

**ANNUAL REPORT**

**Prepared for:**

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

**JULY 1998**

**Prepared by:**

**Roy F. Weston, Inc.  
One Weston Way  
West Chester, Pennsylvania 19380**

**W.O. No. 02501-004-001-0200**

## TABLE OF CONTENTS

| <u>Section</u> | <u>Title</u>   | <u>Page</u> |
|----------------|--|-------------|
| 1              | INTRODUCTION   | 1-1         |
| 2              | SITE CHARACTERISTICS                                 | 2-1         |
|                | 2.1 Hydraulic Properties                             | 2-1         |
|                | 2.2 Effluent Characteristics                         | 2-1         |
|                | 2.3 Groundwater Quality Data                         | 2-9         |
| 3              | OPERATION AND MAINTENANCE OF THE<br>TREATMENT SYSTEM | 3-1         |
| 4              | TREATMENT SYSTEM PERFORMANCE                         | 4-1         |
| 5              | RECOMMENDATIONS                                      | 5-1         |
| APPENDIX A     | WITHDRAWAL REPORTS                                   |             |
| APPENDIX B     | DISCHARGE MONITORING REPORTS                         |             |
| APPENDIX C     | PRE-TREATMENT ANALYTICAL RESULTS                     |             |
| APPENDIX D     | MAY 1998 GROUNDWATER ANALYTICAL DATA PACKAGE         |             |

## LIST OF TABLES

| <u>Table</u> | <u>Title</u>  | <u>Page</u> |
|--------------|---|-------------|
| 2-1          | Treatment System Pumping Records                          | 2-2         |
| 2-2          | Groundwater Elevation Data                                | 2-3         |
| 2-3          | Effluent Characteristics Summary                          | 2-7         |
| 2-4          | Summary of Groundwater Analytical Results - August 1997   | 2-10        |
| 2-5          | Summary of Groundwater Analytical Results - November 1997 | 2-13        |
| 2-6          | Summary of Groundwater Analytical Results - February 1998 | 2-16        |
| 2-7          | Summary of Groundwater Analytical Results - May 1998      | 2-19        |
| 3-1          | Treatment System Maintenance Activities                   | 3-2         |

## LIST OF FIGURES

| <u>Figure</u> | <u>Title</u>  | <u>Page</u> |
|---------------|---|-------------|
| 2-1           | Groundwater Elevation Contour Map<br>Under Pumping Conditions (June 1998) | 2-6         |

**SECTION 1**  
**INTRODUCTION**

This Annual Report has been prepared to meet the requirements of Condition IV.L 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) and the Addendum to Administrative Consent Order dated 29 June 1995. Specifically, Condition IV.L calls for preparation of an Annual Report containing a summary of the information contained in the Discharge Monitoring Reports (Table 2-3), a summary of all analyses of water samples (Tables 2-4 to 2-7), an explanation of all problems encountered and the manner in which they were resolved (Table 3-1), a performance evaluation of the treatment system (Section 4), and recommendations for continuation of, or changes to, the treatment system (Section 5). 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 July 1997 through June 1998.

Pumping records showing the total gallons pumped per month of treatment system operation are presented in Table 2-1. Copies of the Withdrawal Reports, for the periods of July through December 1997 and January through June 1998, are included in Appendix A.

Water levels (Water Level Monitoring Report) for wells included in the water level monitoring plan are presented in Table 2-2. Based on the June 1998 water levels, a representative groundwater elevation contour map under pumping conditions is presented in Figure 2-1. At the time the data was collected, the extraction wells were pumping at a combined rate of approximately 166 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 July 1997 through June 1998 are included in Appendix B.

**Table 2-1**  
**Treatment System Pumping Records**  
**(July 1997 through June 1998)**

**Black & Decker**  
**Hampstead, Maryland**

| <b>Date</b>    | <b>Water Pumped (gallons)</b> |
|----------------|-------------------------------|
| July 1997      | 7,367,211                     |
| August 1997    | 7,157,007                     |
| September 1997 | 6,728,300                     |
| October 1997   | 6,785,750                     |
| November 1997  | 6,394,405                     |
| December 1997  | 6,401,574                     |
| January 1998   | 6,169,693                     |
| February 1998  | 5,254,613                     |
| March 1998     | 6,211,987                     |
| April 1998     | 6,507,488                     |
| May 1998       | 7,284,936                     |
| June 1998      | 7,033,729                     |

TABLE2-1.XLS

**Table 2-2**  
**Groundwater Elevation Data (July 1997 through June 1998)**  
**Black & Decker**  
**Hampstead, Maryland**

