Piedmont Industrial Services, Inc.
4211-B Indiana Avenue
Winston Salem, NC 27105
(336) 767-7522
fax (336) 767-7523

Certified Mail # 7099 3400 0002 4129 3193
Return Receipt Requested

Ocotber 5, 2001

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OCT 1 5 2001

Ms. Sharon Cihak
Guilford County- Public Health
Environmental Health Division
1100 E. Wendover Ave

Subject: **Site Closure Request**
Exxon 4-3998
4701 W. Market Street
Greensboro, North Carolina
Groundwater Incident #10001
Site Rank: Intermediate
Land Use: Industrial/Commercial

Dear Ms. Sharon Cihak:

On behalf of Exxon Mobil Corporation, Piedmont Industrial Services, Inc. and ERM request that NCDENR issue a Notice of No Further Action for NCDENR ground water incident #10001 at the above referenced site. The site is scheduled to be redeveloped as a Walgreen's pharmacy in 2001. The planned redevelopment of the site is shown in Figure 1. The redevelopment of the site will require the dismantling of the existing SVE/AS soil and ground water remediation system and abandonment of all remediation wells.

Soil quality data collected from the site in August 2001 indicates that Industrial/commercial maximum soil contaminant concentrations (MSCCs) are not exceeded at the site (*monitoring and Assessment Report, 8/27/01)*. Prior to September 2001, risk-based ground water clean-up levels (GCLs) were not exceeded at the site except for the concentration of benzene in monitor well MW-2 (6,370 ug/l – 7/25/01). MW-2 is located within the footprint of the planned Walgreen's building and will require abandonment prior to redevelopment of the property.

In accordance with our discussion by phone of September 18, 2001, additional source area aggressive fluid vapor recovery (AFVR) ground water remediation was conducted at MW-2 in September 2001.Monitor well MW-2 was overdrilled and re-installed on August 21, 2001 as a 6-inch diameter well to improve the effectiveness of AFVR remediation in this area. A copy of the well construction record is provided in Attachment A.

A 24-hour AFVR event was conducted on September 24-25, 2001 using the MW-2 replacement well as the extraction well. A total of 1,944 gallons of groundwater was

recovered during the AFVR event. The equivalent of 13.39 gallons of NAPL was removed in vapor phase, based on the AFVR mass removal calculations. AFVR calculations and material disposal manifests for the AFVR event are provided in Attachment B.

Replacement monitor well MW-2 was sampled on September 26, 2001 following the completion of the 24 hour AFVR event. Laboratory analyses of the groundwater sample was conducted in accordance with the applicable risk-based analytical methods specified in the *NCDENR Soil and Ground Water Assessment and Remediation Guidelines (vol. II, 1/2/98)*. The concentration of benzene detected in the ground water sample was 3,530 ug/l, below the benzene GCL of 5,000 ug/l. Laboratory analytical results are summarized in Table 1. Copies of the laboratory analytical reports are included in Attachment C.

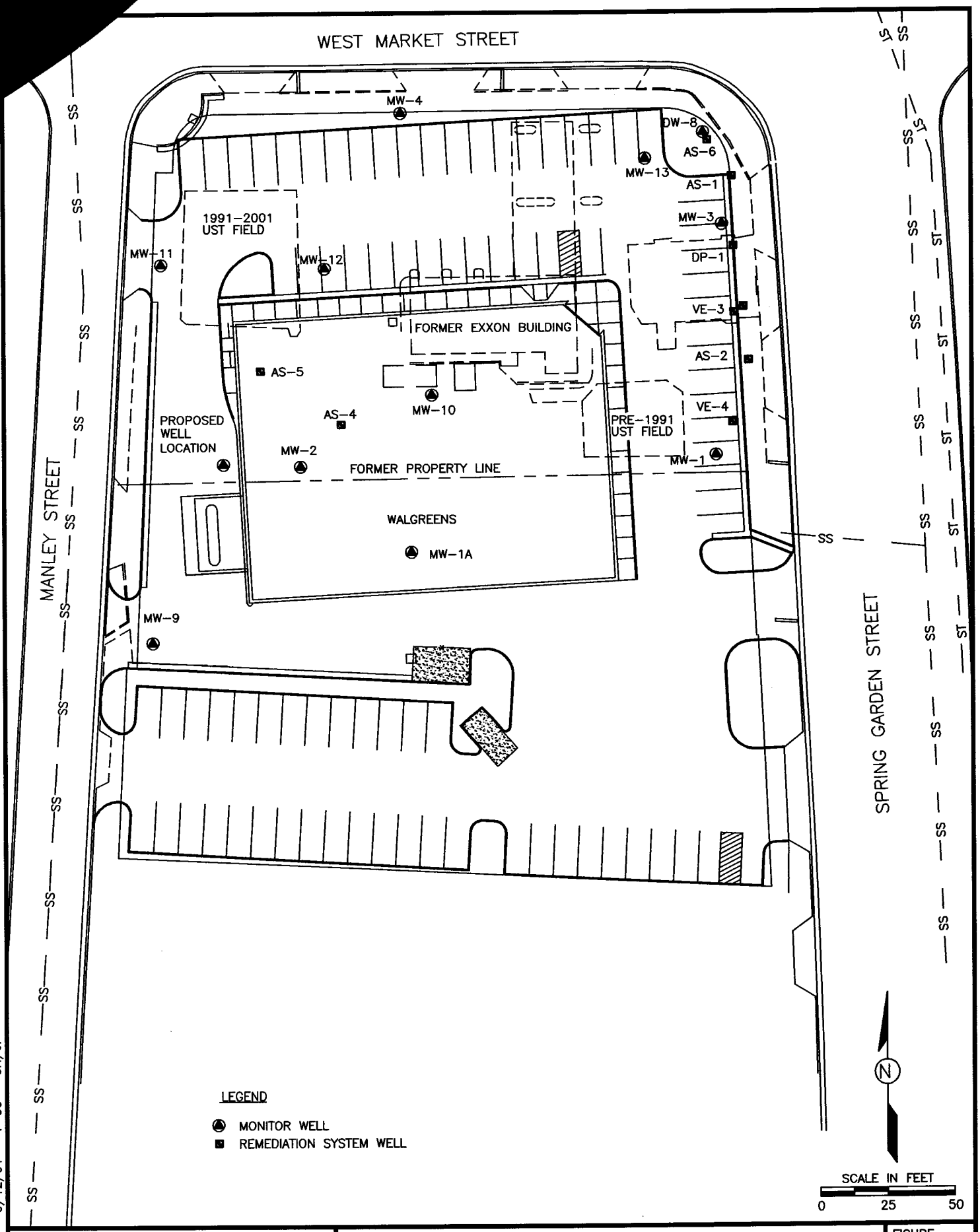
Collectively, the above-mentioned data indicates that ground water quality at the site has been remediated to applicable risk based action levels and the site meets the criteria for a risk-based corrective action (RBCA) closure. No further assessment or remediation activities are recommended and site closure is requested.

If you have any questions or require further information please contact James F. Medlin of ExxonMobil at (704) 529-4263.

Best Regards,
Piedmont Industrial Services, Inc.

