



**ANNUAL REPORT**

**Prepared for:**

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

**JULY 1997**

**Prepared by:**

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

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**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. Final versions of the documents are to become part of the Administrative Record for the site which is to be maintained at a public repository in the town of Hampstead.

**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 1996 through June 1997.

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 1996 and January through June 1997, 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 1997 water levels, a representative groundwater elevation contour map showing the potentiometric surface under pumping conditions is presented in Figure 2-1. At the time the data were collected, the extraction wells were pumping at a combined rate of approximately 170 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 1996 through June 1997 are included in Appendix B.

**Table 2-1**  
**Treatment System Pumping Records**  
**(July 1996 through June 1997)**

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

| <b>Date</b>    | <b>Water Pumped (gallons)</b> |
|----------------|-------------------------------|
| July 1996      | 7,626,823                     |
| August 1996    | 7,622,697                     |
| September 1996 | 7,027,815                     |
| October 1996   | 7,872,587                     |
| November 1996  | 7,738,809                     |
| December 1996  | 7,904,413                     |
| January 1997   | 7,968,460                     |
| February 1997  | 7,016,170                     |
| March 1997     | 7,769,265                     |
| April 1997     | 7,615,678                     |
| May 1997       | 7,472,126                     |
| June 1997      | 7,342,773                     |

**Table 2-2**  
**Groundwater Elevation Data (July 1996 through June 1997)**  
**Black & Decker (U.S.) Inc**  
**Hampstead, Maryland**