| WELL NO            | TOC ELEV | TOTAL DEPTH | 7/9/97 |        | 8/13/97 |        | 9/17/97 |        | 10/23/97 |        |
|--------------------|----------|-------------|--------|--------|---------|--------|---------|--------|----------|--------|
|                    |          |             | DTW    | ELEV   | DTW     | ELEV   | DTW     | ELEV   | DTW      | ELEV   |
| EW-1               | 847.21   | 55          | NA     | --     | NA      | --     | NA      | --     | NA       | --     |
| EW-2               | 849.21   | 110         | 101.34 | 747.87 | 101.43  | 747.78 | 100.94  | 748.27 | 97.88    | 751.33 |
| EW-3               | 846.64   | 118         | 84.71  | 761.93 | 85.67   | 760.97 | 85.31   | 761.33 | 86.25    | 760.39 |
| EW-4               | 858.01   | 97.5        | 93.75  | 764.26 | 80.84   | 777.17 | 84.73   | 773.28 | 82.45    | 775.56 |
| EW-5               | 864.17   | 98          | 87.96  | 776.21 | 86.83   | 777.34 | 86.94   | 777.23 | 87.99    | 776.18 |
| EW-6               | 831.98   | 115         | 58.76  | 773.22 | 59.39   | 772.59 | 60.25   | 771.73 | 56.95    | 775.03 |
| EW-7               | 818.38   | 78          | 36.08  | 782.30 | 34.71   | 783.67 | 42.40   | 775.98 | 45.49    | 772.89 |
| EW-8               | 811.13   | 98          | 50.45  | 760.68 | 55.89   | 755.24 | 57.76   | 753.37 | 66.18    | 744.95 |
| EW-9               | 811.35   | 141         | 82.31  | 729.04 | 87.75   | 723.60 | 88.22   | 723.13 | 96.95    | 714.40 |
| EW-10              | 807.74   | NA          | 48.28  | 759.46 | 51.63   | 756.11 | 52.69   | 755.05 | 56.05    | 751.69 |
| RFW-1A             | 864.37   | 78          | 50.11  | 814.26 | 51.64   | 812.73 | 52.93   | 811.44 | 53.68    | 810.69 |
| RFW-1B             | 864.23   | 200         | 50.41  | 813.82 | 51.66   | 812.57 | 52.83   | 811.40 | 53.72    | 810.51 |
| RFW-2A             | 857.41   | 35          | 15.72  | 841.69 | 17.48   | 839.93 | 18.73   | 838.68 | 19.82    | 837.59 |
| RFW-2B             | 857.73   | 75          | 16.33  | 841.40 | 18.08   | 839.65 | 19.35   | 838.38 | 20.42    | 837.31 |
| RFW-3B             | 839.21   | 153         | 29.80  | 809.41 | 31.90   | 807.31 | 32.05   | 807.16 | 35.75    | 803.46 |
| RFW-4A             | 830.37   | 62          | 36.69  | 793.68 | 37.33   | 793.04 | 37.73   | 792.64 | 38.11    | 792.26 |
| RFW-4B             | 830.37   | 120         | 36.99  | 793.38 | 37.19   | 793.18 | 37.66   | 792.71 | 38.01    | 792.36 |
| RFW-5A             | 817.50   | 30          | DRY    | --     | DRY     | --     | DRY     | --     | DRY      | --     |
| RFW-6              | 785.04   | 120         | 3.04   | 782.00 | 3.13    | 781.91 | 2.97    | 782.07 | 3.25     | 781.79 |
| RFW-7              | 805.14   | 29          | 7.66   | 797.48 | 8.07    | 797.07 | 7.36    | 797.78 | 7.98     | 797.16 |
| RFW-8              | 860.07   | 53          | DRY    | --     | DRY     | --     | DRY     | --     | DRY      | --     |
| RFW-9              | 862.02   | 49          | 26.28  | 835.74 | 27.55   | 834.47 | 28.47   | 833.55 | 29.37    | 832.65 |
| RFW-10             | 852.06   | 58          | 58.18  | 793.88 | 58.67   | 793.39 | 59.13   | 792.93 | DRY      | --     |
| RFW-11A            | 849.32   | 72          | 68.80  | 780.52 | 69.11   | 780.21 | 69.64   | 779.68 | 70.11    | 779.21 |
| RFW-11B            | 849.62   | 116         | 76.64  | 772.98 | 76.75   | 772.87 | 77.15   | 772.47 | 77.40    | 772.22 |
| RFW-12B            | 844.87   | 264         | 52.82  | 792.05 | 53.46   | 791.41 | 54.03   | 790.84 | 54.48    | 790.39 |
| RFW-13             | 849.11   | 150         | 56.73  | 792.38 | 58.27   | 790.84 | 59.81   | 789.30 | 60.96    | 788.15 |
| RFW-14B            | 812.39   | 281         | 37.13  | 775.26 | 39.69   | 772.70 | 42.37   | 770.02 | 44.83    | 767.56 |
| RFW-16             | 856.14   | 41          | DRY    | --     | DRY     | --     | DRY     | --     | DRY      | --     |
| RFW-17             | 834.66   | 60.5        | 26.98  | 807.68 | 27.85   | 806.81 | 28.55   | 806.11 | 29.05    | 805.61 |
| RFW-18             | 843.67   | 50          | 4.42   | 839.25 | 5.23    | 838.44 | 5.67    | 838.00 | 6.02     | 837.65 |
| RFW-19             | 858.28   | 60          | 7.41   | 850.87 | 8.19    | 850.09 | 9.22    | 849.06 | 8.90     | 849.38 |
| RFW-20             | 842.29   | 142         | 34.56  | 807.93 | 35.87   | 806.62 | 36.58   | 805.91 | 37.24    | 805.25 |
| RFW-21             | 832.65   | 102         | 20.72  | 811.93 | 21.73   | 810.92 | 22.97   | 809.68 | 22.85    | 809.80 |
| PH-7               | 805.94   | 89          | 29.05  | 776.89 | 31.62   | 774.32 | 33.17   | 772.77 | 36.85    | 769.09 |
| PH-9               | 814.94   | 98          | 30.86  | 784.08 | 33.98   | 780.96 | 36.98   | 777.96 | 39.73    | 775.21 |
| PH-11              | 820.68   | 78          | 39.50  | 781.18 | 40.09   | 780.59 | 40.33   | 780.35 | 39.87    | 780.81 |
| PH-12              | 828.35   | 87          | 41.61  | 786.74 | 43.56   | 784.79 | 45.21   | 783.14 | 46.61    | 781.74 |
| B-2                | 807.68   | 100         | 7.44   | 800.24 | 9.34    | 798.34 | 9.76    | 797.92 | 10.45    | 797.23 |
| B-3                | 803.02   | 83          | 8.05   | 794.97 | 10.42   | 792.60 | 10.91   | 792.11 | 11.36    | 791.66 |
| Amoco              | 842.29   | NA          | 22.39  | 819.90 | 23.82   | 818.47 | 25.17   | 817.12 | 26.84    | 815.45 |
| Hamp. Town #22     | NA       | NA          | 1.98   | 802.98 | 3.16    | --     | 2.67    | --     | 3.16     | 801.80 |
| Pembroke #1        | NA       | NA          | 13.11  | --     | NA      | --     | 15.63   | --     | 17.05    | --     |
| Pembroke #2        | NA       | NA          | NA     | --     | NA      | --     | NA      | --     | NA       | --     |
| N. Houcks. Rd.     | NA       | NA          | 9.64   | --     | NA      | --     | NA      | --     | NA       | --     |
| E. Century St.     | NA       | NA          | 10.87  | --     | 11.14   | --     | 17.17   | --     | 11.28    | --     |
| Lwr. Beckleys. Rd. | NA       | NA          | 50.92  | --     | 52.36   | --     | 53.58   | --     | 54.70    | --     |

