UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

**December 1, 2008**

REPLY TO THE ATTENTION OF:

LU-9J

**VIA E-MAIL AND CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

Mr. Matthew Basso
Wyeth
Environmental Affairs – FL: 2A
5 Giralda Farms
Madison, NJ 07940

RE: Approval of Petition to Modify the Groundwater Monitoring Program
World Kitchen, Inc.
OHD 045 205 424

Dear Mr. Basso:

We have completed a review of your request to reduce the groundwater monitoring and reporting requirements for the former World Kitchen, Inc. facility submitted on September 30, 2008. The Administrative Order on Consent, EPA Docket No. RCRA-05-2002-0010 (AOC) allows Wyeth to petition EPA to reduce the number of wells sampled, the frequency of sampling, and/or the constituents being sampled for during and after the first five year period if performance of these activities are not necessary to protect human health and the environment.

In its petition, Weston Solutions, Inc. on the behalf of Wyeth requests:

- A reduction in groundwater sampling from quarterly to semi-annually, to be performed in May and November of each year.
- The elimination of 1,1-dichloroethane and trans-1,2-dichloroethylene from the list of site specific target compounds for the groundwater monitoring program.
- The removal of compliance wells S-4 (shallow zone) and R-4 (bedrock zone) from the groundwater monitoring program.

**Sampling Frequency Reduction from Quarterly to Semi-annually.** Section 3.2, Attachment 2 of the AOC provides that at a minimum, after five years of quarterly sampling, the groundwater sampling schedule for all wells will be reduced to semi-annual. The first quarterly groundwater monitoring pursuant to the AOC was performed in November 2002. Therefore, quarterly sampling has been performed from November 2002 to November 2008, or six years.

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**Elimination of Two VOCs as Site Specific Target Compounds.** Table 4 of the petition provides quarterly monitoring data for 1,1-dichloroethane and trans-1,2-dichloroethylene for all 10 monitoring wells since August 2003, demonstrating that their concentrations have been below their respective cleanup standards. In addition, progress reports show that neither compound exceeded their respective cleanup standard in quarterly sampling performed in November 2002, February 2003, and May 2003.

**Elimination of Monitoring Wells S-4 and R-4 from the Groundwater Monitoring Program.** Tables 5 and 6 of the petition provide quarterly data for the seven site specific target compounds for monitoring wells S-4 and R-4 since August 2003, demonstrating that VOC concentrations have been below their respective cleanup standards. In addition, progress reports show that none of the target compounds exceeded their respective cleanup standard in quarterly sampling performed in November 2002, February 2003, and May 2003.

EPA notes that monitoring wells S-4 and R-4 are compliance wells. Section 3.1.a of Attachment 2 of the AOC allows for shutdown of the groundwater pump and treat system if two consecutive sampling events show that no groundwater performance standards are exceeded at any compliance well and for the remaining site wells. Therefore, monitoring wells S-4 and R-4 shall be maintained (not abandoned) and Wyeth must demonstrate that all site specific target compounds (including 1,1-dichloroethane and trans-1,2-dichloroethylene) are not exceeded at all monitoring wells (i.e., L-3, L-5, AS-1, S-4, R-2, R-3, R-4, R-5, W-1, and W-10) at some future date when submitting the report to demonstrate that groundwater performance standards are met and the pump and treat system may be shutdown.

EPA hereby approves the September 30, 2008, petition to modify the groundwater monitoring program as provided above. Wyeth may implement the changes beginning with the May 2009, first semi-annual groundwater monitoring event pursuant to the AOC, provided that the November 2008, quarterly data is consistent with and supports the historical data presented in the petition.

If you have any questions regarding this matter, please contact me at (312) 886-7566 or bardo.kenneth@epa.gov.

