

**QUARTERLY GROUNDWATER MONITORING REPORT**

**Prepared for**

**BLACK & DECKER (U.S.) INC.  
Hampstead, Maryland**

**JANUARY 1999**

**Prepared by**

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**SECTION 1**  
**INTRODUCTION**

This Groundwater Monitoring Report has been prepared to meet the requirements of Condition IV.G of the Administrative Consent Order between the State of Maryland Department of the Environment (MDE) and Black & Decker (U.S.) Inc. (April 1995) (Consent Order). Specifically, Condition IV.G calls for preparation of a Groundwater Monitoring Report containing the following information for each reporting period: the quantities of groundwater pumped, treated, and discharged; the calculation of quantities of contaminants removed from groundwater; a summary of all sampling analyses; an explanation of all operational or other problems encountered, and the manner in which each problem was resolved; copies of all reports submitted to the Department of Natural Resources in conjunction with the Groundwater Appropriations Permit; and recommendations for changes to the Interim Groundwater Treatment System. This document is one of several which are being prepared in response to the Consent Order; each of these documents are to be submitted to the MDE in accordance with the schedule outlined in the Consent Order. This document will become part of the Administrative Record for the site which is maintained at the Hampstead Public Library.

**SECTION 2**  
**SITE CHARACTERISTICS**

**2.1 HYDRAULIC PROPERTIES**

In accordance with the Consent Order and the Water Appropriation Permit issued to the Black and Decker (U.S.) Inc. Hampstead, Maryland, facility, the following pumping and water level information is included for the period of October through December 1998.

Pumping records showing the total gallons pumped per month of treatment system operation are presented in Table 2-1. The complete groundwater treatment system pumping records are included in Appendix A.

Monthly water levels for wells included in the water level monitoring plan are presented in Table 2-2. At the time the water level measurements were collected, the extraction wells were pumping at an average combined rate of approximately 146 gallons per minute (gpm).

**2.2 EFFLUENT CHARACTERISTICS**

Effluent characteristics of the NPDES discharge points are recorded monthly on Discharge Monitoring Reports (DMRs) and are submitted to MDE, Water Management Administration, on a quarterly basis. A summary of the sample results from the DMRs is presented in Table 2-3. DMRs for the period of October through December 1998 are included in Appendix B

### 2.3 GROUNDWATER QUALITY DATA

A summary of the analytical results from the fourth quarter (November 1998) groundwater sampling round of the extraction and monitor wells is included in Table 2-4. The complete analytical data package is included in Appendix D. As found in earlier sampling events at the Black & Decker facility, TCE and PCE were the VOCs detected at the highest concentrations in the groundwater samples. The highest concentration of TCE was detected in the groundwater samples collected from wells RFW-12B and EW-4 and the highest concentration of PCE was detected in the groundwater sample collected from extraction well EW-9. VOCs detected at lower concentrations were 1,2-dichloroethene. The remainder of VOCs present were detected at levels well below the Federal Maximum Contaminant Levels (MCL).

**Table 2-1**  
**Treatment System Pumping Records - 4th Quarter 1998**  
**Black & Decker**  
**Hampstead, Maryland**

<b>Date</b>	<b>Water pumped (gallons)</b>
October 1998	6,831,458
November 1998	6,068,374
December 1998	6,507,153