Notes: DTW - Depth to water (ft below top of well casing)  
ELEV - Groundwater elevation (ft above mean sea level)  
NA - Not Available/Not Accessible



**Table 2-2**  
**Groundwater Elevation Data (July 1997 through June 1998)**  
**Black & Decker**  
**Hampstead, Maryland**

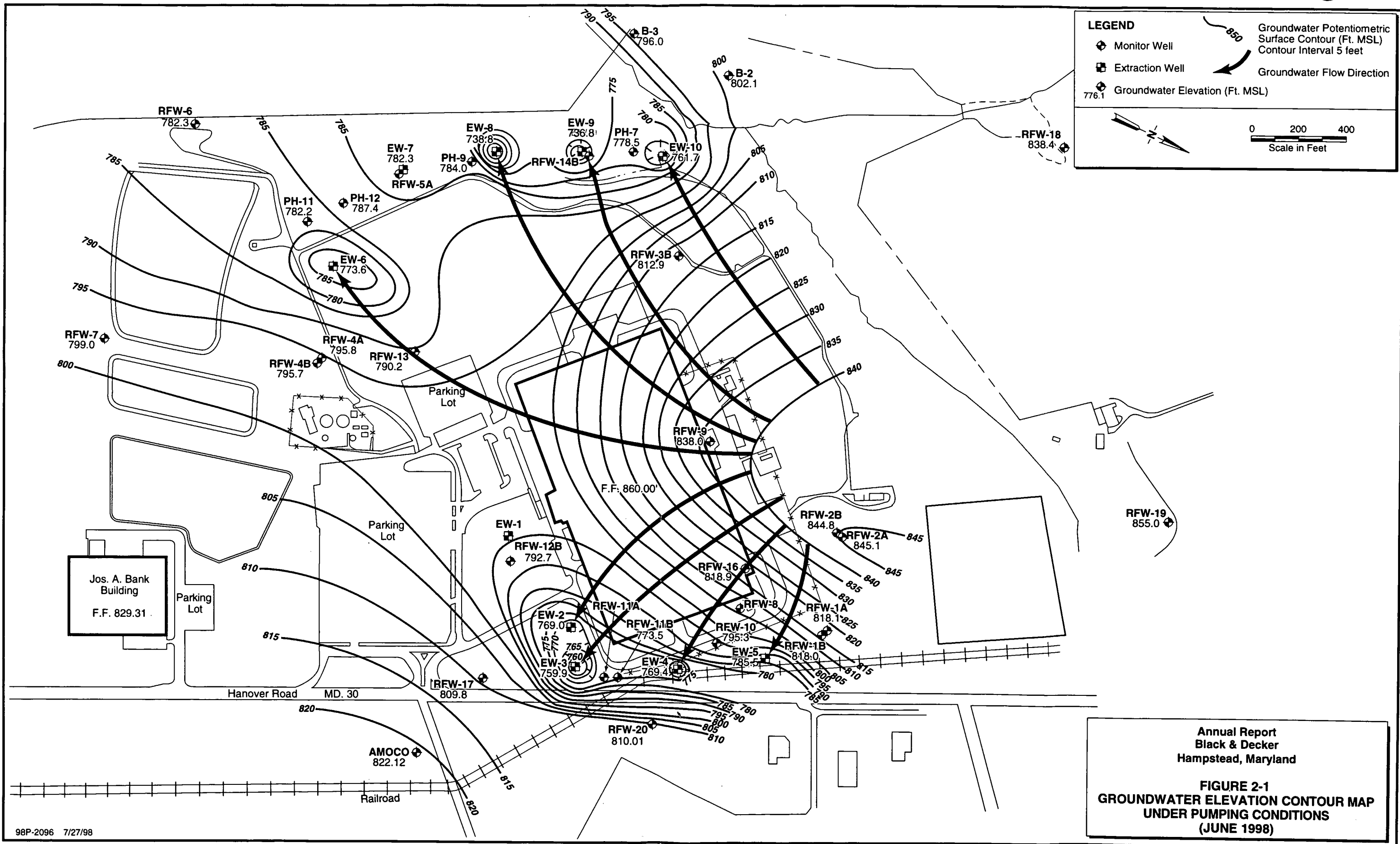
| WELL NO.           | TOC ELEV | TOTAL DEPTH | 11/18/97 |        | 12/19/97 |        | 1/19/98 |        | 2/10/98 |        |
|--------------------|----------|-------------|----------|--------|----------|--------|---------|--------|---------|--------|
|                    |          |             | DTW      | ELEV   | DTW      | ELEV   | DTW     | ELEV   | DTW     | ELEV   |
| EW-1               | 847.21   | 55          | NA       | --     | NA       | --     | NA      | --     | NA      | --     |
| EW-2               | 849.21   | 110         | 76.55    | 772.66 | 87.43    | 761.78 | 88.04   | 761.17 | 84.33   | 764.88 |
| EW-3               | 846.64   | 118         | 84.86    | 761.78 | 83.91    | 762.73 | 84.73   | 761.91 | 88.23   | 758.41 |
| EW-4               | 858.01   | 97.5        | 86.99    | 771.02 | 85.33    | 772.68 | 86.21   | 771.80 | 93.32   | 764.69 |
| EW-5               | 864.17   | 98          | 88.11    | 776.06 | 88.37    | 775.80 | 88.28   | 775.89 | 88.06   | 776.11 |
| EW-6               | 831.98   | 115         | 60.66    | 771.32 | 59.89    | 772.09 | 57.93   | 774.05 | 62.56   | 769.42 |
| EW-7               | 818.38   | 78          | 47.67    | 770.71 | 48.94    | 769.44 | 47.26   | 771.12 | 44.51   | 773.87 |
| EW-8               | 811.13   | 98          | 70.41    | 740.72 | 71.77    | 739.36 | 76.08   | 735.05 | 75.55   | 735.58 |
| EW-9               | 811.35   | 141         | 99.38    | 711.97 | 99.93    | 711.42 | 99.84   | 711.51 | 99.50   | 711.85 |
| EW-10              | 807.74   | NA          | 55.67    | 752.07 | 55.58    | 752.16 | 55.14   | 752.60 | 63.68   | 744.06 |
| RFW-1A             | 864.37   | 78          | 54.29    | 810.08 | 55.11    | 809.26 | 54.97   | 809.40 | 53.69   | 810.68 |
| RFW-1B             | 864.23   | 200         | 54.27    | 809.96 | 55.10    | 809.13 | 54.94   | 809.29 | 53.69   | 810.54 |
| RFW-2A             | 857.41   | 35          | 18.61    | 838.80 | 19.41    | 838.00 | 18.77   | 838.64 | 14.95   | 842.46 |
| RFW-2B             | 857.73   | 75          | 19.26    | 838.47 | 19.87    | 837.86 | 20.04   | 837.69 | 15.60   | 842.13 |
| RFW-3B             | 839.21   | 153         | 36.26    | 802.95 | 36.73    | 802.48 | 36.78   | 802.43 | 34.81   | 804.40 |
| RFW-4A             | 830.37   | 62          | 39.32    | 791.05 | 39.37    | 791.00 | 39.45   | 790.92 | 38.17   | 792.20 |
| RFW-4B             | 830.37   | 120         | 38.32    | 792.05 | 38.56    | 791.81 | 39.23   | 791.14 | 37.89   | 792.48 |
| RFW-5A             | 817.50   | 30          | DRY      | --     | DRY      | --     | DRY     | --     | DRY     | --     |
| RFW-6              | 785.04   | 120         | 2.46     | 782.58 | 2.97     | 782.07 | 2.02    | 783.02 | 3.36    | 781.68 |
| RFW-7              | 805.14   | 29          | 7.49     | 797.65 | 7.95     | 797.19 | 6.49    | 798.65 | 6.78    | 798.36 |
| RFW-8              | 860.07   | 53          | DRY      | --     | DRY      | 860.07 | DRY     | --     | DRY     | --     |