| WELL NO.           | TOC ELEV | TOTAL DEPTH | 7/3/96 |        | 8/5/96 |        | 9/30/96 |        | 10/31/96 |        |
|--------------------|----------|-------------|--------|--------|--------|--------|---------|--------|----------|--------|
|                    |          |             | DTW    | ELEV   | DTW    | ELEV   | DTW     | ELEV   | DTW      | ELEV   |
| EW-1               | 847.21   | 55          | NA     | --     | NA     | --     | NA      | --     | NA       | --     |
| EW-2               | 849.21   | 110         | 86.14  | 763.07 | 87.65  | 761.56 | 89.96   | 759.25 | 91.63    | 757.58 |
| EW-3               | 846.64   | 118         | 82.78  | 763.86 | 82.76  | 763.88 | 92.49   | 754.15 | 89.73    | 756.91 |
| EW-4               | 858.01   | 97.5        | 86.34  | 771.67 | 82.05  | 775.96 | 83.64   | 774.37 | 81.67    | 776.34 |
| EW-5               | 864.17   | 98          | 74.88  | 789.29 | 73.21  | 790.96 | 70.08   | 794.09 | 74.48    | 789.69 |
| EW-6               | 831.98   | 115         | 59.67  | 772.31 | 58.63  | 773.35 | 60.02   | 771.96 | 60.36    | 771.62 |
| EW-7               | 818.38   | 78          | 40.84  | 777.54 | 39.13  | 779.25 | 37.12   | 781.26 | 37.52    | 780.86 |
| EW-8               | 811.13   | 98          | 50.86  | 760.27 | 49.65  | 761.48 | 49.91   | 761.22 | 49.76    | 761.37 |
| EW-9               | 811.35   | 141         | 79.73  | 731.62 | 79.73  | 731.62 | 78.96   | 732.39 | 79.21    | 732.14 |
| EW-10              | 807.74   | NA          | 47.00  | 760.74 | 47.76  | 759.98 | 49.11   | 758.63 | 48.78    | 758.96 |
| RFW-1A             | 864.37   | 78          | 44.99  | 819.38 | 45.35  | 819.02 | 43.12   | 821.25 | 44.02    | 820.35 |
| RFW-1B             | 864.23   | 200         | 45.01  | 819.22 | 45.39  | 818.84 | 43.15   | 821.08 | 44.07    | 820.16 |
| RFW-2A             | 857.41   | 35          | 12.30  | 845.11 | 10.98  | 846.43 | 11.80   | 845.61 | 11.08    | 846.33 |
| RFW-2B             | 857.73   | 75          | 12.94  | 844.79 | 11.62  | 846.11 | 12.36   | 845.37 | 11.71    | 846.02 |
| RFW-3B             | 839.21   | 153         | 28.36  | 810.85 | 27.07  | 812.14 | 27.93   | 811.28 | 27.22    | 811.99 |
| RFW-4A             | 830.37   | 62          | 33.84  | 796.53 | 34.10  | 796.27 | 35.34   | 795.03 | 34.75    | 795.62 |
| RFW-4B             | 830.37   | 120         | 33.69  | 796.68 | 33.93  | 796.44 | 35.05   | 795.32 | 34.66    | 795.71 |
| RFW-5A             | 817.50   | 30          | DRY    | --     | DRY    | --     | DRY     | --     | DRY      | --     |
| RFW-6              | 785.04   | 120         | 1.78   | 783.26 | 2.03   | 783.01 | 2.42    | 782.62 | 2.29     | 782.75 |
| RFW-7              | 805.14   | 29          | 6.31   | 798.83 | 5.20   | 799.94 | 5.98    | 799.16 | 5.69     | 799.45 |
| RFW-8              | 860.07   | 53          | 54.33  | 805.74 | 54.10  | 805.97 | 50.69   | 809.38 | 53.37    | 806.70 |
| RFW-9              | 862.02   | 49          | 23.66  | 838.36 | 23.45  | 838.57 | 23.59   | 838.43 | 23.14    | 838.88 |
| RFW-10             | 852.06   | 58          | 54.07  | 797.99 | 54.73  | 797.33 | 50.27   | 801.79 | 53.64    | 798.42 |
| RFW-11A            | 849.32   | 72          | 65.61  | 783.71 | 67.23  | 782.09 | 67.61   | 781.71 | 67.74    | 781.58 |
| RFW-11B            | 849.62   | 116         | 67.82  | 781.80 | 75.25  | 774.37 | 75.65   | 773.97 | 75.67    | 773.95 |
| RFW-12B            | 844.87   | 264         | 50.54  | 794.33 | 51.13  | 793.74 | 51.21   | 793.66 | 51.41    | 793.46 |
| RFW-13             | 849.11   | 150         | 59.33  | 789.78 | 55.74  | 793.37 | 56.06   | 793.05 | 56.86    | 792.25 |
| RFW-14B            | 812.39   | 281         | 37.52  | 774.87 | 37.27  | 775.12 | 37.27   | 775.12 | 37.69    | 774.70 |
| RFW-16             | 856.14   | 41          | 36.06  | 820.08 | 36.71  | 819.43 | 35.61   | 820.53 | 34.36    | 821.78 |
| RFW-17             | 834.66   | 60.5        | 26.61  | 808.05 | 24.85  | 809.81 | 25.14   | 809.52 | 24.89    | 809.77 |
| RFW-18             | 843.67   | 50          | 3.33   | 840.34 | 2.09   | 841.58 | 2.46    | 841.21 | 2.21     | 841.46 |
| RFW-19             | 858.28   | 60          | 5.26   | 853.02 | 4.64   | 853.64 | 5.21    | 853.07 | 4.67     | 853.61 |
| PH-7               | 805.94   | 89          | 27.94  | 778.00 | 27.98  | 777.96 | 28.06   | 777.88 | 28.90    | 777.04 |
| PH-9               | 814.94   | 98          | 30.64  | 784.30 | 30.76  | 784.18 | 31.67   | 783.27 | 32.00    | 782.94 |
| PH-11              | 820.68   | 78          | 38.61  | 782.07 | 38.12  | 782.56 | 39.00   | 781.68 | 38.89    | 781.79 |
| PH-12              | 828.35   | 87          | 41.06  | 787.29 | 40.92  | 787.43 | 42.01   | 786.34 | 42.27    | 786.08 |
| B-2                | 807.68   | 100         | 4.86   | 802.82 | 4.77   | 802.91 | 4.86    | 802.82 | 4.74     | 802.94 |
| B-3                | 803.02   | 83          | 6.24   | 796.78 | 5.77   | 797.25 | 6.03    | 796.99 | 6.08     | 796.94 |
| Amoco              | 842.29   | NA          | 24.06  | 818.23 | 22.83  | 819.46 | 23.61   | 818.68 | 19.94    | 822.35 |
| Hamp. Town #22     | NA       | NA          | 0.47   | --     | 0.68   | --     | 0.70    | --     | 0.67     | --     |
| Pembroke #1        | NA       | NA          | 10.11  | --     | 9.73   | --     | 10.02   | --     | 9.49     | --     |
| Pembroke #2        | NA       | NA          | 31.31  | --     | NA     | --     | 32.91   | --     | 30.63    | --     |
| N. Houcks. Rd.     | NA       | NA          | 6.94   | --     | 7.41   | --     | 8.53    | --     | 6.90     | --     |
| E. Century St.     | NA       | NA          | 10.67  | --     | 10.21  | --     | 11.46   | --     | NA       | --     |
| Lwr. Beckleys. Rd. | NA       | NA          | 48.34  | --     | 48.13  | --     | 49.47   | --     | 48.09    | --     |

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 (continued)**  
**Groundwater Elevation Data (July 1996 through June 1997)**  
**Black & Decker (U.S.) Inc**  
**Hampstead, Maryland**