**Table 2-2**  
**Groundwater Elevation Data - 4th Quarter 1998**  
**Black & Decker**  
**Hampstead, Maryland**

WELL NO.	TOC ELEV.	TOTAL DEPTH	10/23/98		11/23/98		12/17/98	
			DTW	ELEV	DTW	ELEV	DTW	ELEV
EW-1	847.21	55	NA	--	NA	--	NA	--
EW-2	849.21	110	81.43	767.78	80.08	769.13	73.51	775.70
EW-3	846.64	118	87.47	759.17	86.53	760.11	84.59	762.05
EW-4	858.01	97.5	86.22	771.79	84.31	773.70	80.65	777.36
EW-5	864.17	98	88.84	775.33	88.66	775.51	88.22	775.95
EW-6	831.98	115	61.05	770.93	62.41	769.57	63.89	768.09
EW-7	818.38	78	39.52	778.86	43.73	774.65	46.46	771.92
EW-8	811.13	98	75.41	735.72	74.31	736.82	69.63	741.50
EW-9	811.35	141	74.68	736.67	89.49	721.86	100.68	710.67
EW-10	807.74	NA	46.82	760.92	51.06	756.68	53.82	753.92
RFW-1A	864.37	78	51.33	813.04	52.62	811.75	53.41	810.96
RFW-1B	864.23	200	51.36	812.87	52.71	811.52	53.45	810.78
RFW-2A	857.41	35	16.08	841.33	17.91	839.50	18.36	839.05
RFW-2B	857.73	75	16.44	841.29	18.56	839.17	18.98	838.75
RFW-3B	839.21	153	29.87	809.34	34.43	804.78	34.92	804.29
RFW-4A	830.37	62	38.03	792.34	39.15	791.22	39.71	790.66
RFW-4B	830.37	120	37.96	792.41	39.20	791.17	39.66	790.71
RFW-5A	817.50	30	DRY	--	DRY	--	DRY	--
RFW-6	785.04	120	3.76	781.28	4.81	780.23	5.03	780.01
RFW-7	805.14	29	7.91	797.23	9.00	796.14	9.04	796.10
RFW-8	860.07	56	DRY	--	DRY	--	DRY	--
RFW-9	862.02	49	25.88	836.14	27.94	834.08	28.00	834.02
RFW-10	852.06	58	DRY	--	DRY	--	DRY	--
RFW-11A	849.32	72	68.63	780.69	69.71	779.61	70.52	778.80
RFW-11B	849.62	116	76.47	773.15	77.27	772.35	77.89	771.73
RFW-12B	844.87	264	53.21	791.66	54.31	790.56	54.86	790.01
RFW-13	849.11	150	60.67	788.44	61.47	787.64	62.47	786.64
RFW-14B	812.39	281	38.77	773.62	38.94	773.45	44.95	767.44
RFW-16	856.14	41	DRY	--	DRY	--	DRY	--
RFW-17	834.66	60.5	26.95	807.71	28.87	805.79	29.36	805.30
RFW-18	843.67	50	7.62	836.05	8.13	835.54	7.19	836.48
RFW-19	858.28	60	4.89	853.39	5.48	852.80	5.54	852.74
RFW-20	842.49	142	35.48	807.01	36.78	805.71	37.30	805.19
RFW-21	832.65	102	20.98	811.67	22.63	810.02	22.94	809.71
PH-7	805.94	89	28.37	777.57	28.43	777.51	35.24	770.70
PH-9	814.94	98	31.65	783.29	32.13	782.81	41.00	773.94
PH-11	820.68	78	38.53	782.15	38.48	782.20	42.66	778.02
PH-12	828.35	87	41.66	786.69	41.94	786.41	47.97	780.38
B-2	807.68	100	5.94	801.74	6.12	801.56	6.59	801.09
B-3	803.02	83	7.04	795.98	7.03	795.99	10.23	792.79
Amoco	842.29	NA	22.84	819.45	23.41	818.88	28.28	814.01
Hamp. Town #22	804.96	NA	0.73	804.23	0.70	804.26	3.31	801.65
Pembroke #1	NA	NA	10.86	--	10.83	--	16.73	--
Pembroke #2	NA	NA	NA	--	NA	--	NA	--
N. Houcks. Rd.	NA	NA	9.88	--	10.04	--	10.36	--
E. Century St.	NA	NA	11.22	--	11.24	--	11.39	--
Lwr. Beckleys. Rd.	NA	NA	47.87	--	48.36	--	54.76	--

NA - Not Available/Not Accessible



**Table 2-3**  
**Effluent Characteristics Summary - 4th Quarter 1998**  
**Black & Decker**  
**Hampstead, Maryland**

Discharge Number	Parameter	Units	Permit Limits	DMR DATE			
				October 1998	November 1998	December 1998	
001	FLOW	average	MGD	NA	0.177	0.210	0.077
		maximum	MGD	NA	0.195	1.226	0.087
	1,1,1-Trichloroethane		ug/l	5	< 5	< 5	< 5
	Tetrachloroethylene		ug/l	5	< 5	< 5	< 5
	Trichloroethylene		ug/l	5	< 5	< 5	< 5
	Total Residual Chlorine		mg/l	<0.1	<0.1	<0.1	<0.1
	Oil & Grease	maximum	mg/l	15	< 5	< 5	< 5
		quarterly average	mg/l	10	NR	NR	< 5
	pH	minimum	STD	6.0	6.76	6.29	6.53
		maximum	STD	8.5	7.35	6.90	7.24
	BOD		mg/l	15	5	4	2
TSS	maximum	mg/l	30	10	8	11	
	quarterly average	mg/l	20	NR	NR	10	
101 (Monitoring Point)	FLOW	average	MGD	NA	0.473	0.471	0.476
		maximum	MGD	NA	0.490	0.475	0.477
	Fecal Coliform		MPN/100ml	200	< 2	< 2	< 2
201 (Monitoring Point)	FLOW	average	MGD	NA	0.220	0.202	0.210
		maximum	MGD	NA	0.235	0.272	0.245
	1,1,1-Trichloroethane		ug/l	NA	< 5	< 5	< 5
	Tetrachloroethylene		ug/l	NA	< 5	< 5	< 5
	Trichloroethylene		ug/l	NA	< 5	< 5	< 5