| RFW-9              | 862.02   | 49          | 28.52    | 833.50 | 28.73    | 833.29 | 27.58   | 834.44 | 26.54   | 835.48 |
| RFW-10             | 852.06   | 58          | DRY      | --     | DRY      | 852.06 | DRY     | --     | DRY     | --     |
| RFW-11A            | 849.32   | 72          | 70.30    | 779.02 | 70.61    | 778.71 | 70.77   | 778.55 | 70.56   | 778.76 |
| RFW-11B            | 849.62   | 116         | 77.36    | 772.26 | 77.85    | 771.77 | 78.00   | 771.62 | 77.63   | 771.99 |
| RFW-12B            | 844.87   | 264         | 54.48    | 790.39 | 54.37    | 790.50 | 54.53   | 790.34 | 54.62   | 790.25 |
| RFW-13             | 849.11   | 150         | 61.97    | 787.14 | 62.84    | 786.27 | 62.27   | 786.84 | 63.61   | 785.50 |
| RFW-14B            | 812.39   | 281         | 46.25    | 766.14 | 47.48    | 764.91 | 48.49   | 763.90 | 47.41   | 764.98 |
| RFW-16             | 856.14   | 41          | DRY      | --     | DRY      | 856.14 | DRY     | --     | DRY     | --     |
| RFW-17             | 834.66   | 60.5        | 29.26    | 805.40 | 29.29    | 805.37 | 29.41   | 805.25 | 28.05   | 806.61 |
| RFW-18             | 843.67   | 50          | 5.13     | 838.54 | 6.16     | 837.51 | 5.62    | 838.05 | 5.55    | 838.12 |
| RFW-19             | 858.28   | 60          | 7.14     | 851.14 | 7.89     | 850.39 | 7.33    | 850.95 | 4.53    | 853.75 |
| RFW-20             | 842.29   | 142         | 37.60    | 804.89 | 37.74    | 804.75 | 37.31   | 805.18 | 36.58   | 805.91 |
| RFW-21             | 832.65   | 102         | 22.67    | 809.98 | 22.84    | 809.81 | 22.69   | 809.96 | 21.86   | 810.79 |
| PH-7               | 805.94   | 89          | 37.43    | 768.51 | 37.47    | 768.47 | 37.22   | 768.72 | 35.94   | 770.00 |
| PH-9               | 814.94   | 98          | 41.29    | 773.65 | 42.00    | 772.94 | 41.83   | 773.11 | 40.88   | 774.06 |
| PH-11              | 820.68   | 78          | 40.86    | 779.82 | 42.10    | 778.58 | 43.13   | 777.55 | 42.87   | 777.81 |
| PH-12              | 828.35   | 87          | 47.41    | 780.94 | 48.12    | 780.23 | 48.32   | 780.03 | 47.81   | 780.54 |
| B-2                | 807.68   | 100         | 5.44     | 802.24 | 7.94     | 799.74 | 8.06    | 799.62 | 5.49    | 802.19 |
| B-3                | 803.02   | 83          | 8.75     | 794.27 | 9.97     | 793.05 | 10.17   | 792.85 | 7.18    | 795.84 |
| Amoco              | 842.29   | NA          | 26.19    | 816.10 | 26.77    | 815.52 | 26.63   | 815.66 | 27.13   | 815.16 |
| Hamp. Town #22     | NA       | NA          | 2.19     | 802.77 | 1.69     | 803.27 | 1.42    | 803.54 | 0.71    | 804.25 |
| Pembroke #1        | NA       | NA          | 15.83    | --     | 16.74    | --     | 16.61   | --     | 16.84   | --     |
| Pembroke #2        | NA       | NA          | NA       | --     | NA       | --     | NA      | --     | NA      | --     |
| N. Houcks. Rd.     | NA       | NA          | NA       | --     | 9.46     | --     | 8.94    | --     | 8.21    | --     |
| E. Century St.     | NA       | NA          | 11.13    | --     | 11.49    | --     | 11.04   | --     | 11.17   | --     |
| Lwr. Beckleys. Rd. | NA       | NA          | 55.21    | --     | 55.71    | --     | 56.11   | --     | 55.32   | --     |