| WELL NO.           | TOC ELEV | TOTAL DEPTH | 11/13/96 |        | 12/6/96 |        | 1/27/97 |        | 2/18/97 |        |
|--------------------|----------|-------------|----------|--------|---------|--------|---------|--------|---------|--------|
|                    |          |             | DTW      | ELEV   | DTW     | ELEV   | DTW     | ELEV   | DTW     | ELEV   |
| EW-1               | 847.21   | 55          | NA       | --     | NA      | --     | NA      | --     | NA      | --     |
| EW-2               | 849.21   | 110         | 92.17    | 757.04 | 92.07   | 757.14 | 91.89   | 757.32 | 94.45   | 754.76 |
| EW-3               | 846.64   | 118         | 82.88    | 763.76 | 83.93   | 762.71 | 84.55   | 762.09 | 85.83   | 760.81 |
| EW-4               | 858.01   | 97.5        | 84.76    | 773.25 | 82.99   | 775.02 | 85.63   | 772.38 | 88.13   | 769.88 |
| EW-5               | 864.17   | 98          | 82.59    | 781.58 | 87.52   | 776.65 | 94.12   | 770.05 | 87.93   | 776.24 |
| EW-6               | 831.98   | 115         | 59.94    | 772.04 | 59.08   | 772.90 | 61.12   | 770.86 | 57.40   | 774.58 |
| EW-7               | 818.38   | 78          | 37.73    | 780.65 | 37.57   | 780.81 | 33.81   | 784.57 | 33.10   | 785.28 |
| EW-8               | 811.13   | 98          | 50.22    | 760.91 | 49.63   | 761.50 | 49.33   | 761.80 | 54.63   | 756.50 |
| EW-9               | 811.35   | 141         | 81.47    | 729.88 | 80.90   | 730.45 | 81.37   | 729.98 | 79.66   | 731.69 |
| EW-10              | 807.74   | NA          | 48.78    | 758.96 | 46.93   | 760.81 | 47.02   | 760.72 | 49.64   | 758.10 |
| RFW-1A             | 864.37   | 78          | 44.89    | 819.48 | 44.36   | 820.01 | 45.11   | 819.26 | 45.81   | 818.56 |
| RFW-1B             | 864.23   | 200         | 44.85    | 819.38 | 44.34   | 819.89 | 45.05   | 819.18 | 45.87   | 818.36 |
| RFW-2A             | 857.41   | 35          | 11.11    | 846.30 | 10.87   | 846.54 | 11.73   | 845.68 | 11.50   | 845.91 |
| RFW-2B             | 857.73   | 75          | 11.76    | 845.97 | 11.30   | 846.43 | 12.00   | 845.73 | 12.14   | 845.59 |
| RFW-3B             | 839.21   | 153         | 27.22    | 811.99 | 27.15   | 812.06 | 27.51   | 811.70 | 25.99   | 813.22 |
| RFW-4A             | 830.37   | 62          | 34.59    | 795.78 | 34.51   | 795.86 | 34.86   | 795.51 | 34.99   | 795.38 |
| RFW-4B             | 830.37   | 120         | 34.42    | 795.95 | 34.34   | 796.03 | 34.81   | 795.56 | 34.96   | 795.41 |
| RFW-5A             | 817.50   | 30          | DRY      | --     | DRY     | --     | DRY     | --     | DRY     | --     |
| RFW-6              | 785.04   | 120         | 2.25     | 782.79 | 1.69    | 783.35 | 2.52    | 782.52 | 2.38    | 782.66 |
| RFW-7              | 805.14   | 29          | 5.04     | 800.10 | 4.84    | 800.30 | 5.29    | 799.85 | 5.46    | 799.68 |
| RFW-8              | 860.07   | 53          | 54.66    | 805.41 | 55.64   | 804.43 | 55.53   | 804.54 | DRY     | --     |
| RFW-9              | 862.02   | 49          | 23.34    | 838.68 | 22.90   | 839.12 | 23.14   | 838.88 | 23.14   | 838.88 |
| RFW-10             | 852.06   | 58          | 55.65    | 796.41 | 56.82   | 795.24 | 56.31   | 795.75 | 56.70   | 795.36 |
| RFW-11A            | 849.32   | 72          | 67.79    | 781.53 | 67.78   | 781.54 | 67.28   | 782.04 | 67.45   | 781.87 |
| RFW-11B            | 849.62   | 116         | 75.75    | 773.87 | 75.71   | 773.91 | 75.43   | 774.19 | 75.69   | 773.93 |
| RFW-12B            | 844.87   | 264         | 51.61    | 793.26 | 51.36   | 793.51 | 52.17   | 792.70 | 51.82   | 793.05 |
| RFW-13             | 849.11   | 150         | 57.31    | 791.80 | 56.47   | 792.64 | 56.81   | 792.30 | 54.14   | 794.97 |
| RFW-14B            | 812.39   | 281         | 37.67    | 774.72 | 37.59   | 774.80 | 35.85   | 776.54 | 35.61   | 776.78 |
| RFW-16             | 856.14   | 41          | 35.20    | 820.94 | 35.69   | 820.45 | 35.47   | 820.67 | 36.89   | 819.25 |
| RFW-17             | 834.66   | 60.5        | 25.47    | 809.19 | 24.43   | 810.23 | 24.91   | 809.75 | 25.04   | 809.62 |
| RFW-18             | 843.67   | 50          | 1.98     | 841.69 | 1.77    | 841.90 | 2.78    | 840.89 | 1.80    | 841.87 |
| RFW-19             | 858.28   | 60          | 4.59     | 853.69 | 4.31    | 853.97 | 5.47    | 852.81 | 4.74    | 853.54 |
| PH-7               | 805.94   | 89          | 29.00    | 776.94 | 28.24   | 777.70 | 26.53   | 779.41 | 26.39   | 779.55 |
| PH-9               | 814.94   | 98          | 32.18    | 782.76 | 31.85   | 783.09 | 32.37   | 782.57 | 27.95   | 786.99 |
| PH-11              | 820.68   | 78          | 38.81    | 781.87 | 38.61   | 782.07 | 37.88   | 782.80 | 37.69   | 782.99 |
| PH-12              | 828.35   | 87          | 42.39    | 785.96 | 42.12   | 786.23 | 39.70   | 788.65 | 39.45   | 788.90 |
| B-2                | 807.68   | 100         | 4.63     | 803.05 | 3.81    | 803.87 | 4.41    | 803.27 | 4.35    | 803.33 |
| B-3                | 803.02   | 83          | 5.93     | 797.09 | 4.96    | 798.06 | 5.37    | 797.65 | 6.37    | 796.65 |
| Amoco              | 842.29   | NA          | 20.03    | 822.26 | 19.94   | 822.35 | 20.21   | 822.08 | 19.12   | 823.17 |
| Hamp. Town #22     | NA       | NA          | 0.70     | --     | 0.63    | --     | 0.71    | --     | 0.68    | --     |
| Pembroke #1        | NA       | NA          | 9.13     | --     | 9.00    | --     | 9.41    | --     | 8.50    | --     |
| Pembroke #2        | NA       | NA          | NA       | --     | NA      | --     | NA      | --     | NA      | --     |
| N. Houcks. Rd.     | NA       | NA          | 6.50     | --     | 6.06    | --     | 6.83    | --     | 6.87    | --     |
| E. Century St.     | NA       | NA          | NA       | --     | NA      | --     | 10.17   | --     | 10.31   | --     |
| Lwr. Beckleys. Rd. | NA       | NA          | 47.14    | --     | 46.83   | --     | 47.31   | --     | NA      | --     |