NA - Not Applicable  
 NR - Not Reported

**Table 2-4**  
**Summary of Groundwater Analytical Results - November 1998**  
**Black & Decker**  
**Hampstead, Maryland**

PARAMETER	Units	EW-1	EW-2	EW-3	EW-4	EW-5	EW-6	EW-7	EW-8	EW-9	EW-10	EW-10 (DUP)	RFW-1A	RFW-1B	RFW-2A
			(20)	(5)	(20)	(10)			(2)	(5)					
Chloromethane	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	20 U	50 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	20 U	50 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	20 U	50 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	20 U	50 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	ug/L	NS	270 B	66 B	270 B	120 B	4 JB	4 JB	7 JB	74 B	4 JB	4 JB	8 B	5 JB	10 B
Acetone	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	4 JB	50 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	ug/L	NS	100 U	25 U	100 U	50 U	5 U	2 J	10 U	25 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	2 J	10 U	25 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	ug/L	NS	100 U	25 U	100 U	50 U	1 J	11	35	7 J	5 U	5 U	5 U	5 U	5 U
Chloroform	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	20 U	50 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	ug/L	NS	1800 B	670 B	3200 B	960 B	15	15	19	16 JB	5 U	5 U	5 U	5 U	2 JB
Dibromochloromethane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Benzene	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Bromoform	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	20 U	50 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	ug/L	NS	200 U	50 U	200 U	100 U	10 U	10 U	20 U	50 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	ug/L	NS	83 J	15 J	65 J	21 J	55	38	180	720	53	50	5 U	10 U	5 U
1,1,2,2-Tetrachloroethane	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Toluene	ug/L	NS	100 U	8 JB	100 U	50 U	5 U	5 U	10 U	8 JB	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	ug/L	NS	100 U	13 JB	100 U	50 U	5 U	5 U	10 U	13 JB	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Styrene	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	ug/L	NS	100 U	25 U	100 U	50 U	5 U	5 U	10 U	25 U	5 U	5 U	5 U	5 U	5 U

Notes: U = Compound was analyzed for but not detected. Value shown is the method detection limit for quantification.  
 J = Indicates an estimated value.  
 B = Indicates that the analyte was found in the associated blank as well as in the sample.

DUP = Duplicate sample  
 NS = Not sampled  
 (2.5) = Dilution factor.

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Table 2-4  
Summary of Groundwater Analytical Results - November 1998  
Black & Decker  
Hampstead, Maryland

PARAMETER	Units	RFW-2B	RFW-3B	RFW-4A	RFW-4B	RFW-4B	RFW-5A	RFW-6	RFW-7	RFW-8	RFW-9	RFW-10	RFW-11A	RFW-11B	RFW-12B
						(DUP)									
Chloromethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	NS	10 U	10 U	200 U
Bromomethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	NS	10 U	10 U	200 U
Vinyl Chloride	ug/L	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	NS	10 U	10 U	200 U
Chloroethane	ug/L	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	NS	10 U	10 U	200 U
Methylene Chloride	ug/L	10 B	4 JB	4 JB	4 JB	4 JB	NS	2 JB	10 B	NS	9 B	NS	3 JB	3 JB	250 B
Acetone	ug/L	10 U	10 U	10 U	10 U	10 U	NS	7 JB	10 U	NS	10 U	NS	10 U	10 U	200 U
Carbon Disulfide	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
1,1-Dichloroethene	ug/L	5 U	1 J	5 U	5 U	5 U	NS	5 U	5 U	NS	1 J	NS	5 U	5 U	100 U
1,1-Dichloroethane	ug/L	5 U	2 J	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
1,2-Dichloroethene (total)	ug/L	5 U	50	4 J	7	7	NS	3 J	1 J	NS	8	NS	5 U	5 U	100 U
Chloroform	ug/L	5 U	5 U	1 J	1 J	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
1,2-Dichloroethane	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
2-Butanone	ug/L	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	NS	10 U	10 U	200 U
1,1,1-Trichloroethane	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Carbon Tetrachloride	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Bromodichloromethane	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
1,2-Dichloropropane	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
cis-1,3-Dichloropropene	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Trichloroethene	ug/L	5 U	7	130	26	29	NS	17	16 B	NS	26 B	NS	64	140	1700 B
Dibromochloromethane	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
1,1,2-Trichloroethane	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Benzene	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Trans-1,3-Dichloropropene	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Bromoform	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
4-Methyl-2-pentanone	ug/L	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	NS	10 U	10 U	200 U
2-Hexanone	ug/L	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	NS	10 U	10 U	200 U
Tetrachloroethene	ug/L	5 U	21	170	74	82	NS	14	5 U	NS	6	NS	1 J	3 J	52 J
1,1,2,2-Tetrachloroethane	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Toluene	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Chlorobenzene	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Ethylbenzene	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Styrene	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U
Xylene (total)	ug/L	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	NS	5 U	5 U	100 U