Sincerely yours,

Kenneth S. Bardo

Kenneth S. Bardo
EPA Project Manager
Corrective Action Section

cc: Thomas Cornuet, Weston (via e-mail)

**December 1, 2008**

LU-9J

**VIA E-MAIL AND CERTIFIED MAIL** 7001 0320 0005 8921 2749
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Sincerely yours,

Kenneth S. Bardo

Kenneth S. Bardo
EPA Project Manager
Corrective Action Section

cc: Thomas Cornuet, Weston (via e-mail)

Weston Solutions, Inc.
1400 Weston Way
West Chester, PA 19380
610-701-7400 • Fax 610-701-7401
www.westonsolutions.com

September 30, 2008

Mr. Kenneth Bardo
Project Manager
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Re: Former World Kitchen, Inc. Facility, Massillon, Ohio
Request for Reduction in Groundwater Monitoring and Reporting Requirements

Dear Mr. Bardo:

On behalf of Wyeth and World Kitchen, Inc. (WKI), Weston Solutions, Inc. (WESTON®) is submitting this request to reduce the groundwater sampling and reporting requirements currently being performed at the former WKI site in Massillon, Ohio.

**Reduction from Quarterly to Semi-annual Sampling and Reporting**

As we discussed with you on September 8, 2008, WESTON is requesting that the groundwater sampling and reporting frequency requirements be reduced from quarterly to semi-annually. This reduction in sampling and reporting is permitted after 5 years of Soil Vapor Extraction/Air Sparging (SVE/AS) system operation in accordance with Section 3.2, page 5, paragraph 1: Groundwater Monitoring Program, of the Scope of Work for Corrective Measures Implementation at the World Kitchen Facility in Massillon, Ohio (Attachment 2 to the Administrative Order on Consent). You may recall that the SVE/AS remediation system began operation on August 11, 2003. Thus, we have met the five-year operation milestone.

WESTON proposes to perform the semi-annual sampling in May and November of each year and submit the semi-annual reports in August and February of each year. WESTON evaluated quarterly water level data from 2003-2007. (See Tables 1 and 2.) The ratio of the total number of times that a particular quarter had the highest water level to the total number of times that that quarter had the lowest water level, can aid in determining how likely it is to being the high water table event of the year. Similarly, the ratio of the total number of times that a particular quarter had the lowest water level to the total number of times that that quarter had the highest water level, can aid in determining how likely it is to being the low water table event of the year. An analysis of this data indicates that May had the largest ratio of highs to lows (18:8 or 2.25). November had the largest ratio of lows to highs (23:4 or 5.75). (See Table 3.) Therefore, WESTON is recommending that the semi-annual sampling events be performed during May and November as the high and low water table events for the year are most likely to occur during these months.

**Elimination of 1,1-DCA and t-1,2-DCE Analyses**

WESTON is also requesting that the chemical constituents 1,1-dichloroethane (1,1-DCA) and trans-1,2-dichloroethene (t-1,2-DCE) be removed from the list of required groundwater sampling constituents. Both 1,1-DCA and t-1,2-DCE concentrations have been below their respective cleanup standards for every quarterly groundwater sampling event conducted during operation of the SVE/AS remediation system at the site. Table 4 contains all the quarterly groundwater sampling data for all the wells that have been sampled for these constituents during this time period.

**Elimination of Sampling Wells S04 and R04**

In addition, WESTON is requesting that wells S04 and R04 be removed from the list of wells required to be sampled during the groundwater monitoring program sampling events. All the constituents in these wells have been below the respective groundwater cleanup standards for every quarterly sampling event conducted during operation of the SVE/AS remediation system at the site. Table 5 contains all the quarterly groundwater sampling data for well S04 and Table 6 contains all the quarterly groundwater sampling data for well R04.

Thank you for your assistance in this matter. WESTON looks forward to your consideration of these requests. If you have any questions or comments, please contact me at (610) 701-7360 or Mr. Matthew Basso at (973) 660-6726.

Very truly yours,

**WESTON SOLUTIONS, INC.**

Thomas Cornuet

Thomas S. Cornuet, P.G.
Project Manager

cc: M. Basso, Wyeth
J. Rowlett, WKI
P. McDonald, WESTON
J. Savage, WESTON
C. Selinsky, American Roll & Hold