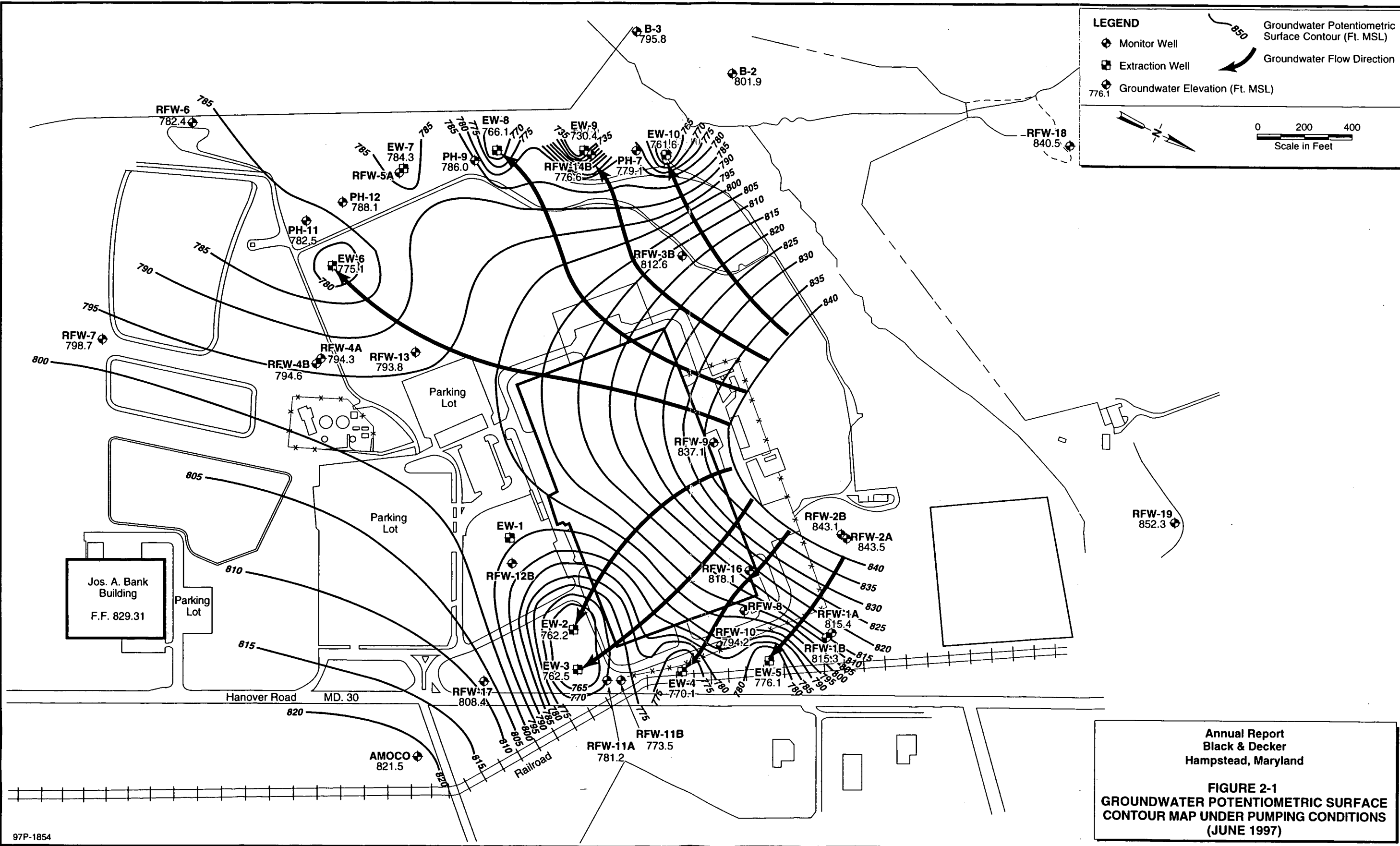
Notes: DTW - Depth to water (ft below top of well casing)  
ELEV - Groundwater elevation (ft above mean sea level)  
NA - Not Available/Not Accessible