Notes: U = Compound was analyzed for but not detected. Value shown is the method detection limit for quantification.  
J = Indicates an estimated value.  
B = Indicates that the analyte was found in the associated blank as well as in the sample.

DUP = Duplicate sample  
NS = Not sampled  
(2.5) = Dilution factor.

Table 2-4  
 Summary of Groundwater Analytical Results - November 1998  
 Black & Decker  
 Hampstead, Maryland

PARAMETER	Units	RFW-13	RFW-16	RFW-17	RFW-18	RFW-19	RFW-20	RFW-21	Town #22	Town #23	Leister Dairy	Leister Res. #1	Leister Res. #2	Field Blank	Trip Blank
Chloromethane	ug/L	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	10 U
Bromomethane	ug/L	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	10 U
Vinyl Chloride	ug/L	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	10 U
Chloroethane	ug/L	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	10 U
Methylene Chloride	ug/L	4 JB	NS	1 JB	5 JB	4 JB	4 JB	10 B	3 JB	NS	10 B	10 B	NS	2 JB	3 JB
Acetone	ug/L	10 U	NS	10 U	33 B	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	2 JB	10 U
Carbon Disulfide	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
1,1-Dichloroethene	ug/L	2 J	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
1,1-Dichloroethane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
1,2-Dichloroethene (total)	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Chloroform	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	8	5 U
1,2-Dichloroethane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
2-Butanone	ug/L	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	10 U
1,1,1-Trichloroethane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Carbon Tetrachloride	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Bromodichloromethane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	6	5 U
1,2-Dichloropropane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
cis-1,3-Dichloropropene	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Trichloroethene	ug/L	10	NS	5 U	5 U	5 U	10	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Dibromochloromethane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	3 J	5 U
1,1,2-Trichloroethane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Benzene	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Trans-1,3-Dichloropropene	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Bromoform	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
4-Methyl-2-pentanone	ug/L	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	10 U
2-Hexanone	ug/L	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	NS	10 U	10 U
Tetrachloroethene	ug/L	56	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	2 J	NS	5 U	5 U
1,1,2,2-Tetrachloroethane	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Toluene	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Chlorobenzene	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Ethylbenzene	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Styrene	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U
Xylene (total)	ug/L	5 U	NS	5 U	5 U	5 U	5 U	5 U	5 U	NS	5 U	5 U	NS	5 U	5 U

Notes: U = Compound was analyzed for but not detected. Value shown is the method detection limit for quantification.  
 J = Indicates an estimated value.  
 B = Indicates that the analyte was found in the associated blank as well as in the sample.

DUP = Duplicate sample  
 NS = Not sampled  
 (2.5) = Dilution factor.

**SECTION 3**  
**OPERATION AND MAINTENANCE OF THE TREATMENT SYSTEM**

A summary of the maintenance activities which were undertaken with the extraction and treatment system during the reporting period (October through December 1998) is provided in Table 3-1. This table is comprehensive in summarizing significant maintenance events or activities, while not including those activities considered unworthy of note (such as replacement of light bulbs, lubrication of moving parts as appropriate, or other routine activities).

**Table 3-1**  
**Treatment System Maintenance Activities - 4th Quarter 1998**  
**Black & Decker**  
**Hampstead, Maryland**

Date	Event/Corrective Action
November 1998	Calibrate water column in the stripper and repair damaged 4 inch PVC pipe.
November 1998	Bad timing delay relay found in EW-2, timing delay relay was replaced
December 1998	Repair leaking regulator valve to Boiler House.
December 1998	System went down for about 6 hours due to a short in the control panel, control panel was repaired and the system was up and running.

**SECTION 4**  
**RECOMMENDATIONS**

For the reporting period of October through December 1998, the treatment system continued to create a hydraulic boundary preventing off-site migration of groundwater. Operation of the extraction system as currently configured will continue, adjusting pumping rates as necessary according to the amount of groundwater recharge. Operation of the treatment system as currently configured will also continue, because the treatment system is fully effective in removing VOCs from the extracted groundwater.