Notes: DTW - Depth to water (ft below top of well casing)  
ELEV - Groundwater elevation (ft above mean sea level)  
NA - Not Available/Not Accessible

**Table 2-2**  
**Groundwater Elevation Data (July 1997 through June 1998)**  
**Black & Decker**  
**Hampstead, Maryland**

| WELL NO.           | TOC ELEV | TOTAL DEPTH | 3/18/98 |        | 4/17/98 |        | 5/27/98 |        | 6/26/98 |        |
|--------------------|----------|-------------|---------|--------|---------|--------|---------|--------|---------|--------|
|                    |          |             | DTW     | ELEV   | DTW     | ELEV   | DTW     | ELEV   | DTW     | ELEV   |
| EW-1               | 847.21   | 55          | NA      | --     | NA      | --     | NA      | --     | NA      | --     |
| EW-2               | 849.21   | 110         | 87.11   | 762.10 | 84.74   | 764.47 | 74.22   | 774.99 | 80.21   | 769.00 |
| EW-3               | 846.64   | 118         | 86.99   | 759.65 | 86.69   | 759.95 | 87.06   | 759.58 | 86.71   | 759.93 |
| EW-4               | 858.01   | 97.5        | 91.47   | 766.54 | 89.77   | 768.24 | 80.47   | 777.54 | 88.63   | 769.38 |
| EW-5               | 864.17   | 98          | 87.43   | 776.74 | 88.05   | 776.12 | 80.36   | 783.81 | 78.67   | 785.50 |
| EW-6               | 831.98   | 115         | 64.10   | 767.88 | 62.12   | 769.86 | 58.12   | 773.86 | 58.43   | 773.55 |
| EW-7               | 818.38   | 78          | 42.41   | 775.97 | 32.96   | 785.42 | 35.96   | 782.42 | 36.12   | 782.26 |
| EW-8               | 811.13   | 98          | 75.02   | 736.11 | 68.81   | 742.32 | 71.12   | 740.01 | 72.31   | 738.82 |
| EW-9               | 811.35   | 141         | 99.50   | 711.85 | 96.47   | 714.88 | 73.10   | 738.25 | 74.53   | 736.82 |
| EW-10              | 807.74   | NA          | 59.74   | 748.00 | 49.92   | 757.82 | 45.87   | 761.87 | 46.03   | 761.71 |
| RFW-1A             | 864.37   | 78          | 54.07   | 810.30 | 47.94   | 816.43 | 46.33   | 818.04 | 46.23   | 818.14 |
| RFW-1B             | 864.23   | 200         | 54.06   | 810.17 | 47.95   | 816.28 | 46.40   | 817.83 | 46.26   | 817.97 |
| RFW-2A             | 857.41   | 35          | 13.87   | 843.54 | 10.76   | 846.65 | 11.01   | 846.40 | 12.32   | 845.09 |
| RFW-2B             | 857.73   | 75          | 14.83   | 842.90 | 11.37   | 846.36 | 11.62   | 846.11 | 12.94   | 844.79 |
| RFW-3B             | 839.21   | 153         | 33.69   | 805.52 | 32.87   | 806.34 | 25.75   | 813.46 | 26.34   | 812.87 |
| RFW-4A             | 830.37   | 62          | 35.66   | 794.71 | 34.51   | 795.86 | 33.74   | 796.63 | 34.65   | 795.72 |
| RFW-4B             | 830.37   | 120         | 35.40   | 794.97 | 34.31   | 796.06 | 33.59   | 796.78 | 34.62   | 795.75 |
| RFW-5A             | 817.50   | 30          | DRY     | --     | DRY     | --     | DRY     | --     | DRY     | --     |
| RFW-6              | 785.04   | 120         | 3.03    | 782.01 | 2.49    | 782.55 | 2.35    | 782.69 | 2.78    | 782.26 |
| RFW-7              | 805.14   | 29          | 6.44    | 798.70 | 6.73    | 798.41 | 5.01    | 800.13 | 6.17    | 798.97 |
| RFW-8              | 860.07   | 53          | DRY     | --     | DRY     | --     | DRY     | --     | DRY     | --     |
| RFW-9              | 862.02   | 49          | 24.73   | 837.29 | 23.81   | 838.21 | 23.43   | 838.59 | 24.07   | 837.95 |
| RFW-10             | 852.06   | 58          | DRY     | --     | DRY     | --     | 57.26   | 794.80 | 56.87   | 795.19 |