Tom Lennon, L.G.
Project Geologist

Enclosure
Copy: Mr. J. Frank Medlin - ExxonMobil
Mr. Bob Hood-Lee Moore Oil Company



Environmental Resources Management
ERM

PROPOSED WALGREENS SITE MAP
EXXON RETAIL LOCATION 4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA

FIGURE
1

TABLE 1
SUMMARY OF
CHEMICAL ANALYSIS
EXXON RETAIL LOCATION 4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA

MONITOR WELL ID	DATE	Volatile Organic Compounds (ug/l) TOTAL BTEX	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	MTBE	IPE	1,2 Dichloro-ethane	1,1 Dichloro-ethane	VPH (ug/l) C5-C8 aliphatics	VPH (ug/l) C9-C12 aliphatics	VPH (ug/l) C9-C110 aromatics	METHOD 504.1 EDB (ug/l)	METHOD 3030C LEAD (ug/l)
MW-1	8/20/92	65,900	5,000	35,000	3,900	22,000	<500	--	--	--	--	--	--	--	--
	3/25/93	44,600	3,500	21,000	3,100	17,000	<250	--	--	--	--	--	--	--	--
	6/22/93	44,600	4,200	18,000	3,400	19,000	<500	--	--	--	--	--	--	--	--
	6/9/94	62,450	6,150	22,500	5,000	28,800	96	900	--	--	--	--	--	<10	5
	6/14/95	<1	<1	<1	<1	<1	<10	465	--	--	--	--	--	--	--
	9/18/95	50,500	4,000	24,000	3,000	19,500	<5,000	<5,000	--	--	--	--	--	--	--
	12/6/95	47,700	4,500	18,000	3,600	21,600	<225	1,230	--	--	--	--	--	--	--
	3/27/96	15,350	2,340	3,420	1,350	8,240	<450	945	--	--	--	--	--	<0.503	<3.0
	6/26/96	32,280	3,420	7,980	2,640	18,240	<200	1,030	--	--	--	--	--	<20	<3.0
	6/17/97	25,730	3,000	4,800	2,430	15500	ND	950	--	--	--	--	--	ND	ND
	12/16/97	4,250	1,110	560	780	1800	90	130	--	--	--	--	--	0.07	ND
	9/30/98	9,125	1,750	715	1,810	4850	15	765	--	--	--	--	--	0.34	ND
	12/22/98	1,959	414	327	382	836	ND	311	--	--	--	--	--	0.29	--
	6/21/99	2,060	600	100	220	1140	ND	400	--	--	--	--	--	NT	4
	12/12/99	1,508	484	96	388	540	ND	292	--	--	3,920	4,880	3,230	0.29	ND
	6/26/00	2,680	290	160	110	2,120	40	670	--	--	6,480	5,750	6,830	0.61	0.005
	12/5/00	5,428	376	64	638	4,350	26	574	--	--	--	--	--	0.40	ND
	6/7/01	1,064	161	37	129	737	16	343	30.4	ND	3,040	6,280	4,710	0.41	ND
MW-2	8/20/92	13,900	1,400	4900	1600	6000	<250	--	--	--	--	--	--	--	--
	3/25/93	16,400	2,000	7300	1200	5900	<250	--	--	--	--	--	--	--	--
	6/22/93	76,800	8,100	40000	4700	24000	<2500	--	--	--	--	--	--	--	--
	6/9/94	70,520	7,160	33500	4560	25300	390	280	--	--	--	--	--	<10	3
	6/14/95	234,900	14,000	112,000	17,100	91,800	<225	1,710	--	--	--	--	--	--	--
	9/18/95	56,000	4,500	25,000	4,000	22,500	<1,000	1,600	--	--	--	--	--	--	--
	12/6/95	5,553	788	2,900	315	1,550	<225	292	--	--	--	--	--	--	--
	3/27/96	136,800	22,000	72,000	7,200	35,600	<900	10,800	--	--	--	--	--	0.70	<3.0
	6/26/96	103,000	16,000	60,000	4,500	22,500	<10000	<10000	--	--	--	--	--	<1000	<3.0
	6/17/97	86,800	13,100	46,000	4,100	23,600	ND	6,000	--	--	--	--	--	ND	ND
	12/16/97	90,550	14,000	49,500	4,050	23,000	1,350	4,050	--	--	--	--	--	0.22	ND
	9/30/98	116,130	17,400	74,300	7,130	17,300	ND	8,750	--	--	--	--	--	1.26	ND
	6/21/99	57,660	12,000	40,200	1,040	4,420	ND	7,400	--	--	--	--	--	NT	ND
	12/12/99	60,300	8,320	29,100	3,280	19,600	ND	6,620	--	--	126,000	37,000	7,320	1.02	ND
	6/26/00	47,800	7,800	22,000	2,000	16,000	60	6,600	--	--	112,000	31,400	9,440	1.95	ND
	12/5/00	58,550	7,500	29,200	2,450	19,400	ND	7,400	--	--	--	--	--	1.69	ND
	6/7/01	54,380	**6,540**	25,000	2,940	19,900	ND	5,300	8.1	1.2	47,800	26,500	7,600	1.45	ND
	7/25/01	36,770	**6,370**	16,500	1,900	12,000	ND	4,920	8	2.2	28,200	11,200	ND	1.40	ND
	9/26/01	17,860	3,520	7,280	1,380	5,680	ND	1,860	4	2.8	24,600	9,130	ND	0.48	ND
MW-3	8/20/92	84,800	11,000	41000	4800	26000	<500	--			--	--	--	--	--
	3/25/93	67,300	9,700	35000	3600	19000	<1000	--	--	--	--	--	--	--	--
	6/22/93	88,900	13,000	50000	3900	22000	<2500	--	--	--	--	--	--	--	--
	6/9/94	114,700	12,600	65400	4500	32200	<1000	2580	--	--	--	--	--	<50	678
	6/14/95	308,200	25,200	157,000	18,000	108,000	<225	2,740	--	--	--	--	--	--	390
	9/18/95	125,000	15,000	73,000	6,000	31,000	<5,000	<5,000	--	--	--	--	--	--	372
	12/6/95	156,600	19,800	94,500	6,300	36,000	<4500	7,650	--	--	--	--	--	--	147
	3/27/96	158,400	23,400	80,100	8,100	46,800	<900	11,200	--	--	--	--	--	59	1,400
	6/26/96	106,750	14,300	49,000	5,650	37,800	<5000	7,300	--	--	--	--	--	<500	1,010
	6/17/97	39,381	3,550	19,100	2,181	14,550	ND	1,140	--	--	--	--	--	ND	376
	12/16/97	97,200	16,400	49,300	4,500	27,000	450	4,720	--	--	--	--	--	35	956
	9/30/98	59,530	8,320	37,800	3,560	9,850	ND	2,240	--	--	--	--	--	69	516