**APPENDIX A**  
**GROUNDWATER TREATMENT SYSTEM PUMPING RECORDS**  
**(OCTOBER-DECEMBER 1998)**



MONTH / YEAR

Oct. 98

**BLACK DECKER  
AIR STRIPPER # 2  
OPERATING RECORD**

PAST MONTH READING

362835459

Date	Day	Time	Integ. Reading	GPD	Pump # 12	Pump # 11
1	T	1045	363067321	208598	18365	18201
2	F	0905	363275919	↑	18387	18201
3						
4				681801		
5	M	1005	363957730	231971	18460	18201
6	T	1105	364189691	196534	18460	18226
7	W	0820	364386225	234682	18460	18247
8	T	0935	364620907	233715	18460	18272
9	F	1030	364854622	↑	18460	18297
10						
11						
12	M			866448		
13	T	0830	365721070	228294	18460	18391
14	W	0915	365949364	217544	18485	18391
15	T	0855	366166908	225648	18509	18391
16	F	0910	366392556	↑	18533	18391
17						
18				669560		
19	M	1030	367062116	214749	18606	18391
20	T	1000	367276865	227580	18606	18415
21	W	1052	367504445	207258	18606	18439
22	T	0950	367711703	219017	18606	18462
23	F	0950	367930720	↑	18606	18487
24						
25				674368		
26	M	1105	368605088	212859	18606	18561
27	T	1030	368817947	214712	18630	18561
28	W	1020	369032659	206022	18653	18561
29	T	0910	369238681	↑	18676	18561
30	F					
31				660098		
Total				6,831,458		
Average						

NEXT MONTH READING 370118812

DATE 11-2-98

MONTH / YEAR

**BLMOR DECORER  
AIR STRIPPER # 2  
OPERATING RECORD**

PAST MONTH READING

Nov. 98

349238681

Date	Day	Time	Integ. Reading	GPD	Pump # 12	Pump # 11
1				220033		
2	M	1100	370118812	201892	18774	18561
3	T	0920	370320704	201189	18774	18583
4	W	0800	370521893	246828	18774	18626
5	T	1100	370768721	191174	18774	18633
6	F	0945	370959895	↑	18774	18654
7						
8				246375		
9	M	1030	371206210	77623	18774	18723
10	T	0855	371283893	272152	18798	18724
11	W	1025	371556045	231318	18823	18724
12	T	0940	371787363	↑	18846	18724
13	F					
14						
15				903392		
16	M	1045	372490735	210973	18846	18821
17	T	1025	372901708	228489	18870	18821
18	W	1030	373130197	210601	18894	18821
19	T	0905	373340798	224744	18912	18821
20	F	0905	373545542	↑	18941	18821
21						
22				671913		
23	M	0955	374237455	220933	19014	18821
24	T	1015	374458388	210980	19014	18845
25	W	0935	374669368	↑	19014	18868
26	T					
27	F					
28						
29				1085573		
30	M	0935	375754941	212212	19014	18988
31						
Total				6,068,374		
Average				202,300		

NEXT MONTH READING 375967153

Dec. 1

BLACK DECKER

MONTH / YEAR

AIR STRIPPER # 2  
OPERATING RECORD

PAST MONTH READING

Dec, 98

375754941

Date	Day	Time	Integ. Reading	GPD	Pump # 12	Pump # 11
1	T	0920	375467153	219932	19037	18988
2	W	0955	376187085	208991	19062	18988
3	T	0920	376396076	219090	19085	18988
4	F	955	376615166	↑	19110	18988
5						
6				646945		
7	M	1030	377262111	203891	19182	18988
8	T	0930	377466002	218980	19182	19011
9	W	1015	377684982	213077	19182	19036
10	T	1036	377878059	↑	19182	19060
11	F					
12						
13				838381		
14	M	0945	378736440	171991	19182	19156
15	T	0810	378908431	245202	19195	19165
16	W	1120	379153633	194665	19195	19192
17	T	1020	379348298	↑	19195	19215
18	F					
19						
20				831727		
21	M	0935	380180025	209512	19195	19311
22	T	0940	380389537	217069	19219	19311
23	W	1030	380606604	↑	19244	19311
24	T					
25	F					
26						
27				1038770		
28	M	1015	381645376	205994	19364	19311
29	T	1000	381851370	206274	19364	19334
30	W	1000	382057644	↑	19364	19358
31	T			416662		
Total				6507153		
Average				209908		

NEXT MONTH READING 383099299

on Jan. 4

**APPENDIX B**  
**DISCHARGE MONITORING REPORTS**  
**(OCTOBER-DECEMBER 1998)**