| RFW-11A            | 849.32   | 72          | 70.06   | 779.26 | 68.99   | 780.33 | 68.05   | 781.27 | 67.66   | 781.66 |
| RFW-11B            | 849.62   | 116         | 77.26   | 772.36 | 76.57   | 773.05 | 75.97   | 773.65 | 75.76   | 773.86 |
| RFW-12B            | 844.87   | 264         | 55.11   | 789.76 | 56.41   | 788.46 | 51.81   | 793.06 | 52.13   | 792.74 |
| RFW-13             | 849.11   | 150         | 63.17   | 785.94 | 61.93   | 787.18 | 58.16   | 790.95 | 58.94   | 790.17 |
| RFW-14B            | 812.39   | 281         | 47.16   | 765.23 | 46.96   | 765.43 | 39.62   | 772.77 | 37.64   | 774.75 |
| RFW-16             | 856.14   | 41          | DRY     | --     | DRY     | --     | 36.73   | 819.41 | 37.21   | 818.93 |
| RFW-17             | 834.66   | 60.5        | 28.41   | 806.25 | 24.94   | 809.72 | 24.19   | 810.47 | 24.84   | 809.82 |
| RFW-18             | 843.67   | 50          | 5.33    | 838.34 | 5.89    | 837.78 | 4.66    | 839.01 | 5.31    | 838.36 |
| RFW-19             | 858.28   | 60          | 5.02    | 853.26 | 4.78    | 853.50 | 2.90    | 855.38 | 3.28    | 855.00 |
| RFW-20             | 842.29   | 142         | 36.23   | 806.26 | 36.02   | 806.47 | 31.93   | 810.56 | 32.41   | 810.08 |
| RFW-21             | 832.65   | 102         | 21.36   | 811.29 | 21.48   | 811.17 | 18.90   | 813.75 | 19.08   | 813.57 |
| PH-7               | 805.94   | 89          | 33.12   | 772.82 | 29.55   | 776.39 | 27.11   | 778.83 | 27.41   | 778.53 |
| PH-9               | 814.94   | 98          | 34.71   | 780.23 | 35.61   | 779.33 | 30.27   | 784.67 | 30.94   | 784.00 |
| PH-11              | 820.68   | 78          | 40.90   | 779.78 | 39.67   | 781.01 | 38.62   | 782.06 | 38.46   | 782.22 |
| PH-12              | 828.35   | 87          | 46.42   | 781.93 | 43.05   | 785.30 | 41.61   | 786.74 | 40.94   | 787.41 |
| B-2                | 807.68   | 100         | 5.53    | 802.15 | 6.11    | 801.57 | 5.49    | 802.19 | 5.61    | 802.07 |
| B-3                | 803.02   | 83          | 7.27    | 795.75 | 7.43    | 795.59 | NA      | --     | 6.99    | 796.03 |
| Amoco              | 842.29   | NA          | 27.08   | 815.21 | 25.84   | 816.45 | 19.07   | 823.22 | 20.17   | 822.12 |
| Hamp. Town #22     | NA       | NA          | 0.63    | 804.33 | 0.71    | 804.25 | 0.70    | 804.26 | 0.71    | 804.25 |
| Pembroke #1        | NA       | NA          | 15.71   | --     | 16.36   | --     | 9.37    | --     | 9.93    | --     |
| Pembroke #2        | NA       | NA          | NA      | --     | NA      | --     | NA      | --     | NA      | --     |
| N. Houcks. Rd.     | NA       | NA          | 8.11    | --     | 8.41    | --     | NA      | --     | NA      | --     |
| E. Century St.     | NA       | NA          | 10.97   | --     | 11.18   | --     | 9.80    | --     | 10.17   | --     |
| Lwr. Beckleys. Rd. | NA       | NA          | 55.62   | --     | 56.41   | --     | 45.50   | --     | 46.53   | --     |

Notes: DTW - Depth to water (ft below top of well casing)  
ELEV - Groundwater elevation (ft above mean sea level)  
NA - Not Available/Not Accessible



Annual Report  
Black & Decker  
Hampstead, Maryland

**FIGURE 2-1**  
**GROUNDWATER ELEVATION CONTOUR MAP**  
**UNDER PUMPING CONDITIONS**  
**(JUNE 1998)**

**Table 2-3**  
**Effluent Characteristics Summary (July 1997 through June 1998)**  
**Black & Decker**  
**Hampstead, Maryland**