TABLE 1
SUMMARY OF
CHEMICAL ANALYSIS
EXXON RETAIL LOCATION 4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA

MONITOR WELL ID	DATE	Volatile Organic Compounds (ug/l) TOTAL BTEX	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	MTBE	IPE	1,2 Dichloro-ethane	1,1 Dichloro-ethane	VPH (ug/l) C5-C8 aliphatics	VPH (ug/l) C9-C12 aliphatics	VPH (ug/l) C9-C110 aromatics	METHOD 504.1 EDB (ug/l)	METHOD 3030C LEAD (ug/l)
	6/21/99	47,420	2,000	39,000	1,240	5,180	ND	400	--	--	--	--	--	NT	259
	12/12/99	32,600	2,610	15,100	1,590	13,300	ND	1,030	--	--	50,100	24,300	9,360	34.3	272
	6/26/00	12,060	980	5,100	560	5,420	ND	340	--	--	19,900	12,600	7,120	20.2	0.136
	12/5/00	16,070	510	5,720	980	8,860	ND	115	--	--	--	--	--	9.6	0.042
	6/7/01	11,800	1,340	6,120	490	3,850	ND	510	92.3	ND	15,900	6,830	2,200	34.2	0.127
MW-4	8/20/92	4	<2.0	<2.0	<2.0	4	<10	--			--	--	--	--	--
	3/25/93	17.6	1.9	4.7	<1.0	11	<10	--	--	--	--	--	--	--	--
	6/22/93	17.5	1.5	<1.0	<1.0	16	<10	--	--	--	--	--	--	--	--
	6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	<1.0	4
	6/14/95	71	6	9	3	53	<10	<10	--	--	--	--	--	--	--
	9/18/95	33	4	<1.0	<1.0	29	<10	33	--	--	--	--	--	--	--
	6/17/97	112.2	11.4	ND	15.8	85.0	ND	ND	--	--	--	--	--	--	--
	12/16/97	175.0	22.0	2.0	14.0	137.0	ND	2	--	--	--	--	--	ND	ND
	9/30/98	65.9	8.8	1.2	2.4	53.5	ND	1	--	--	--	--	--	ND	ND
	12/22/98	170.4	31.2	ND	2.2	137.0	2	4	--	--	--	--	--	ND	--
	6/21/99	180.0	36.0	ND	1.0	143.0	1	3	--	--	--	--	--	NT	ND
	12/12/99	137.2	26.7	ND	2.5	108.0	7	7	--	--	440	200	170	0.02	4
	6/26/00	115.1	24.4	ND	1.5	89.2	6	NT	--	--	520	170	130	ND	ND
	12/5/00	92.1	18.0	ND	1.2	72.9	2	8	--	--	--	--	--	ND	ND
	6/7/01	117.1	23.5	2.4	2.1	89.1	5.1	12.8	ND	ND	192	157	ND	ND	ND
MW-5	3/25/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	--
	6/22/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	--
	6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	<1.0	13
	6/14/95	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	--	--
	9/18/95	2	<1.0	1	<1.0	1	<10	27	--	--	--	--	--	--	--
MW-6	3/25/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	--
	6/22/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	--
	6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	<1.0	13
	6/14/95	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	--	--
	9/18/95	<1.0	<1.0	<1.0	<1.0	<1.0	<10	14	--	--	--	--	--	--	--
MW-7	3/25/93	9.1	1.9	1.9	1.9	3.4	36.0	--	--	--	--	--	--	--	--
	6/22/93	<5.0	<5.0	<5.0	<5.0	<5.0	<50	--	--	--	--	--	--	--	--
	6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	<1.0	20
	6/14/95	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	--	26
	9/18/95	2	<1.0	1	<1.0	1	10	16	--	--	--	--	--	--	15
	12/16/97	11	7	4	<1.0	<1.0	<1.0	<1.0	--	--				<0.02	7
	12/22/98	79.5	23.3	26.1	4.5	25.6	24.5	2.0	--	--	--	--	--	ND	--
	6/21/99	34.0	15.0	9.0	1.0	9.0	16.0	1.0	--	--	--	--	--	NT	15
	12/12/99	87.1	35.0	11.2	7.0	33.9	43.5	6.0	--	--	1,720	ND	ND	ND	ND
	6/26/00	58.8	24.4	9.0	4.8	20.6	66.2	NT	--	--	4,170	ND	ND	ND	0.014
	12/5/00	65.8	21.1	16.6	7.1	21.0	11.8	4.0	--	--	--	--	--	ND	ND
	6/7/01	63.3	16.6	11.2	3.2	32.3	35.4	6.5	ND	ND	1,770	ND	ND	ND	0.006
DW-8	3/25/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	--
	6/22/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	--
	6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	<1.0	4

TABLE 1
SUMMARY OF
CHEMICAL ANALYSIS
EXXON RETAIL LOCATION 4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA

MONITOR WELL ID	DATE	Volatile Organic Compounds (ug/l) TOTAL BTEX	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	MTBE	IPE	1,2 Dichloro-ethane	1,1 Dichloro-ethane	VPH (ug/l) C5-C8 aliphatics	VPH (ug/l) C9-C12 aliphatics	VPH (ug/l) C9-C110 aromatics	METHOD 504.1 EDB (ug/l)	METHOD 3030C LEAD (ug/l)
	6/14/95	2	<1	1	<1	1	<10	<10	--	--	--	--	--	--	--
	9/18/95	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	--	--	--	--	--	--	--
	12/16/97	14	2	6	<1.0	6	<1.0	<1.0	--	--	--	--	--	<0.02	5
	9/30/98	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	ND	ND
	12/22/98	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	ND	ND
	6/21/99	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	ND	11
	12/12/99	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	ND	ND
	6/26/00	1.7	1.7	ND	ND	ND	ND	NT	--	--	ND	ND	ND	ND	ND
	12/5/00	ND	ND	ND	ND	ND	ND	NT	--	--	--	--	--	ND	ND
	6/7/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9	12/6/95	823	36	7	110	670	<10	38	--	--	--	--	--	--	--
	12/16/97	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	<0.02	5
	9/30/98	<1.0	8	70	45	307	ND	8	--	--	--	--	--	ND	ND
	12/22/98	124	5	ND	5	114	ND	15	--	--	--	--	--	ND	
	12/12/99	260	60	ND	3	197	8	70	--	--	460	660	860	ND	4
	12/12/99	143	16	ND	3	124	1	23	--	--	240	270	320	ND	ND
	12/5/00	9	ND	ND	ND	9	ND	2	--	--	--	--	--	ND	ND
	6/7/01	39	16.9	ND	1.50	20.7	ND	16.4	ND	ND	ND	137	ND	ND	ND
OP-1	12/16/97	561	320	10	57	174	45	10	--	--	--	--	--	<0.02	<3
	12/22/98	525	334	11	47	133	83	8	--	--	--	--	--	ND	--
MW-1A*	11/20/92	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	--	--	--	--
MW-Moore	11/13/95	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	--	--	--	--
MW-10	12/12/99	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	NT	NT
	6/26/00	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	NT	0.009
***	6/7/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-11	6/21/99	78	70	<1	<1	7	27	41	--	--	--	--	--	NT	NT
	12/12/99	4	3	ND	ND	2	7	18	--	--	ND	ND	ND	ND	6.0
	6/26/00	ND	ND	ND	ND	ND	4	9	--	--	ND	ND	ND	ND	0.007
	12/5/00	26	26	ND	ND	ND	18	23	--	--	--	--	--	ND	ND
***	6/7/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	6/21/99	45,930	7,980	13,000	3,650	21,300	280	4,710	--	--	--	--	--	NT	NT
	12/12/99	21,610	2,570	8,380	1,610	9,050	230	1,560	--	--	422,000	17,700	6,800	0.17	ND
	6/26/00	12,600	1,410	4,200	990	6,000	130	760	--	--	25,600	12,000	4,010	ND	0.012
	12/5/00	10,740	1,180	3,800	1,020	4,740	75	565	--	--	--	--	--	ND	ND
	6/7/01	14,140	1,150	4,370	1,360	7,260	130	730	ND	ND	11,800	10,700	2,590	ND	0.004
Mw-13	6/21/99	9,340	3,680	940	760	3,960	<100	1,100	--	--	--	--	--	NT	NT
	12/12/99	NT	NT	NT	NT	NT	NT	NT	--	--	NT	NT	NT	NT	NT
	6/26/00	6,110	3,300	56	154	2,600	66	NT	--	--	14,900	5,010	1,530	2.11	NT
	12/5/00	4,940	2,220	105	285	2,330	ND	775	--	--	--	--	--	2.09	0.005
***	6/7/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2L STANDARD			1	1,000	29	530	200	70	0.38	0.7	420	4200	4200	0.0004	15
GCL's			5,000	257,500	29,000	87,500	200,000	70,000	380	1,560	No GCL	No GCL	No GCL	50	15000

***** well dry after purging-no recharge-not sampled**

ATTACHMENT A

North Carolina - Department of Environment and Natural Resources - Division of Water Quality - Groundwater Section
1636 Mail Service Center - Raleigh,N.C. 27699-1636-Phone (919) 733-3221

WELL CONSTRUCTION RECORD

DRILLING CONTRACTOR: SAEDACCO
DRILLER REGISTRATION #: 2675
STATE WELL CONSTRUCTION PERMIT#:

1. WELL USE (Check Applicable Box): Residential ☐ Municipal ☐ Industrial ☐ Agricultural ☐ Monitoring ☒
Recovery ☐ Heat Pump Water Injection ☐ Other ☐ If Other, List Use:

2. WELL LOCATION: (Show sketch of the location below)
Nearest Town: GREENSBORO County: GUILFORD
(Road, Community, or Subdivision and Lot No.)