# TABLES

**Table 1**
**Groundwater Elevation Data**
**Former World Kitchen Facility**
**Massillon, Ohio**

| WELL | 8/25/2008 | 5/21/2008 | 2/7/2008 | 11/1/2007 | 9/27/2007 | 5/24/2007 | 2/26/2007 | 11/2/2006 | 8/14/2006 | 5/25/2006 | 2/7/2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W-1 | 840.46 | 843.26 | 841.46 | 840.86 | 841.76 | 842.82 | 842.96 | 842.16 | 842.50 | 840.51 | 841.06 |
| W-2 | 905.04 | 892.49 | 897.27 | 891.51 | 893.88 | 896.65 | 897.69 | 896.89 | 899.05 | 897.11 | 895.61 |
| W-10 | 841.31 | 845.01 | 842.74 | 845.51 | 843.51 | 837.03 | 846.31 | 840.71 | 848.11 | 839.48 | 836.01 |
| I-2 | 919.27 | 917.61 | 909.72 | 912.31 | 913.79 | 914.56 | 914.08 | 913.05 | 915.49 | 914.50 | 913.08 |
| I-4 | 914.05 | 911.60 | 913.42 | 912.76 | 914.87 | 914.95 | 914.29 | 912.87 | 914.70 | 913.88 | 912.92 |
| I-5 | 914.71 | 912.37 | 912.96 | 911.82 | 913.96 | 915.07 | 914.29 | 913.62 | 916.00 | 914.99 | 913.63 |
| AS-01 | 914.2 | 917.69 | 911.90 | 913.95 | 917.11 | 914.97 | 914.20 | 913.04 | 915.54 | 914.54 | 913.11 |
| R-2 | 898.4 | 891.18 | 886.42 | 883.06 | 887.75 | 886.44 | 887.34 | 885.94 | 888.74 | 885.41 | 883.55 |
| R-3 | 897.34 | 893.30 | 890.48 | 887.05 | 890.81 | 890.28 | 890.86 | 890.27 | 892.08 | 889.18 | 888.55 |
| R-4 | 912.7 | 915.45 | 910.54 | 909.71 | 914.55 | 912.71 | 912.12 | 910.84 | 913.32 | 912.11 | 910.65 |
| R-5 | 906.78 | 909.38 | 906.19 | 905.08 | 908.02 | 907.10 | 907.02 | 906.00 | 908.30 | 906.84 | 905.76 |
| S-4 | 922.46 | 923.77 | 929.78 | 922.98 | 925.43 | 923.18 | 922.84 | 923.38 | 923.00 | 923.97 | 923.89 |
| L-1 | 916.73 | 920.38 | 918.88 | 916.14 | 917.12 | 917.93 | 919.21 | 920.47 | 920.02 | 919.60 | 919.06 |
| L-3 | 930.15 | 930.69 | 934.07 | 930.84 | 931.48 | 932.59 | 931.75 | 931.92 | 931.08 | 933.52 | 932.45 |
| L-5 | 929.72 | 930.34 | 934.26 | 930.12 | 930.19 | 930.18 | 932.11 | 930.59 | 929.89 | 930.61 | 931.22 |

Notes:
-- Water level not available.