| Discharge Number          | Parameter               | Units             | Permit Limits | DMR DATE  |             |                |              |               |               |       |     |
|---------------------------|-------------------------|-------------------|---------------|-----------|-------------|----------------|--------------|---------------|---------------|-------|-----|
|                           |                         |                   |               | July 1997 | August 1997 | September 1997 | October 1997 | November 1997 | December 1997 |       |     |
| 001                       | FLOW                    | average           | MGD           | NA        | 0.053       | 0.088          | 0.077        | 0.232         | 0.281         | 0.223 |     |
|                           |                         | maximum           | MGD           | NA        | 0.081       | 0.131          | 0.154        | 0.489         | 0.798         | 0.248 |     |
|                           | 1,1,1-Trichloroethane   | ug/l              | 5             | < 5       | < 5         | < 5            | < 5          | < 5           | < 5           | < 5   |     |
|                           | Tetrachloroethylene     | ug/l              | 5             | < 5       | < 5         | < 5            | < 5          | < 5           | < 5           | < 5   |     |
|                           | Trichloroethylene       | ug/l              | 5             | < 5       | < 5         | < 5            | < 5          | < 5           | < 5           | < 5   |     |
|                           | Total Residual Chlorine | mg/l              | <0.1          | <0.1      | <0.1        | <0.1           | <0.1         | <0.1          | <0.1          | <0.1  |     |
|                           | Oil & Grease            | maximum           | mg/l          | 15        | < 5         | < 5            | < 5          | < 5           | < 5           | < 5   | < 5 |
|                           |                         | quarterly average | mg/l          | 10        | NR          | NR             | < 5          | NR            | NR            | < 5   |     |
|                           | pH                      | minimum           | STD           | 6.0       | 6.67        | 6.50           | 6.71         | 6.85          | 6.89          | 6.49  |     |
|                           |                         | maximum           | STD           | 8.5       | 7.34        | 7.29           | 7.02         | 7.29          | 7.24          | 7.43  |     |
| BOD                       |                         | mg/l              | 15            | 5         | 5           | < 5            | 3            | 4             | 5             |       |     |
| TSS                       | maximum                 | mg/l              | 30            | 5         | 4           | 5              | 4            | 7             | 9             |       |     |
|                           | quarterly average       | mg/l              | 20            | NR        | NR          | 5              | NR           | NR            | 7             |       |     |
| 101<br>(Monitoring Point) | FLOW                    | average           | MGD           | NA        | 0.257       | 0.531          | 0.561        | 0.534         | 0.557         | 0.534 |     |
|                           |                         | maximum           | MGD           | NA        | 0.264       | 0.538          | 0.584        | 0.551         | 0.570         | 0.563 |     |
|                           | Fecal Coliform          | MPN/100ml         | 200           | < 2       | < 2         | < 2            | < 2          | < 2           | < 2           | < 2   |     |
| 201<br>(Monitoring Point) | FLOW                    | average           | MGD           | NA        | 0.238       | 0.231          | 0.224        | 0.219         | 0.213         | 0.207 |     |
|                           |                         | maximum           | MGD           | NA        | 0.251       | 0.259          | 0.238        | 0.232         | 0.238         | 0.234 |     |
|                           | 1,1,1-Trichloroethane   | ug/l              | NA            | < 5       | < 5         | < 5            | < 5          | < 5           | < 5           | < 5   |     |
|                           | Tetrachloroethylene     | ug/l              | NA            | < 5       | < 5         | < 5            | < 5          | < 5           | < 5           | < 5   |     |
| Trichloroethylene         | ug/l                    | NA                | < 5           | < 5       | < 5         | < 5            | < 5          | < 5           | < 5           |       |     |

2-7

DMR - Discharge Monitoring Report  
 NA - Not Applicable  
 NR - Not Reported

**Table 2-3**  
**Effluent Characteristics Summary (July 1997 through June 1998)**  
**Black & Decker**  
**Hampstead, Maryland**

| Discharge Number          | Parameter               | Units             | Permit Limits | DMR DATE     |               |            |            |          |           |       |
|---------------------------|-------------------------|-------------------|---------------|--------------|---------------|------------|------------|----------|-----------|-------|
|                           |                         |                   |               | January 1998 | February 1998 | March 1998 | April 1998 | May 1998 | June 1998 |       |
| 001                       | FLOW                    | average           | MGD           | NA           | 0.214         | 0.415      | 0.478      | 0.157    | 0.237     | 0.191 |
|                           |                         | maximum           | MGD           | NA           | 0.308         | 0.478      | 1.049      | 0.570    | 0.740     | 0.396 |
|                           | 1,1,1-Trichloroethane   | ug/l              | 5             | < 5          | < 5           | < 5        | < 5        | < 5      | < 5       |       |
|                           | Tetrachloroethylene     | ug/l              | 5             | < 5          | < 5           | < 5        | < 5        | < 5      | < 5       |       |
|                           | Trichloroethylene       | ug/l              | 5             | < 5          | < 5           | < 5        | < 5        | < 5      | < 5       |       |
|                           | Total Residual Chlorine | mg/l              | <0.1          | <0.1         | <0.1          | <0.1       | <0.1       | <0.1     | <0.1      |       |
|                           | Oil & Grease            | maximum           | mg/l          | 15           | < 5           | < 5        | < 5        | < 5      | < 5       | < 5   |
|                           |                         | quarterly average | mg/l          | 10           | NR            | NR         | < 5        | < 5      | < 5       | < 5   |
|                           | pH                      | minimum           | STD           | 6.0          | 6.48          | 6.77       | 6.44       | 6.84     | 6.72      | 6.86  |
|                           |                         | maximum           | STD           | 8.5          | 7.04          | 7.20       | 8.39       | 8.37     | 7.31      | 8.41  |
|                           | BOD                     |                   | mg/l          | 15           | 3             | <2         | 6          | 5        | 4         | 5     |
| TSS                       | maximum                 | mg/l              | 30            | 6            | 3             | 4          | 8          | 9        | 8         |       |
|                           | quarterly average       | mg/l              | 20            | NR           | NR            | 4          | 8          | 9        | 7         |       |
| 101<br>(Monitoring Point) | FLOW                    | average           | MGD           | NA           | 0.499         | 0.576      | 0.548      | 0.476    | 0.407     | 0.466 |
|                           |                         | maximum           | MGD           | NA           | 0.504         | 0.576      | 0.576      | 0.483    | 0.447     | 0.468 |
|                           | Fecal Coliform          |                   | MPN/100ml     | 200          | < 2           | < 2        | < 2        | < 2      | < 2       | < 2   |
| 201<br>(Monitoring Point) | FLOW                    | average           | MGD           | NA           | 0.199         | 0.188      | 0.201      | 0.217    | 0.243     | 0.234 |
|                           |                         | maximum           | MGD           | NA           | 0.220         | 0.211      | 0.209      | 0.299    | 0.257     | 0.255 |
|                           | 1,1,1-Trichloroethane   | ug/l              | NA            | < 5          | < 5           | < 5        | < 5        | < 5      | < 5       |       |
|                           | Tetrachloroethylene     | ug/l              | NA            | < 5          | < 5           | < 5        | < 5        | < 5      | < 5       |       |
| Trichloroethylene         | ug/l                    | NA                | < 5           | < 5          | < 5           | < 5        | < 5        | < 5      |           |       |