3. OWNER EXXON
ADDRESS 7701 W. MARKET ST.
(Street or Route No.)
GREENSBORO N.C.
City or Town State Zip Code

4. DATE DRILLED 9-21-01
5. TOTAL DEPTH 45'
6. CUTTINGS COLLECTED YES ☐ NO ☒
7. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
8. STATIC WATER LEVEL Below Top of Casing: _____ FT.
(Use "+" if Above Top of Casing)
9. TOP OF CASING IS 0 FT. Above Land Surface*
* Casing Terminated at/or below land surface is illegal unless a variance is issued in accordance with 15A NCAC 2C .0118
10. YIELD (gpm): _____ METHOD OF TEST _____
11. WATER ZONES (depth): _____
12. CHLORINATION: Type _____ Amount _____

DEPTH From	DEPTH To	DRILLING LOG Formation Description
0	45'	TN SILTY SAND

If additional space is needed use back of form

13. CASING:

	Depth From	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
	0	15'	6"	SCH40	PVC

14. GROUT:

	Depth From	Depth To	Material	Method
	0	11'	PORTLAND	POUR

15. SCREEN:

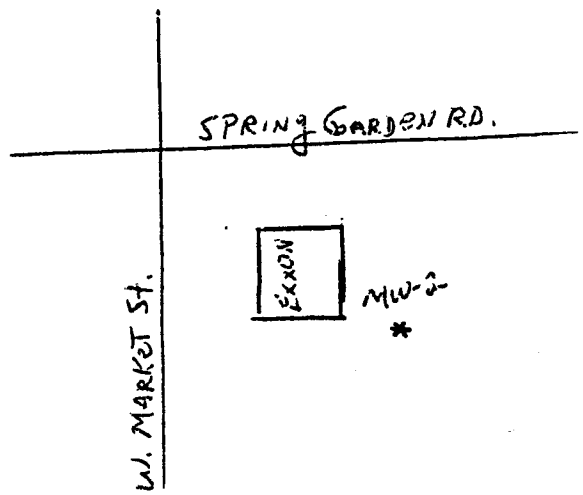
	Depth From	Depth To	Diameter	Slot Size	Material
	15'	45'	6"	.001	PVC

16. SAND/GRAVEL PACK:

	Depth From	Depth To	Size	Material
	13'	45'	6/20	SILICA SAND

17. REMARKS: 2' BENTONITE CHIPS 11' TO 13'

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)



I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

9-21-01
SIGNATURE OF CONTRACTOR OR AGENT DATE
Submit original to Division of Water Quality and copy to well owner.

GW-1 REV. 8/99

ATTACHMENT B

AGGRESSIVE FLUID VAPOR RECOVERY EVENT

SITE NAME: **EXXON 4-3998**
IDENTIFY THE WELL AND THE I.D. OF EACH WELL USED FOR AFVR: **MW-2**

PROVIDE BLOWER SPECIFICATIONS OF THE VACUUM TRUCK (cfm @ in Hg): 600
Total Gallons Pumped = 1944

DRY STANDARD CUBIC FEET PER MINUTE (DSCFM) AIR FLOW CALCULATIONS (Qstd)

Date	Time	Vacuum (inches of Hg)	Velocity (ft/min)	Pipe ID (in)	Temp (°F)	Rel Humid (%)	Water Vapor (Wt%)	Water Vapor (Vol%)	Q_{std} (flow)
9/24/01	12:00	26.0	2960	6	190	17	0.065	0.094	428
9/24/01	1:00	26.5	3320	6	200	19	0.098	0.136	451
9/24/01	2:00	26.5	3350	6	200	12	0.06	0.088	480
9/24/01	3:00	26.0	3220	6	200	6	0.03	0.046	483
9/24/01	4:00	26.0	3210	6	200	6	0.03	0.046	481
9/24/01	5:00	26.0	3190	6	200	6	0.03	0.046	478
9/24/01	6:00	26.0	3170	6	200	6	0.03	0.046	475
9/24/01	7:00	25.5	3300	6	195	8	0.031	0.047	498
9/24/01	8:00	25.5	3280	6	195	5	0.021	0.033	502
9/24/01	9:00	25.5	3220	6	195	9	0.036	0.055	482
9/25/01	12:30	25.5	3210	6	195	5	0.021	0.033	492
9/25/01	3:00	25.5	3260	6	195	4	0.017	0.027	502
9/25/01	4:00	25.5	3190	6	195	4	0.017	0.027	492
9/25/01	6:00	25.5	3110	6	200	5	0.026	0.040	469
9/25/01	7:00	25.5	3180	6	200	5	0.026	0.040	480
9/25/01	8:00	25.5	3320	6	200	5	0.026	0.040	501
9/25/01	9:00	25.5	3480	6	200	6	0.03	0.046	522
9/25/01	10:00	25.5	3460	6	200	6	0.03	0.046	519
9/25/01	11:00	26.0	3480	6	200	6	0.03	0.046	522
9/25/01	12:00	26.0	3180	6	200	1	0.005	0.008	496

NOTES
Qstd = Flow at DSCFM
Vacuum = The level of vacuum being applied should be recorded from the vacuum truck tank (inches of Hg)
Velocity = The rate at which air flows is measured at the blower discharge piping (anemometer or pitot tube)
Pipe ID = The inside diameter of the blower discharge piping (from the vacuum truck)
Temperature = The temperature of the air stream exiting the blower discharge piping (dry bulb temp., in deg.°F)
Relative humidity = The % relative humidity of the air stream exiting the blower discharge piping
B_{wsw} = water vapor % by weight, i.e., pounds of water per pound of dry air, derived from the Psychrometric chart (temp Vs relative humidity)
B_{ws} = water vapor % by volume ; When exhaust vapor stream temperatutes >250 deg F, water vapor % by volume assumed to be zero. Psychometric charts do not exceed 250 deg F.

EQUATIONS
B_{ws} = (B_{wsw}/18 lb-mole H_2O)/[(1/28.84 lb-mole dry air) + (B_{wsw}/18 lb-mole H_2O)]
Q_{std} = (1-Water Vapor) * velocity * (PI * (diameter/24)^2) * (528°R/(Temp + 460))

EMISSION CALCULATIONS

Time Recorded	Elapsed Time (min)	Flow (DSCFM)	$PPM_{measured}$ (ppm)	PPM_{wet}	PPM_{dry}	K (#C - gas)	PPM_{conc}	$C_{c:m}$ (mg/dsm^3)	C_c (lb/dscf)	PMR_c (lb/hr)	PMR_g (lb/hr)	PMR (lb)
12:00 PM	0	Start of Test										
12:00	0	428	860	860	950	5	4748	2369	0.0001479			0
1:00	100	451	800	800	926	5	4628	2309	0.00014417	4.00	4.63	0.00
2:00	200	480	600	600	658	5	3288	1641	0.00010243	4.15	4.81	8.01
3:00	300	483	800	800	838	5	4192	2092	0.00013059	2.97	3.43	5.72
4:00	400	481	800	800	838	5	4192	2092	0.00013059	3.77	4.36	7.27
5:00	500	478	1000	1000	1048	5	5240	2615	0.00016324	3.75	4.34	7.23
6:00	600	475	800	800	838	5	4192	2092	0.00013059	4.65	5.39	8.98
7:00	700	498	800	800	840	5	4199	2095	0.00013079	3.90	4.51	7.52
8:00	800	502	800	800	827	5	4135	2063	0.00012879	3.94	4.56	7.60
9:00	900	482	800	800	846	5	4231	2111	0.00013179	3.72	4.31	7.18
12:30	1230	492	800	800	827	5	4135	2063	0.00012879	3.89	4.50	7.50
3:00	1460	502	800	800	822	5	4109	2050	0.00012799	3.88	4.49	24.71
4:00	1560	492	1000	1000	1027	5	5136	2563	0.00015999	3.77	4.37	16.75
6:00	1760	469	600	600	625	5	3125	1559	9.7343E-05	4.50	5.21	8.68
7:00	1860	480	600	600	625	5	3125	1559	9.7343E-05	2.80	3.24	10.80
8:00	1960	501	800	800	833	5	4167	2079	0.00012979	2.92	3.38	5.64
9:00	2060	522	800	800	838	5	4192	2092	0.00013059	4.06	4.70	7.83
10:00	2160	519	800	800	838	5	4192	2092	0.00013059	4.06	4.70	7.84
11:00	2260	522	800	800	838	5	4192	2092	0.00013059	4.09	4.73	7.88
12:00	2360	496	800	800	806	5	4032	2012	0.0001256	3.88	4.49	7.49