**Table 1**
**Groundwater Elevation Data**
**Former World Kitchen Facility**
**Massillon, Ohio**

| WELL | 11/21/2005 | 8/10/2005 | 5/11/2005 | 2/23/2005 | 11/3/2004 | 8/9/2004 | 5/12/2004 | 2/24/2004 | 11/6/2003 | 8/12/2003 | 5/7/2003 | 2/26/2003 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **W-1** | 841.06 | 844.05 | 844.86 | 835.83 | 840.26 | 893.14 | 845.25 | 838.83 | 830.26 | 820.26 | 833.26 | 947.26 |
| **W-2** | 895.62 | 899.22 | 902.59 | 899.28 | 896.66 | 901.60 | 895.47 | 893.50 | 893.49 | 891.03 | 890.29 | 904.01 |
| **W-10** | 842.51 | 846.76 | 841.08 | 840.86 | 831.51 | 833.91 | 850.17 | 829.51 | 828.01 | 847.51 | -- | -- |
| **I-2** | 911.63 | 915.56 | 918.52 | 918.68 | 914.39 | 915.21 | 912.84 | 910.85 | 909.44 | 909.12 | 908.03 | 910.40 |
| **I-4** | 911.35 | 915.81 | 919.50 | 918.70 | 915.24 | 915.23 | 914.81 | 910.82 | 909.37 | 909.11 | 908.15 | 907.56 |
| **I-5** | 914.09 | 916.35 | 920.24 | 919.28 | 913.81 | 915.83 | 914.51 | 908.40 | 910.17 | 909.77 | 908.61 | 908.07 |
| **AS-01** | 911.55 | 915.80 | 919.76 | 918.46 | 913.69 | 915.33 | 913.41 | 907.81 | 909.51 | 909.22 | -- | -- |
| **R-2** | 884.44 | 888.21 | 898.47 | 888.60 | 883.20 | 890.59 | 884.18 | 880.72 | 879.81 | 877.65 | 879.57 | 902.79 |
| **R-3** | 889.10 | 891.58 | 895.71 | 882.16 | 888.12 | 897.64 | 890.45 | 884.41 | 886.48 | 883.06 | 883.25 | 902.14 |
| **R-4** | 909.28 | 913.55 | 917.28 | 916.26 | 911.47 | 913.37 | 912.95 | 908.55 | 907.00 | 906.66 | 905.75 | 907.34 |
| **R-5** | 905.37 | 907.52 | 910.60 | 909.94 | 905.97 | 907.37 | 907.70 | 904.10 | 903.12 | 902.78 | 902.08 | 909.08 |
| **S-4** | 922.52 | 923.27 | 924.23 | 924.47 | 922.91 | 923.04 | 923.02 | 922.37 | 921.54 | 922.77 | 921.38 | 921.65 |
| **L-1** | 919.29 | 918.25 | 923.11 | 924.60 | 919.55 | 919.53 | 921.22 | 919.70 | 920.25 | 920.11 | 917.66 | 916.54 |
| **L-3** | 932.11 | 931.15 | 934.09 | 933.60 | 930.19 | 930.30 | 935.53 | 934.07 | 931.05 | 928.18 | 932.79 | 930.61 |
| **L-5** | 930.42 | 929.94 | 930.42 | 930.88 | 930.44 | 929.80 | 930.39 | 931.84 | 930.06 | 929.96 | 930.15 | 930.94 |

Notes:
-- Water level not available.

**Table 2**
**Summary of Water Level Highs and Lows by Quarter 2003-2007**
**Former World Kitchen Facility**
**Massillon, Ohio**

| Well | 2003 High | 2003 Low | 2004 High | 2004 Low | 2005 High | 2005 Low | 2006 High | 2006 Low | 2007 High | 2007 Low |
|---|---|---|---|---|---|---|---|---|---|---|
| S-4 | August | May | August | February | February | November | May | August | August | February |
| L-1 | November | February | May | August | February | August | November | February | February | November |
| L-3 | May | August | May | November | May | August | May | August | November | May |
| L-5 | February | August | February | August | Februrary | August | February | August | February | November |
| I-2 | February | May | August | February | February | November | August | November | May | November |
| I-5 | November | February | August | February | May | November | August | November | May | November |
| R-2 | February | August | August | February | May | November | August | February | August | November |
| R-3 | February | August | August | February | May | February | August | February | February | November |
| R-4 | February | May | August | February | May | November | August | February | August | November |
| R-5 | February | May | May | February | May | November | August | February | August | November |
| AS-01 | NA | NA | August | February | May | November | August | November | August | November |
| W-1 | February | August | August | February | May | February | August | May | February | November |
| W-2 | February | May | August | February | May | November | August | February | February | November |
| W-10 | NA | NA | May | February | August | February | August | February | February | May |

Notes:
NA - Not available

**Table 3**
**Analyses of Frequency of High and Low Water Table Levels**
**Former World Kitchen Facility**
**Massillon, Ohio**

| Quarter | Frequency of Quarterly High Water Levels | Frequency of Quarterly Low Water Levels | Ratio of Highs/Lows for each Quarter | Ratio of Lows/Highs for each Quarter |
|---|---|---|---|---|
| **February** | 20 | **24** | 0.83 | 1.20 |
| **May** | 18 | 8 | **2.25** | 0.44 |
| **August** | **26** | 13 | 2.00 | 0.50 |
| **November** | 4 | 23 | 0.17 | **5.75** |