**Table 2-2 (continued)**  
**Groundwater Elevation Data (July 1996 through June 1997)**

**Black & Decker (U.S.) Inc**  
**Hampstead, Maryland**

| WELL NO.           | TOC ELEV | TOTAL DEPTH | 3/13/97 |        | 4/17/97 |        | 5/6/97 |        | 6/12/97 |        |
|--------------------|----------|-------------|---------|--------|---------|--------|--------|--------|---------|--------|
|                    |          |             | DTW     | ELEV   | DTW     | ELEV   | DTW    | ELEV   | DTW     | ELEV   |
| EW-1               | 847.21   | 55          | NA      | --     | NA      | --     | NA     | --     | NA      | --     |
| EW-2               | 849.21   | 110         | 87.33   | 761.88 | 91.99   | 757.22 | 87.43  | 761.78 | 87.01   | 762.20 |
| EW-3               | 846.64   | 118         | 83.79   | 762.85 | 82.81   | 763.83 | 83.32  | 763.32 | 84.14   | 762.50 |
| EW-4               | 858.01   | 97.5        | 86.40   | 771.61 | 83.41   | 774.60 | 89.67  | 768.34 | 87.91   | 770.10 |
| EW-5               | 864.17   | 98          | 78.46   | 785.71 | 82.12   | 782.05 | 88.11  | 776.06 | 88.04   | 776.13 |
| EW-6               | 831.98   | 115         | 58.63   | 773.35 | 59.00   | 772.98 | 56.73  | 775.25 | 56.89   | 775.09 |
| EW-7               | 818.38   | 78          | 33.74   | 784.64 | 32.94   | 785.44 | 32.62  | 785.76 | 34.11   | 784.27 |
| EW-8               | 811.13   | 98          | 53.11   | 758.02 | 48.34   | 762.79 | 44.61  | 766.52 | 45.06   | 766.07 |
| EW-9               | 811.35   | 141         | 79.37   | 731.98 | 79.51   | 731.84 | 81.15  | 730.20 | 80.97   | 730.38 |
| EW-10              | 807.74   | NA          | 46.74   | 761.00 | 46.07   | 761.67 | 25.64  | 782.10 | 46.16   | 761.58 |
| RFW-1A             | 864.37   | 78          | 45.96   | 818.41 | 46.02   | 818.35 | 47.15  | 817.22 | 48.96   | 815.41 |
| RFW-1B             | 864.23   | 200         | 45.99   | 818.24 | 46.08   | 818.15 | 47.19  | 817.04 | 48.98   | 815.25 |
| RFW-2A             | 857.41   | 35          | 11.53   | 845.88 | 11.37   | 846.04 | 12.61  | 844.80 | 13.93   | 843.48 |
| RFW-2B             | 857.73   | 75          | 12.06   | 845.67 | 11.89   | 845.84 | 13.26  | 844.47 | 14.59   | 843.14 |
| RFW-3B             | 839.21   | 153         | 26.22   | 812.99 | 26.20   | 813.01 | 26.24  | 812.97 | 26.59   | 812.62 |
| RFW-4A             | 830.37   | 62          | 34.72   | 795.65 | 34.26   | 796.11 | 35.28  | 795.09 | 36.04   | 794.33 |
| RFW-4B             | 830.37   | 120         | 34.61   | 795.76 | 34.19   | 796.18 | 35.22  | 795.15 | 35.82   | 794.55 |
| RFW-5A             | 817.50   | 30          | DRY     | --     | DRY     | --     | DRY    | --     | DRY     | --     |
| RFW-6              | 785.04   | 120         | 2.28    | 782.76 | 1.13    | 783.91 | 2.44   | 782.60 | 2.62    | 782.42 |
| RFW-7              | 805.14   | 29          | 5.68    | 799.46 | 5.57    | 799.57 | 6.34   | 798.80 | 6.48    | 798.66 |
| RFW-8              | 860.07   | 53          | DRY     | --     | DRY     | --     | DRY    | --     | DRY     | --     |