DMR - Discharge Monitoring Report  
 NA - Not Applicable  
 NR - Not Reported

### 2.3 GROUNDWATER QUALITY DATA

For the reporting period of July 1997 through June 1998, approximately 589 lbs of total volatile organic compounds (VOCs) were removed from the groundwater by the extraction and treatment system. In general, the total VOCs were comprised of trichloroethene (TCE) (77%), tetrachloroethene (PCE) (23%), and a small percentage of 1,1,1-Trichloroethane. Analytical results of the groundwater collected at the inlet to the air stripper for the period of July 1997 through June 1998 are included in Appendix C.

A summary of the analytical results of the groundwater samples collected from the monitor and extraction wells during the third and fourth quarters of 1997 and the first and second quarters of 1998 are included in Tables 2-4, 2-5, 2-6, and 2-7, respectively. 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 concentrations of TCE were detected in the groundwater samples collected from wells EW-2, RFW-10 and RFW-12B and the highest concentrations of PCE were detected in the groundwater samples collected from well EW-9. VOCs detected at lower concentrations included 1,2-dichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethene, and 1,1,2-trichloroethane. The remainder of VOCs present were detected at levels well below the Federal Maximum Concentration Levels (MCLs). The second quarter 1998 (May 1998) analytical data package is included in Appendix D. Analytical data packages for the remaining quarters are included in the respective Quarterly Groundwater Monitoring Reports.

Table 2-4  
 Summary of Groundwater Analytical Results - August 1997  
 Black & Decker  
 Hampstead, Maryland

| PARAMETER                  | Units | EW-1 | EW-2<br>(25) | EW-3<br>(10) | EW-4<br>(25) | EW-5<br>(10) | EW-6 | EW-7 | EW-8<br>(2) | EW-9<br>(5) | EW-10 | EW-10<br>(DUP) | RFW-1A | RFW-1B | RFW-2A |
|----------------------------|-------|------|--------------|--------------|--------------|--------------|------|------|-------------|-------------|-------|----------------|--------|--------|--------|
| Chloromethane              | ug/L  | NS   | 250 U        | 100 U        | 250 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   | 250 U        | 100 U        | 250 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   | 250 U        | 100 U        | 250 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   | 250 U        | 100 U        | 250 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   | 190 B        | 17 J         | 270 B        | 100 B        | 10 B | 5 U  | 8 JB        | 32 B        | 5 JB  | 5 JB           | 5 U    | 2 J    | 5 U    |
| Acetone                    | ug/L  | NS   | 110 JB       | 100 U        | 250 U        | 100 U        | 10 U | 10 U | 8 JB        | 14 JB       | 10 U  | 8 JB           | 10 U   | 10 U   | 10 U   |
| Carbon Disulfide           | ug/L  | NS   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 U        | 50 U         | 5 U  | 5 U  | 10 U        | 25 U        | 5 U   | 5 U            | 5 U    | 5 U    | 5 U    |
| 1,1-Dichloroethane         | ug/L  | NS   | 120 U        | 50 U         | 120 U        | 50 U         | 5 U  | 5 U  | 10 U        | 25 U        | 5 U   | 5 U            | 5 U    | 5 U    | 5 U    |
| 1,2-Dichloroethene (total) | ug/L  | NS   | 120 U        | 50 U         | 120 U        | 50 U         | 5 U  | 11   | 30          | 9 J         | 5 U   | 5 U            | 5 U    | 5 U    | 5 U    |
| Chloroform                 | ug/L  | NS   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 250 U        | 100 U        | 250 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   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 U        | 50 U         | 5 U  | 5 U  | 10 U        | 25 U        | 5 U   | 5 U            | 5 U    | 5 U    | 5 U    |
| Vinyl Acetate              | ug/L  | NS   | 250 U        | 100 U        | 250 U        | 100 U        | 10 U | 10 U | 20 U        | 50 U        | 10 U  | 10 U           | 10 U   | 10 U   | 10 U   |
| Bromodichloromethane       | ug/L  | NS   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 2600         | 840          | 2300         | 1300         | 12   | 16   | 16          | 11 J        | 2 J   | 2 J            | 5 U    | 5 U    | 2 J    |
| Dibromochloromethane       | ug/L  | NS   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 250 U        | 100 U        | 250 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   | 250 U        | 100 U        | 250 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   | 76 J         | 20 J         | 81 J         | 38 J         | 58   | 40   | 200         | 970         | 140   | 140            | 5 U    | 5 U    | 5 U    |
| 1,1,2,2-Tetrachloroethane  | ug/L  | NS   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 U        | 50 U         | 5 U  | 5 U  | 10 U        | 25 U        | 5 U   | 5 U            | 5 U    | 5 U    | 5 U    |
| Chlorobenzene              | ug/L  | NS   | 120 U        | 50 U         | 120 U        | 50 U         | 5 U  | 5 U  | 10 U        | 25 U        | 5 U   | 5 U            | 5 U    | 5 U    | 5 U    |
| Ethylbenzene               | ug/L  | NS   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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   | 120 U        | 50 U         | 120 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.