Total emissions in pounds **83.70**

Total emissions in gallons **13.39**

NOTES

$PPM_{measured}$ = Actual measurements (ppm) taken with a OVA or TVA at the blower discharge piping

PPM_{wet} = "wet" concentration

PPM_{dry} = "dry" concentration

K = Number of carbons in calibration gas: (Methane K = 1, or Propane K = 3, or Hexane K = 6)

PPM_c= PPM_v, Volumetric concentration of VOC emissions as carbon, dry basis at STP

$C_{c:m}$ = mg/dsm^3, mass concentration of VOC emissions as carbon

M_c = 12.01 mg/mg-mole, molecular weight of carbon

K_3 = 24.07 dsm^3/10^6 mg-mole, mass to volume conversion factor at STP

C_c = lb/dcsf, mass concentration of VOC emissions as carbon, dry basis at STP

PMR_c = lb/hr, pollutant mass removal rate of VOC's as carbon

PMR_g = lb/hr, pollutant mass removal rate of of VOC's as gasoline

PMR = lb, pollutant mass removal of VOC's as gasoline

EQUATIONS

$PPM_{wet} = PPM_{measured}$

$PPM_{dry} = (PPM_{wet})/(1-B_{ws})$

$PPM_c = (PPM_d)(K)$

$C_{c:m} = (PPM_c)(M_c / K_3)$

$C_c = (C_{c:m})(62.43x10^{-9}$ lb-m^3/mg-ft$^3)$

$PMR_c = (C_c)(Q_{std})(60$ min/hr)

$PMR_g = (PMR_c)(M_g/M_{cg})$

PMR = (PMR_g)(#minutes/60)

Four Seasons Environmental

8458

P.O. Box 16590 • Greensboro, NC 27416-0590 • (336) 273-2718

MATERIAL MANIFEST

MANIFEST# 8458 F.S.E. JOB # 111066 VEX

Date: 9-24-01

Generator: Exxon #413998
4701 W. Market St.
Greensboro N.C

Phone No:

EPA ID No:

Process which generated material:

I certify that the materials described below are properly classified, packaged, marked & labeled, and are in the proper condition to be transported as specified by the Department of Transportation. I certify that the material described below is not a hazardous waste in accordance with the Environmental Protection Agency. I certify that the specific material was delivered to the carrier named below for transport to the facility indicated.

Date 9-25-01 Signature [signature]

HM	PROPER SHIPPING NAME AS LISTED ON 172.101 TABLE	HAZ CLASS	DOT I.D. NUMBER	PG GROUP	QUANTITY	CIRCLE UNIT	CONTAINER NO.	CONTAINER TYPE	ERG. NO.
X	Gasoline	3	UN 1203	I II III	41 11 / 1944	Gals. Pounds Tons Cu. Yds.	1	TT DT CM DM DF	128

FOUR SEASONS ENVIRONMENTAL USE ONLY

DESCRIPTION OF MATERIAL	CONTAINER	NUMBER	CIRCLE FORM	AMOUNT SOLIDS GALLONS	AMOUNT SOLIDS TONS	AMOUNT LIQUIDS NO. DRUMS	AMOUNT LIQUIDS GALLONS
Gas + water mix			SOLID LIQUID SLUDGE				

FACILITY USE ONLY

Transporter: Four Seasons Environmental, Inc.
3107 S. Elm-Eugene Street
Greensboro, NC 27406

Unit Number (s) 95 PC 1

Phone No.: (336) 273-2718

EPA ID No: NCD991277752

Vehicle License Tag Number (s) LF-1911 N.C.

Container: High VAC

Transporter Certification:

I certify that the specified material was transferred in a registered (licensed) vehicle to the facility named and was accepted.

Pick-up Driver's Signature Michael Parks Date 9-25-01

Delivering Driver's Signature Michael Parks Date 9-25-01

Facility: Four Seasons Environmental, Inc.
619 Patton Avenue
Greensboro, NC 27406

Phone No.: (336) 273-2718

Contact: [illegible]

Handling Method:

Facility Certification:

I certify that the transporter above delivered the specified material to this facility and was handled [illegible] handling [illegible] authorized and qualified by the State of [illegible] to handle.

Date: Signature:

FOUR SEASONS® ENVIRONMENTAL

Service Coding Sheet

Day # 1

Client: Exxon 43998

Billing Address:

Job Location: 4701 W. Market St.

Job #: 111066 VEX

P.O.#: 21044118

Date: 9-24-01 Mon.

Prepared By: Michael Parks

Contact:

Phone:

TIME & MATERIAL ☐ UNIT PRICE ☐

PERSONNEL

CODE	Reg-Hrs	O.T.-Hrs.	Name	CODE	Reg-Hrs	O.T.-Hrs.	Name
P1-12	4.5	8	M. Parks				8

TRANSPORTATION

CODE	Quantity	Miles	Trans-Unit	CODE	Quantity	Miles	Trans-Unit
TR-02		8	95P019				

EQUIPMENT

CODE	Hours	Equipment Units	CODE	Hours	Equipment Units

MATERIALS

CODE	Quantity	Materials / Supplies	CODE	Quantity	Materials / Supplies

man #8458

OTHER

CODE	Qty/Hrs	Other Descriptions	CODE	Qty/Hrs	Other Descriptions

Four Seasons® Environmental

Service Coding Sheet

Day # 2

Client: Exxon-Mobil # 43998

Billing Address:

Job Location: Greensboro N.C

Job #: 111066 VEI

P.O.#: 21044118

Date: 9-25-01 Tue

Prepared By: Michael Parks

Contact:

Phone:

TIME & MATERIAL ☐ UNIT PRICE ☐

PERSONNEL

CODE	Reg-Hrs	O.T.-Hrs.	Name	CODE	Reg-Hrs	O.T.-Hrs.	Name
PI-12	8		M. Parks				

TRANSPORTATION

CODE	Quantity	Miles	Trans-Unit	CODE	Quantity	Miles	Trans-Unit
TR-02			95P019				

EQUIPMENT

CODE	Hours	Equipment Units	CODE	Hours	Equipment Units

MATERIALS

CODE	Quantity	Materials / Supplies	CODE	Quantity	Materials / Supplies

Manifest # 8458

OTHER

CODE	Qty/Hrs	Other Descriptions	CODE	Qty/Hrs	Other Descriptions

ATTACHMENT C

SPECIALIZED ASSAYS ENVIRONMENTAL
2960 Foster Creighton Dr.
Nashville, Tennessee 37204

254354

1-800-765-0980
615-726-0177
Fax: 615-726-3404

EXXON COMPANY USA

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUESTED

LWR #: 21011703

Name: PIEDMONT INDUSTRIAL SERVICES BEST
Phone: 336 767 7522
Fax: NO FAX

Address: P.O. BOX 5081
WINSTON SALEM, NC 27103

Client Project # 4-3998
Name: EXXON

Project Mgr: Tom Lennon
Exxon Env. Work Release: 19900714

Exxon Contact: FRANK MEDLIN
[circle one] EE or C&M Phone: (704) 529-4263

RAS #: 4-3998
Site Address: 4701 W. Market St. Greensboro
State ID #:

Cooler Seal
Seal Intact
Consultant Receipt
yes no Initial
Laboratory Receipt
yes no Initial

Air Bill # 828083149141
1 # of coolers
Sample Temperature ___ [*C] upon receipt

Sampled by [please print]
Ship Date: 9-26-01 Alan Duke
Sampler Signature: [signature]