| RFW-9              | 862.02   | 49          | 23.37   | 838.65 | 23.32   | 838.70 | 24.13  | 837.89 | 24.90   | 837.12 |
| RFW-10             | 852.06   | 58          | 56.58   | 795.48 | 57.02   | 795.04 | 57.35  | 794.71 | 57.82   | 794.24 |
| RFW-11A            | 849.32   | 72          | 62.58   | 786.74 | 66.97   | 782.35 | 67.44  | 781.88 | 68.08   | 781.24 |
| RFW-11B            | 849.62   | 116         | 74.21   | 775.41 | 74.70   | 774.92 | 75.36  | 774.26 | 76.09   | 773.53 |
| RFW-12B            | 844.87   | 264         | 52.02   | 792.85 | 51.79   | 793.08 | 51.96  | 792.91 | NA      | --     |
| RFW-13             | 849.11   | 150         | 53.86   | 795.25 | 53.83   | 795.28 | 54.44  | 794.67 | 55.28   | 793.83 |
| RFW-14B            | 812.39   | 281         | 35.79   | 776.60 | 34.89   | 777.50 | 34.80  | 777.59 | 35.84   | 776.55 |
| RFW-16             | 856.14   | 41          | 36.63   | 819.51 | 36.61   | 819.53 | 37.69  | 818.45 | 38.06   | 818.08 |
| RFW-17             | 834.66   | 60.5        | 24.90   | 809.76 | 24.63   | 810.03 | 25.28  | 809.38 | 26.30   | 808.36 |
| RFW-18             | 843.67   | 50          | 2.71    | 840.96 | 2.60    | 841.07 | 2.79   | 840.88 | 3.21    | 840.46 |
| RFW-19             | 858.28   | 60          | 5.11    | 853.17 | 4.83    | 853.45 | 5.80   | 852.48 | 5.98    | 852.30 |
| PH-7               | 805.94   | 89          | 26.21   | 779.73 | 25.46   | 780.48 | 25.53  | 780.41 | 26.83   | 779.11 |
| PH-9               | 814.94   | 98          | 28.74   | 786.20 | 27.02   | 787.92 | 27.34  | 787.60 | 28.94   | 786.00 |
| PH-11              | 820.68   | 78          | 37.91   | 782.77 | 37.33   | 783.35 | 37.56  | 783.12 | 38.17   | 782.51 |
| PH-12              | 828.35   | 87          | 39.48   | 788.87 | 38.73   | 789.62 | 39.25  | 789.10 | 40.22   | 788.13 |
| B-2                | 807.68   | 100         | 4.71    | 802.97 | 4.33    | 803.35 | 5.32   | 802.36 | 5.81    | 801.87 |
| B-3                | 803.02   | 83          | 6.64    | 796.38 | 6.49    | 796.53 | 7.00   | 796.02 | 7.18    | 795.84 |
| Amoco              | 842.29   | NA          | 19.47   | 822.82 | 19.21   | 823.08 | 19.61  | 822.68 | 20.76   | 821.53 |
| Hamp. Town #22     | NA       | NA          | 0.71    | --     | 0.68    | --     | 0.70   | --     | 0.71    | --     |
| Pembroke #1        | NA       | NA          | 9.08    | --     | 9.14    | --     | 10.34  | --     | 11.59   | --     |
| Pembroke #2        | NA       | NA          | NA      | --     | NA      | --     | NA     | --     | NA      | --     |
| N. Houcks. Rd.     | NA       | NA          | 7.53    | --     | 7.41    | --     | 8.03   | --     | 8.41    | --     |
| E. Century St.     | NA       | NA          | 10.47   | --     | NA      | --     | 10.38  | --     | 10.95   | --     |
| Lwr. Beckleys. Rd. | NA       | NA          | NA      | --     | NA      | --     | 48.56  | --     | 49.33   | --     |

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



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**Table 2-3**  
**Effluent Characteristics Summary (July 1996 through June 1997)**  
**Black & Decker**  
**Hampstead, Maryland**