**Bold** indicates maximum value.

# Table 4
## 8/2003-8/2008 Quarterly Groundwater Monitoring Program Results
## 1,1-DCA and t-1,2-DCE
## Former World Kitchen, Inc. Massillon, Ohio Facility

| Location | Collected Date | 1,1-DICHLOROETHANE Result (ug/L) | TRANS-1,2-DICHLOROETHENE Result (ug/L) |
|---|---|---|---|
| Clean-up Standard | | 810 | 100 |
| AS01 | 8/25/2008 | 53 | 1 U |
| AS01 | 5/21/2008 | 36 | 1 U |
| AS01 | 2/7/2008 | 46 | 1 U |
| AS01 | 11/2/2007 | 42 | 1 U |
| AS01 | 8/27/2007 | 36 | 1 U |
| AS01 | 5/24/2007 | 42 | 1 U |
| AS01 | 2/27/2007 | 65 | 1 U |
| AS01 | 11/2/2006 | 49 | 1 U |
| AS01 | 8/14/2006 | 52 | 1 U |
| AS01 | 5/26/2006 | 29 | 1 U |
| AS01 | 2/8/2006 | 40 | 1 U |
| AS01 | 11/21/2005 | 51 | 1 U |
| AS01 | 8/10/2005 | 8 | 1 U |
| AS01 | 5/11/2005 | 39 | 1 U |
| AS01 | 2/24/2005 | 37 | 1 U |
| AS01 | 11/4/2004 | 33 | 1 U |
| AS01 | 8/10/2004 | 25 | 1 U |
| AS01 | 5/13/2004 | 60 | 1 U |
| AS01 | 2/25/2004 | 85 | 1 U |
| AS01 | 11/7/2003 | 99 | 1 U |
| AS01 | 8/13/2003 | 130 | 0 J |
| I04 | 8/12/2003 | 2 | 1 U |
| I05 | 8/13/2003 | 1 | 1 U |
| L01 | 8/13/2003 | 6 | 1 |
| L03 | 8/25/2008 | 1 U | 1 U |
| L03 | 5/21/2008 | 1 U | 1 U |
| L03 | 2/7/2008 | 1 U | 1 U |
| L03 | 11/1/2007 | 1 U | 1 U |
| L03 | 8/27/2007 | 1 U | 1 U |
| L03 | 5/24/2007 | 1 U | 1 U |
| L03 | 2/26/2007 | 1 U | 1 U |
| L03 | 11/2/2006 | 1 U | 1 U |
| L03 | 8/14/2006 | 1 U | 1 U |
| L03 | 5/25/2006 | 1 U | 1 U |
| L03 | 2/7/2006 | 1 U | 1 U |
| L03 | 11/21/2005 | 1 U | 1 U |
| L03 | 8/10/2005 | 1 U | 1 U |
| L03 | 5/11/2005 | 5 | 1 U |
| L03 | 2/23/2005 | 1 U | 1 U |
| L03 | 11/3/2004 | 1 U | 1 U |
| L03 | 8/9/2004 | 1 U | 1 U |
| L03 | 5/12/2004 | 1 U | 1 U |
| L03 | 2/24/2004 | 1 U | 1 U |
| L03 | 11/6/2003 | 1 U | 1 U |
| L03 | 8/12/2003 | 1 U | 1 U |
| L05 | 8/25/2008 | 6 | 1 U |
| L05 | 5/21/2008 | 3 | 1 U |
| L05 | 2/7/2008 | 4 | 1 U |
| L05 | 11/1/2007 | 6 | 1 U |
| L05 | 8/27/2007 | 4 | 1 U |
| L05 | 5/24/2007 | 4 | 1 U |
| L05 | 2/26/2007 | 5 | 1 U |
| L05 | 11/2/2006 | 6 | 1 U |
| L05 | 8/14/2006 | 5 | 1 U |
| L05 | 5/25/2006 | 3 | 1 U |
| L05 | 2/7/2006 | 4 | 1 U |
| L05 | 11/21/2005 | 5 | 1 U |