TAT REQUESTED 24hr 48hr 72hr other _____ day Exxon Std TAT

FIELD SAMPLE ID	SAE LAB # [for lab use only]	# CONT	Matrix: WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	Method Preserved: HCL	HNO3	H2SO4	ICE	NON-PRES	OTHER SPECIFY	Sampling: DATE	TIME	BTEX 602 ☒ 8020 ☐	MTBE ☐	EDB METHOD	PETROLEUM HYDROCARBONS, GC, 8015 GAS ☐ DIESEL ☐	TRPH/OIL AND GREASE 418.1 ☐ 9070 ☐ 9071 ☐ 413.1 ☐ 413.2 ☐	PURGEABLE HALOCARBONS 601 ☐ 8010 ☐ 8021 ☐	PURGEABLE AROMATICS 602 ☐ 8020 ☐ 8021 ☐	PCB's ☐	VOLATILE ORGANICS 624 ☐ 8240 TCL ☐ 8260 ☐	EXTRACTABLE ORGANICS 625 ☐ 8270 TCL ☐	PAH's 610 ☐ 8310 ☐ 8100 ☐ 8270 ☐	TCLP METALS ☐ VOA's ☐ BNA's ☐ P/H ☐ TOTAL ☐	METALS RCRA ☐ PP ☐ TAL ☐	LEAD 238.2 ☐ 200.7 ☐ 6010 ☐ 7421 ☐	CORROSIVITY ☐ REACTIVITY ☐	FP OPEN CUP ☐ CLOSED CUP ☐	OTHER: 601, 602 ☒ IPE ☒ MTBE ☒ Xylenes	EDB 504.1	MADEP VPH	Lead 3030C
MW-2	135995	6	X						X	X					9-26-01	1045																	X	X	X	X
Trip Blank	135996																X																			

SPECIAL DETECTION LIMITS:

REPORTING LIMITS:

CLIENT REMARKS:

STORAGE LOCATION:

	DATE	TIME
Relinquished by Sampler: [signature]	9-26-01	1630
Company / Affiliation: P.I.S.		
Received by:		
Received by: [signature]	9-27-01	9:00
Relinquished by:		
Company / Affiliation:		

TestAmerica
INCORPORATED

ANALYTICAL REPORT

PIEDMONT INDUSTRIAL SERVICES 8259
TOM LENNON
P.O. BOX 5061
WINSTON SALEM, NC 27103

Project: 4-3998
Project Name: EXXON 4-3998
Matrix: Water
Received condition: Good
Sampler: ALAN DUKE

Lab Number: 01-A135995
Sample ID: MW-2
Sample Type: Water
Site ID:

Date Collected: 9/26/01
Time Collected: 10:45
Date Received: 9/27/01
Preservative: HCl
Temperature: 2.0 degrees C
Time Received: 9:00

VPH Initial Calibration Date: 9/21/01

Range	MDL	ML	Report Limit (ug/l)
C5-C8 Aliphatics	20	64	100
C9-C12 Aliphatics	8	25	100
C9-C10 Aromatics	8	25	100

Calibrataion Range	Level (ug/l)	CCC
C5-C8 Aliphatics	75	
	150	
	300	
	600	
	1125	0.991
C9-C12 Aliphatics	55	
	110	
	220	
	440	
	825	0.999
C9-C10 Aromatics	10	
	20	
	40	
	80	
	100	0.998

Continuing Calibration Check Date: 9/28/01

Range	Level (ug/l)	%D

Sample report continued . . .

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Laboratory Number: 01-A135995
Sample ID: MW-2
Project: 4-3998
Page 2

C5-C8 Aliphatics	300	23.2
C9-C12 Aliphatics	220	3.6
C9-C10 Aromatics	40	14.6

Sample report continued . . .

TestAmerica
INCORPORATED

ANALYTICAL REPORT

PIEDMONT INDUSTRIAL SERVICES 8259
TOM LENNON
P.O. BOX 5061
WINSTON SALEM, NC 27103

Project: 4-3998
Project Name: EXXON 4-3998
Matrix: Water
Received condition: Good
Sampler: ALAN DUKE

Lab Number: 01-A135995
Sample ID: MW-2
Sample Type: Water
Site ID:

Date Collected: 9/26/01
Time Collected: 10:45
Date Received: 9/27/01
Preservative: HCl
Temperature: 2.0 degrees C
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
VPH C5-C8 Aliphatics	24600	ug/l	10000	100.	100.	9/28/01	14:10	S. Davis	VPH-98-1	8343
VPH C9-C12 Aliphatics	9130	ug/l	10000	100.	100.	9/28/01	14:10	S. Davis	VPH-98-1	8343
VPH C9-C10 Aromatics	ND	ug/l	10000	100.	100.	9/28/01	14:10	S. Davis	VPH-98-1	8343
ORGANIC PARAMETERS										
Benzene	3530	ug/l	50.0	1.00	50	9/28/01	14:41	D.Ramey	602	9110
Toluene	7280	ug/l	50.0	1.00	50	9/28/01	14:41	D.Ramey	602	9110
Ethylbenzene	1380	ug/l	50.0	1.00	50	9/28/01	14:41	D.Ramey	602	9110
Xylenes, total	5680	ug/l	50.0	1.00	50	9/28/01	14:41	D.Ramey	602	9110
Methyl-t-butylether	ND	ug/l	50.0	1.00	50	9/28/01	14:41	D.Ramey	602	9110
Isopropyl ether	1860	ug/l	50.0	1.00	50	9/28/01	14:41	D.Ramey	602	9110
VOLATILE ORGANICS by GC										
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Chlorobenzene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	602/601	9239
1,2-Dichlorobenzene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	602/601	9239
1,3-Dichlorobenzene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	602/601	9239
1,4-Dichlorobenzene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	602/601	9239
Bromodichloromethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Bromoform	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Bromomethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Carbon tetrachloride	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Chloroethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
2-Chloroethylvinylether	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Chloroform	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Chloromethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239

Sample report continued . . .

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Laboratory Number: 01-A135995
Sample ID: MW-2
Project: 4-3998

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
Dibromochloromethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Vinyl chloride	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Dichlorodifluoromethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
1,1-Dichloroethane	2.8	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
1,2-Dichloroethane	4.1	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
1,1-Dichloroethene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
cis-1,2-Dichloroethene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
trans-1,2-Dichloroethene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
1,2-Dichloropropane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
cis-1,3-Dichloropropene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
trans-1,3-Dichloropropene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Methylene chloride	ND	ug/l	5.0	5.0	1	9/28/01	5:35	CHollingsw	601	9239
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Tetrachloroethene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
1,1,1-Trichloroethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
1,1,2-Trichloroethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Trichloroethene	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Trichlorofluoromethane	ND	ug/l	1.0	1.0	1	9/28/01	5:35	CHollingsw	601	9239
Ethylene Dibromide	0.48	ug/l	0.02	0.02	1	9/29/01	4:11	Henderson	504.1	9227
METALS										
Lead	ND	ug/L	3.00	3.00	1	9/28/01	9:40	G.McCord	3030c	9884

ND - Not detected at the report limit.

Surrogate	% Recovery	Target Range
BTEX/GRO Surr., a,a,a-TFT	92.	67. - 135.
PID Surr., a,a,a-trifluorotoluene	76.	50. - 150.
VPH Surr., PID	114.	70. - 130.
VPH surr., FID	122.	70. - 130.
Hall Surr., 2-chloropropane	98.	50. - 128.
Hall Surr., chloroprene	86.	55. - 123.
Hall Surr., 1-chloro-3-fluorobenzene	106.	49. - 132.

Sample report continued . . .

TestAmerica
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ANALYTICAL REPORT

Laboratory Number: 01-A135995
Sample ID: MW-2
Project: 4-3998

- Recovery outside Laboratory historical or method prescribed limits.

Unadjusted hydrocarbon range data exclude concentrations of any surrogate and internal standards eluting in that range.

CERTIFICATION

All QA/QC procedures REQUIRED by the VPH/EPH method(s) were followed unless otherwise noted.
All performance/acceptance standards for required QA/QC procedures were achieved unless otherwise noted.
No significant modifications as per section 11.3 have been made to the methods.
I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

These results relate only to the items tested.
This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By: _____ Report Date: 9/29/01

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

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ANALYTICAL REPORT

PIEDMONT INDUSTRIAL SERVICES 8259
TOM LENNON
P.O. BOX 5061
WINSTON SALEM, NC 27103

Project: 4-3998
Project Name: EXXON 4-3998
Sampler: ALAN DUKE

Lab Number: 01-A135996
Sample ID: TRIP BLANK
Sample Type: Water
Site ID:

Date Collected:
Time Collected:
Date Received: 9/27/01
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
Benzene	ND	ug/l	1.00	1.00	1	9/28/01	15:12	D.Ramey	602	9110
Toluene	2.50	ug/l	1.00	1.00	1	9/28/01	15:12	D.Ramey	602	9110
Ethylbenzene	ND	ug/l	1.00	1.00	1	9/28/01	15:12	D.Ramey	602	9110
Xylenes, total	1.70	ug/l	1.00	1.00	1	9/28/01	15:12	D.Ramey	602	9110

ND - Not detected at the report limit.