| Discharge Number          | Parameter               | Units     | Permit Limits | DMR DATE  |             |                |              |               |               |       |
|---------------------------|-------------------------|-----------|---------------|-----------|-------------|----------------|--------------|---------------|---------------|-------|
|                           |                         |           |               | July 1996 | August 1996 | September 1996 | October 1996 | November 1996 | December 1996 |       |
| 001                       | FLOW                    | average   | MGD           | NA        | 0.341       | 0.324          | 0.263        | 0.250         | 0.290         | 0.589 |
|                           |                         | maximum   | MGD           | NA        | 1.189       | 1.025          | 0.806        | 0.272         | 0.962         | 1.492 |
|                           | 1,1,1-Trichloroethane   | ug/l      | 5             | ND        | ND          | ND             | ND           | ND            | ND            |       |
|                           | Tetrachloroethylene     | ug/l      | 5             | ND        | ND          | ND             | ND           | ND            | ND            |       |
|                           | Trichloroethylene       | ug/l      | 5             | ND        | ND          | ND             | ND           | ND            | ND            |       |
|                           | Total Residual Chlorine | mg/l      | <0.1          | <0.1      | <0.1        | <0.1           | <0.1         | <0.1          | <0.1          |       |
|                           | Oil & Grease            | average   | mg/l          | 10        | NR          | NR             | ND           | ND            | ND            | ND    |
|                           |                         | maximum   | mg/l          | 15        | ND          | ND             | ND           | ND            | ND            | ND    |
|                           | pH                      | minimum   | STD           | 6.0       | 7.00        | 6.46           | 6.48         | 6.27          | 6.69          | 6.54  |
|                           |                         | maximum   | STD           | 8.5       | 8.05        | 7.49           | 7.17         | 7.01          | 7.41          | 7.33  |
|                           | BOD                     | mg/l      | 15            | 3         | 5           | 6              | ND           | 2             | 8             |       |
| TSS                       | quarterly average       | mg/l      | 20            | NR        | NR          | 10             | NR           | NR            | 8             |       |
|                           | maximum                 | mg/l      | 30            | 10        | 14          | 7              | 9            | 2             | 12            |       |
| 101<br>(Monitoring Point) | FLOW                    | average   | MGD           | NA        | 0.547       | 0.577          | 0.544        | 0.553         | 0.544         | 0.543 |
|                           |                         | maximum   | MGD           | NA        | 0.612       | 0.607          | 0.567        | 0.560         | 0.557         | 0.547 |
|                           | Fecal Coliform          | MPN/100ml | 200           | ND        | ND          | ND             | ND           | ND            | ND            |       |
| 201<br>(Monitoring Point) | FLOW                    | average   | MGD           | NA        | 0.246       | 0.219          | 0.234        | 0.254         | 0.258         | 0.255 |
|                           |                         | maximum   | MGD           | NA        | 0.259       | 0.265          | 0.262        | 0.272         | 0.279         | 0.266 |
|                           | 1,1,1-Trichloroethane   | ug/l      | NA            | ND        | ND          | ND             | ND           | ND            | ND            |       |
|                           | Tetrachloroethylene     | ug/l      | NA            | ND        | ND          | ND             | ND           | ND            | ND            |       |
|                           | Trichloroethylene       | ug/l      | NA            | ND        | ND          | ND             | ND           | ND            | ND            |       |

NA = Not Applicable  
 ND = Not Detected  
 NR = Not Reported

**Table 2-3 (Continued)**  
**Effluent Characteristics Summary (July 1996 through June 1997)**  
**Black & Decker**  
**Hampstead, Maryland**

| Discharge Number          | Parameter               | Units     | Permit Limits | DMR DATE     |               |            |            |          |           |       |
|---------------------------|-------------------------|-----------|---------------|--------------|---------------|------------|------------|----------|-----------|-------|
|                           |                         |           |               | January 1997 | February 1997 | March 1997 | April 1997 | May 1997 | June 1997 |       |
| 001                       | FLOW                    | average   | MGD           | NA           | 0.272         | 0.200      | 0.270      | 0.277    | 0.187     | 0.135 |
|                           |                         | maximum   | MGD           | NA           | 0.362         | 0.294      | 0.415      | 1.165    | 0.286     | 0.175 |
|                           | 1,1,1-Trichloroethane   | ug/l      | 5             | ND           | ND            | ND         | ND         | ND       | ND        |       |
|                           | Tetrachloroethylene     | ug/l      | 5             | ND           | ND            | ND         | ND         | ND       | ND        |       |
|                           | Trichloroethylene       | ug/l      | 5             | ND           | ND            | ND         | ND         | ND       | ND        |       |
|                           | Total Residual Chlorine | mg/l      | <0.1          | <0.1         | <0.1          | <0.1       | <0.1       | <0.1     | <0.1      |       |
|                           | Oil & Grease            | average   | mg/l          | 10           | NR            | NR         | ND         | ND       | ND        | ND    |
|                           |                         | maximum   | mg/l          | 15           | ND            | ND         | ND         | ND       | ND        | ND    |
|                           | pH                      | minimum   | STD           | 6.0          | 6.86          | 6.79       | 6.88       | 6.35     | 6.46      | 6.42  |
|                           |                         | maximum   | STD           | 8.5          | 7.30          | 8.04       | 7.25       | 8.12     | 8.06      | 7.78  |
| BOD                       | mg/l                    | 15        | 4             | 7            | 12            | 6          | 2          | 2        |           |       |
| TSS                       | quarterly average       | mg/l      | 20            | NR           | NR            | 8          | NR         | NR       | 5         |       |
|                           | maximum                 | mg/l      | 30            | 7            | 8             | 8          | 6          | 5        | 4         |       |
| 101<br>(Monitoring Point) | FLOW                    | average   | MGD           | NA           | 0.552         | 0.554      | 0.553      | 0.531    | 0.278     | 0.477 |
|                           |                         | maximum   | MGD           | NA           | 0.567         | 0.557      | 0.554      | 0.543    | 0.284     | 0.549 |
|                           | Fecal Coliform          | MPN/100ml | 200           | ND           | ND            | ND         | ND         | ND       | ND        |       |
| 201<br>(Monitoring Point) | FLOW                    | average   | MGD           | NA           | 0.257         | 0.251      | 0.251      | 0.254    | 0.241     | 0.245 |
|                           |                         | maximum   | MGD           | NA           | 0.283         | 0.268      | 0.278      | 0.273    | 0.255     | 0.274 |
|                           | 1,1,1-Trichloroethane   | ug/l      | NA            | ND           | ND            | ND         | ND         | ND       | ND        |       |
|                           | Tetrachloroethylene     | ug/l      | NA            | ND           | ND            | ND         | ND         | ND       | ND        |       |
|                           | Trichloroethylene       | ug/l      | NA            | ND           | ND            | ND         | ND         | ND       | ND        |       |

