000
TOC (ug/L)	13,000	♦	NA	NA	14,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	NA	NA	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	67,000	♦	NA	NA	34,000	22,000	58,000	N/A
Dissolved Oxygen (mg/L)	2.4	4.11	NA	NA	2.2	NA	2	N/A

WELL ID: SP 1	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	3.2	31	ND	ND	ND	-	-	50
Benzene	1.4	ND	ND	ND	ND	-	-	-
Toluene	3.7	ND	ND	ND	60	-	-	-
Ethylbenzene	4.0	ND	ND	2	22	-	-	-
m,p-Xylene	8.1	-	-	-	100	-	-	-
O-Xylene	2.9	-	-	-	42	-	-	-
Xylenes (total)	11.0	ND	ND	1	140	-	-	-
TOTAL BTEX	20.1	ND	ND	3	**222**	-	-	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	-	-	50
Napthalene			ND	♦	♦	-	-	25
Metals (ug/L)								
Chloride	16,000	♦	♦	♦	♦	-	-	250,000
Sodium	**45,000**	♦	♦	♦	♦	-	-	20,000
Iron (total)	♦	♦	**3,940**	**3,720**	NA	-	-	300
Iron (dissolved)	♦	♦	52.1 B	68.0 B	NA	-	-	300
Lead	♦	♦	♦	♦	♦	-	-	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND*	160	NA	-	-	10,000
Sulfate (ug/L)	♦	♦	48,000	46,000	NA	-	-	250,000
TOC (ug/L)	♦	♦	25,000	17,000	ND	-	-	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	NA	-	-	N/A
Carbon Dioxide (ug/L)	♦	♦	18,000	19,000	NA	-	-	N/A
Dissolved Oxygen (mg/L)	4.6	9.66	4.6	2.3	NA	-	-	N/A

WELL ID: SP 1B	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	4.9	♦	ND	NA	ND	ND	ND	50
Benzene	2.1	♦	ND	NA	ND	ND	ND	-
Toluene	ND	♦	ND	NA	ND	ND	ND	-
Ethylbenzene	ND	♦	1	NA	9	23	8	-
m,p-Xylene	3.5	♦	-	NA	2	15	2 J	-
O-Xylene	5.6	♦	-	NA	ND	ND	ND	-
Xylenes (total)	9.1	♦	ND	NA	2	15	2 J	-
TOTAL BTEX	11.2	♦	1	NA	11	38	10	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	NA	♦	♦	♦	50
Napthalene			ND	NA	♦	♦	♦	25
Metals (ug/L)								
Chloride	34,000	♦	♦	NA	♦	♦	♦	250,000
Sodium	**27,000**	♦	♦	NA	♦	♦	♦	20,000
Iron (total)	♦	♦	**1,080**	NA	**1,190**	♦	♦	300
Iron (dissolved)	♦	♦	32.8 B	NA	**462**	**644**	**592**	300
Lead	♦	♦	♦	NA	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND*	NA	ND	ND	120	10,000
Sulfate (ug/L)	♦	♦	27,000	NA	19,000	9,000	12,000	250,000
TOC (ug/L)	♦	♦	14,000	NA	9,400	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	NA	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	39,000	NA	39,000	25,000	32,000	N/A
Dissolved Oxygen (mg/L)	4.7		4.91	NA	2.0	2.9	2.4	N/A

WELL ID: SP 2	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	18	♦	14	ND	ND	ND	ND	50
Benzene	19	♦	ND	7	7	5	2 J	-
Toluene	25	♦	ND	6	2	2	4 J	-
Ethylbenzene	110	♦	1	42	ND	5	42	-
m,p-Xylene	52	♦	-	-	4	1	13	-
O-Xylene	11	♦	-	-	2	ND	ND	-
Xylenes (total)	63	♦	ND	3	6	1	13	-
TOTAL BTEX	217.0	♦	1	58	15	13	61	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	36,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	75,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	9,750	7,590	2,700	♦	♦	300
Iron (dissolved)	♦	♦	ND	126 B	ND	166 B	2,120	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND*	100	ND	37	ND	10,000
Sulfate (ug/L)	♦	♦	26,000	64,000	18,000	7,900	7,200	250,000
TOC (ug/L)	♦	♦	17,000	29,000	14,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	36,000	42,000	38,000	37,000	58,000	N/A
Dissolved Oxygen (mg/L)	2.5	♦	3.1	4.0	1.0	1.47	1.7	N/A