Surrogate	% Recovery	Target Range
BTEX/GRO Surr., a,a,a-TFT	104.	67. - 135.

- Recovery outside Laboratory historical or method prescribed limits.

Sample report continued . . .

TestAmerica
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ANALYTICAL REPORT

Laboratory Number: 01-A135996
Sample ID: TRIP BLANK
Project: 4-3998

These results relate only to the items tested.
This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By: _____ Report Date: 9/29/01

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
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Gail A. Lage, Technical Serv.
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Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

2960 Foster Creighton Drive / Nashville,TN 37204 / 615-726-0177 / Fax: 615-726-0954 / 800-765-0980

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
UST ANALYSIS								
Benzene	mg/l	< 0.00065	0.05080	0.05000	102	39. - 150.	9110	BLANK
Toluene	mg/l	< 0.00061	0.05230	0.05000	105	46. - 148.	9110	BLANK
Ethylbenzene	mg/l	< 0.00073	0.05480	0.05000	110	32. - 160.	9110	BLANK
Xylenes, total	mg/l	< 0.0010	0.0990	0.1000	99	77. - 129.	9110	BLANK
VPH C5-C8 Aliphatics	mg/l	< 0.100	0.154	0.120	128	70. - 130.	8343	blank
VPH C5-C8 Aliphatics	mg/l	< 0.100	0.152	0.120	127	70. - 130.	8343	blank
VPH C9-C12 Aliphatics	mg/l	< 0.100	0.130	0.120	108	70. - 130.	8343	blank
VPH C9-C12 Aliphatics	mg/l	< 0.100	0.125	0.120	104	70. - 130.	8343	blank
VPH C9-C10 Aromatics	mg/l	< 0.100	2.24	2.00	112	70. - 130.	8343	blank
VPH C9-C10 Aromatics	mg/l	< 0.100	2.59	2.00	130	70. - 130.	8343	blank
Methyl-t-butylether	mg/l	< 0.00074	0.04720	0.05000	94	66. - 132.	9110	BLANK
Isopropyl ether	mg/l	< 0.00095	0.0497	0.0500	99	72. - 132.	9110	BLANK
BTEX/GRO Surr., a,a,a-TFT	% Recovery				102	67. - 135.	9110	

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
VOA PARAMETERS								
Chlorobenzene	mg/l	< 0.0010	0.0301	0.0200	150#	55. - 135.	9239	01-A135746
1,2-Dichlorobenzene	mg/l	< 0.0010	0.0201	0.0200	100	37. - 154.	9239	01-A135746
1,3-Dichlorobenzene	mg/l	< 0.0010	0.0203	0.0200	102	50. - 141.	9239	01-A135746
1,4-Dichlorobenzene	mg/l	< 0.0010	0.0178	0.0200	89	42. - 143.	9239	01-A135746
Bromodichloromethane	mg/l	< 0.0010	0.0292	0.0200	146	42. - 172.	9239	01-A135746
Bromoform	mg/l	< 0.0010	0.0182	0.0200	91	13. - 159.	9239	01-A135746
Bromomethane	mg/l	< 0.0010	0.0201	0.0200	100	10. - 144.	9239	01-A135746
Carbon tetrachloride	mg/l	< 0.0010	0.0192	0.0200	96	43. - 143.	9239	01-A135746
Chloroethane	mg/l	< 0.0010	0.0196	0.0200	98	46. - 137.	9239	01-A135746
2-Chloroethylvinylether	mg/l	< 0.0010	0.0031	0.0200	16	14. - 186.	9239	01-A135746
Chloroform	mg/l	< 0.0010	0.0212	0.0200	106	49. - 133.	9239	01-A135746

Project QC continued . . .

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
Chloromethane	mg/l	< 0.0010	0.0196	0.0200	98	10. - 193.	9239	01-A135746
Dibromochloromethane	mg/l	< 0.0010	0.0192	0.0200	96	24. - 191.	9239	01-A135746
Vinyl chloride	mg/l	< 0.0010	0.0216	0.0200	108	28. - 163.	9239	01-A135746
1,1-Dichloroethane	mg/l	< 0.0010	0.0223	0.0200	112	47. - 132.	9239	01-A135746
1,2-Dichloroethane	mg/l	< 0.0010	0.0189	0.0200	94	51. - 147.	9239	01-A135746
1,1-Dichloroethene	mg/l	< 0.0010	0.0204	0.0200	102	28. - 167.	9239	01-A135746
cis-1,2-Dichloroethene	mg/l	< 0.0010	0.0212	0.0200	106	76. - 123.	9239	01-A135746
trans-1,2-Dichloroethene	mg/l	< 0.0010	0.0217	0.0200	108	38. - 155.	9239	01-A135746
1,2-Dichloropropane	mg/l	< 0.0010	0.0205	0.0200	102	44. - 156.	9239	01-A135746
cis-1,3-Dichloropropene	mg/l	< 0.0010	0.0193	0.0200	96	22. - 178.	9239	01-A135746
trans-1,3-Dichloropropene	mg/l	< 0.0010	0.0205	0.0200	102	22. - 178.	9239	01-A135746
Methylene chloride	mg/l	< 0.0050	0.0200	0.0200	100	25. - 162.	9239	01-A135746
1,1,2,2-Tetrachloroethane	mg/l	< 0.0010	0.0197	0.0200	98	8. - 184.	9239	01-A135746
Tetrachloroethene	mg/l	< 0.0010	0.0268	0.0200	134	26. - 162.	9239	01-A135746
1,1,1-Trichloroethane	mg/l	< 0.0010	0.0244	0.0200	122	41. - 138.	9239	01-A135746
1,1,2-Trichloroethane	mg/l	< 0.0010	0.0224	0.0200	112	39. - 136.	9239	01-A135746
Trichloroethene	mg/l	< 0.0010	0.0231	0.0200	116	35. - 146.	9239	01-A135746
Trichlorofluoromethane	mg/l	< 0.0010	0.0200	0.0200	100	21. - 156.	9239	01-A135746

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
METALS								
Lead	mg/l	< 0.0030	0.0550	0.0500	110	80 - 120	9884	01-A134535

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
MISC PARAMETERS								

Project QC continued . . .

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Matrix Spike Recovery

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Q.C. Batch	Spike Sample
Ethylene Dibromide	mg/l	< 0.00002	0.00030	0.00029	103	40 - 140	9227	blank

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
UST PARAMETERS						
VPH C5-C8 Aliphatics	mg/l	0.154	0.152	1.31	50.	8343
VPH C9-C12 Aliphatics	mg/l	0.130	0.125	3.92	50.	8343
VPH C9-C10 Aromatics	mg/l	2.24	2.59	14.49	50.	8343

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch
MISC PARAMETERS						
Ethylene Dibromide	mg/l	0.00030	0.00030	0.00	50	9227

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
UST PARAMETERS						
Benzene	mg/l	0.1000	0.09060	91	39 - 150	9110
Toluene	mg/l	0.1000	0.09250	92	46 - 148	9110
Ethylbenzene	mg/l	0.1000	0.09680	97	32 - 160	9110
Xylenes, total	mg/l	0.2000	0.1740	87	81 - 124	9110
VPH C5-C8 Aliphatics	mg/l	0.300	0.370	123	70 - 130	8343
VPH C9-C12 Aliphatics	mg/l	0.300	0.311	104	70 - 130	8343
VPH C9-C10 Aromatics	mg/l	5.00	5.73	115	70 - 130	8343
Methyl-t-butylether	mg/l	0.1000	0.08380	84	74 - 125	9110

Project QC continued . . .