NA = Not Applicable  
 ND = Not Detected  
 NR = Not Reported

### 2.3 GROUNDWATER QUALITY DATA

For the reporting period of July 1996 through June 1997, approximately 929 pounds 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) (83%), tetrachloroethene (PCE) (16%), and a small percentage of 1,2-dichloroethene and 1,1,1-trichloroethane. Monthly analytical results of the groundwater prior to treatment collected at the inlet to the air stripper are included in Appendix C.

A summary of the analytical results of the groundwater samples collected from the monitor and extraction wells from the third and fourth quarters of 1996 and the first and second quarters of 1997 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 monitor well RFW-16 and the highest concentrations of PCE were detected in the groundwater samples collected from extraction well EW-9. VOCs detected at lower concentrations were 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 analytical data package for the second quarter of 1996 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 1996  
 Black & Decker  
 Hampstead, Maryland

| PARAMETER                  | Units | EW-1 | EW-2<br>(25) | EW-2<br>(DUP)<br>(25) | EW-3<br>(10) | EW-4<br>(100) | EW-5<br>(25) | EW-6 | EW-7 | EW-8  | EW-9<br>(10) | EW-10 | RFW-1A | RFW-1B | RFW-2A |
|----------------------------|-------|------|--------------|-----------------------|--------------|---------------|--------------|------|------|-------|--------------|-------|--------|--------|--------|
| Chloromethane              | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| Bromomethane               | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| Vinyl Chloride             | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| Chloroethane               | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| Methylene Chloride         | ug/L  | NS   | 110 JB       | 31 BJ                 | 69 B         | 930 B         | 150 B        | 6 B  | 4 JB | 5 JB  | 69 B         | 5 JB  | 4 JB   | 5 U    | 3 JB   |
| Acetone                    | ug/L  | NS   | 160 JB       | 250 U                 | 72 JB        | 1000 B        | 220 JB       | 10 U | 10 U | 10 U  | 78 JB        | 10 U  | 5 JB   | 10 U   | 10 U   |
| Carbon Disulfide           | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 1,1-Dichloroethene         | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 2 J  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 1,1-Dichloroethane         | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 3 J  | 2 J   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 1,2-Dichloroethene (total) | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 2 J  | 12   | 27    | 11 J         | 1 J   | 5 U    | 5 U    | 5 U    |
| Chloroform                 | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 1,2-Dichloroethane         | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 2-Butanone                 | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| 1,1,1-Trichloroethane      | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 3 J  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Carbon Tetrachloride       | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Vinyl Acetate              | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| Bromodichloromethane       | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 1,2-Dichloropropane        | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| cis-1,3-Dichloropropene    | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Trichloroethene            | ug/L  | NS   | 3900 D       | 3800                  | 1400         | 7400          | 4400         | 16   | 19   | 16    | 16 J         | 2 J   | 5 U    | 5 U    | 2 J    |
| Dibromochloromethane       | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 1,1,2-Trichloroethane      | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Benzene                    | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Trans-1,3-Dichloropropene  | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Bromoform                  | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| 4-Methyl-2-pentanone       | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| 2-Hexanone                 | ug/L  | NS   | 250 U        | 250 U                 | 100 U        | 1000 U        | 250 U        | 10 U | 10 U | 10 U  | 100 U        | 10 U  | 10 U   | 10 U   | 10 U   |
| Tetrachloroethene          | ug/L  | NS   | 170          | 99 J                  | 25 J         | 170 J         | 79 J         | 92   | 60   | 230 D | 970          | 150 D | 5 U    | 1 J    | 5 U    |
| 1,1,2,2-Tetrachloroethane  | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Toluene                    | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Chlorobenzene              | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Ethylbenzene               | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Styrene                    | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 U         | 5 U   | 5 U    | 5 U    | 5 U    |
| Xylene (total)             | ug/L  | NS   | 120 U        | 120 U                 | 50 U         | 500 U         | 120 U        | 5 U  | 5 U  | 5 U   | 50 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.

2-10