WELL ID: SP 3	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	38	♦	7	ND	ND	ND	ND	50
Benzene	110	♦	ND	ND	ND	ND	ND	-
Toluene	39	♦	1	ND	ND	ND	ND	-
Ethylbenzene	200	♦	ND	ND	ND	ND	ND	-
m,p-Xylene	180	♦	-	-	ND	ND	ND	-
O-Xylene	57	♦	-	-	ND	ND	ND	-
Xylenes (total)	237	♦	15	ND	ND	ND	ND	-
TOTAL BTEX	586.0	♦	16	ND	ND	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene			ND	♦	♦	♦	♦	50
Napthalene			ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	6,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	38,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	2,970	1,060	133 B	♦	♦	300
Iron (dissolved)	♦	♦	ND	ND	ND	116 B	384	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND*	100	ND	25	66	10,000
Sulfate (ug/L)	♦	♦	56,000	16,000	19,000	5,900	22,000	250,000
TOC (ug/L)	♦	♦	11,000	18,000	41,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	11,000	11,000	20,000	19,000	26,000	N/A
Dissolved Oxygen (mg/L)	3.4	♦	4.21	5.7	1.1	1.7	2.2	N/A

ATTACHMENT A
MONITORING WELL DATA SUMMARY
(Page 8 of 8)
Harrison Subresidency Spill Site

WELL ID: SP 4	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	24	♦	ND	ND	ND	ND	ND	50
Benzene	24	♦	ND	ND	ND	ND	ND	-
Toluene	3.8	♦	ND	ND	ND	ND	ND	-
Ethylbenzene	35	♦	ND	3	26	ND	ND	-
m,p-Xylene	9.5	♦	-	-	8	ND	ND	-
O-Xylene	2.4	♦	-	-	ND	ND	ND	-
Xylenes (total)	11.9	♦	ND	2	8	ND	ND	-
TOTAL BTEX	74.7	♦	ND	5	34	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene		♦	ND	♦	♦	♦	♦	50
Napthalene		♦	ND	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	16,000	♦	♦	♦	♦	♦	♦	250,000
Sodium	24,000	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	3,790	5,350	2,490	♦	♦	300
Iron (dissolved)	♦	♦	602	1,810	1,810	2,460	44.5	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	ND*	ND*	ND	ND	150	10,000
Sulfate (ug/L)	♦	♦	34,000	22,000	37,000	26,000	8,400	250,000
TOC (ug/L)	♦	♦	14,000	24,000	11,000	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	39,000	24,000	31,000	26,000	23,000	N/A
Dissolved Oxygen (mg/L)	4.2	♦	6.89	4.2	2.4	6.2	3.4	N/A

WELL ID: GP 2	BASELINE (May 2000)	(Jan 2001)	(May 2001)	(Jan 2002)	(Jan 2003)	(Sept 2003)	(May 2004)	TARGET EFFLUENT CRITERIA
Volatile Organics (ug/L)								
MTBE	♦	♦	♦	♦	3	ND	ND	50
Benzene	♦	♦	♦	♦	ND	ND	ND	-
Toluene	♦	♦	♦	♦	ND	ND	ND	-
Ethylbenzene	♦	♦	♦	♦	ND	ND	ND	-
m,p-Xylene	♦	♦	♦	♦	ND	ND	ND	-
O-Xylene	♦	♦	♦	♦	ND	ND	ND	-
Xylenes (total)	♦	♦	♦	♦	ND	ND	ND	-
TOTAL BTEX					3	ND	ND	100
Semi-volatile Org.(ug/L)								
2-Methylnaphthalene	♦	♦	♦	♦	♦	♦	♦	50
Napthalene	♦	♦	♦	♦	♦	♦	♦	25
Metals (ug/L)								
Chloride	♦	♦	♦	♦	♦	♦	♦	250,000
Sodium	♦	♦	♦	♦	♦	♦	♦	20,000
Iron (total)	♦	♦	♦	♦	♦	♦	♦	300
Iron (dissolved)	♦	♦	♦	♦	♦	♦	♦	300
Lead	♦	♦	♦	♦	♦	♦	♦	25
Other								
Nitrogen, Nitrate (ug/L)	♦	♦	♦	♦	♦	♦	♦	10,000
Sulfate (ug/L)	♦	♦	♦	♦	♦	♦	♦	250,000
TOC (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Petroleum Hydrocarbons (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Carbon Dioxide (ug/L)	♦	♦	♦	♦	♦	♦	♦	N/A
Dissolved Oxygen (mg/L)	♦	♦	♦	♦	♦	♦	♦	N/A

* reporting limit elevated due to sample matrix efects
\- included in total (eg: total Xylenes)
N/A not applicable
♦ not analyzed
NA not available - sample not obtainable (eg: well dry or not accessible)
ND not detected at sample detection limit.
J estimated concentration; compound present below quantitation limit.
B analyte found in both sample and lab blank.
H analyzed outside of the laboratory-designated holding time.

Notes - Numbers in bold exceed Target Effluent Criterion.
- Naphthalene was sampled as VOC in May '01 & Jan '02, and is only indicated herein where detected.