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
Isopropyl ether	mg/l	0.100	0.0892	89	75 - 130	9110
BTEX/GRO Surr., a,a,a-TFT	% Recovery			96	67 - 135	9110

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
VOA PARAMETERS						
Chlorobenzene	mg/l	0.0200	0.0199	100	55 - 135	9239
1,2-Dichlorobenzene	mg/l	0.0200	0.0248	124	37 - 154	9239
1,3-Dichlorobenzene	mg/l	0.0200	0.0243	122	50 - 141	9239
1,4-Dichlorobenzene	mg/l	0.0200	0.0245	122	42 - 143	9239
Bromodichloromethane	mg/l	0.0200	0.0271	136	42 - 172	9239
Bromoform	mg/l	0.0200	0.0241	120	13 - 159	9239
Bromomethane	mg/l	0.0200	0.0198	99	10 - 144	9239
Carbon tetrachloride	mg/l	0.0200	0.0229	114	43 - 143	9239
Chloroethane	mg/l	0.0200	0.0208	104	46 - 137	9239
2-Chloroethylvinylether	mg/l	0.0200	0.0179	90	14 - 186	9239
Chloroform	mg/l	0.0200	0.0218	109	49 - 133	9239
Chloromethane	mg/l	0.0200	0.0294	147	10 - 193	9239
Dibromochloromethane	mg/l	0.0200	0.0193	96	24 - 191	9239
Ethylene Dibromide	mg/l	0.0200	0.0213	106	69 - 128	9239
Vinyl chloride	mg/l	0.0200	0.0218	109	28 - 163	9239
Dichlorodifluoromethane	mg/l	0.0200	0.0224	112	53 - 130	9239
1,1-Dichloroethane	mg/l	0.0200	0.0217	108	47 - 132	9239
1,2-Dichloroethane	mg/l	0.0200	0.0217	108	51 - 147	9239
1,1-Dichloroethene	mg/l	0.0200	0.0208	104	28 - 167	9239
cis-1,2-Dichloroethene	mg/l	0.0200	0.0198	99	69 - 142	9239
trans-1,2-Dichloroethene	mg/l	0.0200	0.0200	100	38 - 155	9239
1,2-Dichloropropane	mg/l	0.0200	0.0205	102	44 - 156	9239
cis-1,3-Dichloropropene	mg/l	0.0200	0.0196	98	22 - 178	9239
trans-1,3-Dichloropropene	mg/l	0.0200	0.0219	110	22 - 178	9239
Methylene chloride	mg/l	0.0200	0.0246	123	25 - 162	9239

Project QC continued . . .

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
1,1,2,2-Tetrachloroethane	mg/l	0.0200	0.0213	106	8 - 184	9239
Tetrachloroethene	mg/l	0.0200	0.0255	128	26 - 162	9239
1,1,1-Trichloroethane	mg/l	0.0200	0.0234	117	41 - 138	9239
1,1,2-Trichloroethane	mg/l	0.0200	0.0237	118	39 - 136	9239
Trichloroethene	mg/l	0.0200	0.0219	110	35 - 146	9239
Trichlorofluoromethane	mg/l	0.0200	0.0205	102	21 - 156	9239

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						
Lead	mg/l	0.0500	0.0550	110	80 - 120	9884

Continuing Calibration Verification

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	Q.C. Batch
METALS						

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
Benzene	< 0.00065	mg/l	9110	9/28/01	2:42
Toluene	< 0.00061	mg/l	9110	9/28/01	2:42
Ethylbenzene	< 0.00073	mg/l	9110	9/28/01	2:42
Xylenes, total	< 0.0010	mg/l	9110	9/28/01	2:42
VPH C5-C8 Aliphatics	< 0.100	mg/l	8343	9/27/01	20:13
VPH C9-C12 Aliphatics	< 0.100	mg/l	8343	9/27/01	20:13

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Analysis Date	Analysis Time
VPH C9-C10 Aromatics	< 0.100	mg/l	8343	9/27/01	20:13
Methyl-t-butylether	< 0.00074	mg/l	9110	9/28/01	2:42
Isopropyl ether	< 0.00095	mg/l	9110	9/28/01	2:42

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
UST PARAMETERS					
BTEX/GRO Surr., a,a,a-TFT	104.	% Recovery	9110	9/28/01	2:42
VPH Surr., PID	119.	% Recovery	8343	9/27/01	20:13
VPH surr., FID	106.	% Rec	8343	9/27/01	20:13

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
VOA PARAMETERS					
Chlorobenzene	< 0.0010	mg/l	9239	9/28/01	0:08
1,2-Dichlorobenzene	< 0.0010	mg/l	9239	9/28/01	0:08
1,3-Dichlorobenzene	< 0.0010	mg/l	9239	9/28/01	0:08
1,4-Dichlorobenzene	< 0.0010	mg/l	9239	9/28/01	0:08
Bromodichloromethane	< 0.0010	mg/l	9239	9/28/01	0:08
Bromoform	< 0.0010	mg/l	9239	9/28/01	0:08
Bromomethane	< 0.0010	mg/l	9239	9/28/01	0:08
Carbon tetrachloride	< 0.0010	mg/l	9239	9/28/01	0:08
Chloroethane	< 0.0010	mg/l	9239	9/28/01	0:08
2-Chloroethylvinylether	< 0.0010	mg/l	9239	9/28/01	0:08
Chloroform	< 0.0010	mg/l	9239	9/28/01	0:08
Chloromethane	< 0.0010	mg/l	9239	9/28/01	0:08
Dibromochloromethane	< 0.0010	mg/l	9239	9/28/01	0:08
Ethylene Dibromide	< 0.0010	mg/l	9239	9/28/01	0:08

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Analysis Date	Analysis Time
Vinyl chloride	< 0.0010	mg/l	9239	9/28/01	0:08
Dichlorodifluoromethane	< 0.0010	mg/l	9239	9/28/01	0:08
1,1-Dichloroethane	< 0.0010	mg/l	9239	9/28/01	0:08
1,2-Dichloroethane	< 0.0010	mg/l	9239	9/28/01	0:08
1,1-Dichloroethene	< 0.0010	mg/l	9239	9/28/01	0:08
cis-1,2-Dichloroethene	< 0.0010	mg/l	9239	9/28/01	0:08
trans-1,2-Dichloroethene	< 0.0010	mg/l	9239	9/28/01	0:08
1,2-Dichloropropane	< 0.0010	mg/l	9239	9/28/01	0:08
cis-1,3-Dichloropropene	< 0.0010	mg/l	9239	9/28/01	0:08
trans-1,3-Dichloropropene	< 0.0010	mg/l	9239	9/28/01	0:08
Methylene chloride	< 0.0050	mg/l	9239	9/28/01	0:08
1,1,2,2-Tetrachloroethane	< 0.0010	mg/l	9239	9/28/01	0:08
Tetrachloroethene	< 0.0010	mg/l	9239	9/28/01	0:08
1,1,1-Trichloroethane	< 0.0010	mg/l	9239	9/28/01	0:08
1,1,2-Trichloroethane	< 0.0010	mg/l	9239	9/28/01	0:08
Trichloroethene	< 0.0010	mg/l	9239	9/28/01	0:08
Trichlorofluoromethane	< 0.0010	mg/l	9239	9/28/01	0:08
Hall Surr., 2-chloropropane	101.	% Rec	9239	9/28/01	0:08
Hall Surr., chloroprene	91.	% Rec	9239	9/28/01	0:08
Hall Surr., 1-chloro-3-fluorobenzene	79.	% Rec	9239	9/28/01	0:08
PID Surr., a,a,a-trifluorotoluene	91.	% Recovery	9239	9/28/01	0:08

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
METALS					
Lead	< 0.0030	mg/l	9884	9/28/01	9:40

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PROJECT QUALITY CONTROL DATA
Project Number: 4-3998

Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed
MISC PARAMETERS					
Ethylene Dibromide	< 0.00002	mg/l	9227	9/29/01	0:58

- Value outside Laboratory historical or method prescribed QC limits.

End of Report for Project 254354