# Table 4
## 8/2003-8/2008 Quarterly Groundwater Monitoring Program Results
## 1,1-DCA and t-1,2-DCE
## Former World Kitchen, Inc. Massillon, Ohio Facility

| Location | Collected Date | 1,1-DICHLOROETHANE Result (ug/L) | TRANS-1,2-DICHLOROETHENE Result (ug/L) |
|---|---|---|---|
| L05 | 8/10/2005 | 6 | 1 U |
| L05 | 2/23/2005 | 5 | 1 U |
| L05 | 11/3/2004 | 6 | 1 U |
| L05 | 8/9/2004 | 6 | 1 U |
| L05 | 5/12/2004 | 5 | 1 U |
| L05 | 2/24/2004 | 6 | 1 U |
| L05 | 11/6/2003 | 8 | 1 U |
| L05 | 8/12/2003 | 6 | 1 U |
| R01 | 8/12/2003 | 1 U | 1 U |
| R02 | 8/25/2008 | 8 | 1 U |
| R02 | 5/21/2008 | 6 | 1 U |
| R02 | 2/7/2008 | 13 | 1 U |
| R02 | 11/1/2007 | 6 | 1 U |
| R02 | 8/27/2007 | 6 | 1 U |
| R02 | 5/24/2007 | 6 | 1 U |
| R02 | 2/26/2007 | 7 | 1 U |
| R02 | 11/2/2006 | 9 | 1 U |
| R02 | 8/14/2006 | 9 | 1 U |
| R02 | 5/25/2006 | 8 | 1 U |
| R02 | 2/7/2006 | 13 | 1 U |
| R02 | 11/21/2005 | 12 | 1 U |
| R02 | 8/10/2005 | 9 | 1 U |
| R02 | 5/11/2005 | 7 | 1 U |
| R02 | 2/23/2005 | 18 | 1 U |
| R02 | 11/4/2004 | 9 | 1 U |
| R02 | 8/10/2004 | 11 | 1 U |
| R02 | 5/13/2004 | 23 | 1 U |
| R02 | 2/24/2004 | 21 | 1 U |
| R02 | 11/6/2003 | 17 | 1 U |
| R02 | 8/12/2003 | 3 | 1 U |
| R03 | 8/25/2008 | 71 | 1 U |
| R03 | 5/21/2008 | 38 | 1 U |
| R03 | 2/7/2008 | 65 | 1 U |
| R03 | 11/1/2007 | 77 | 1 U |
| R03 | 8/27/2007 | 65 | 1 U |
| R03 | 5/24/2007 | 73 | 1 U |
| R03 | 2/26/2007 | 88 | 1 U |
| R03 | 11/2/2006 | 79 | 1 U |
| R03 | 8/14/2006 | 61 | 1 U |
| R03 | 5/25/2006 | 57 | 1 U |
| R03 | 2/7/2006 | 100 | 1 U |
| R03 | 11/21/2005 | 97 | 1 U |
| R03 | 8/10/2005 | 110 | 1 U |
| R03 | 5/11/2005 | 90 | 1 U |
| R03 | 2/23/2005 | 85 | 1 U |
| R03 | 11/3/2004 | 56 | 1 U |
| R03 | 8/9/2004 | 35 | 1 U |
| R03 | 5/12/2004 | 54 | 1 U |
| R03 | 2/25/2004 | 68 | 1 U |
| R03 | 11/6/2003 | 72 | 1 U |
| R03 | 8/13/2003 | 60 | 1 U |
| R04 | 8/25/2008 | 1 U | 1 U |
| R04 | 5/21/2008 | 1 U | 1 U |
| R04 | 2/7/2008 | 1 U | 1 U |
| R04 | 11/1/2007 | 1 U | 1 U |
| R04 | 8/27/2007 | 1 U | 1 U |
| R04 | 5/24/2007 | 0 J | 1 U |
| R04 | 2/26/2007 | 1 | 1 U |
| R04 | 11/2/2006 | 1 | 1 U |

# Table 4
## 8/2003-8/2008 Quarterly Groundwater Monitoring Program Results
## 1,1-DCA and t-1,2-DCE
## Former World Kitchen, Inc. Massillon, Ohio Facility

| Location | Collected Date | 1,1-DICHLOROETHANE Result (ug/L) | TRANS-1,2-DICHLOROETHENE Result (ug/L) |
|---|---|---|---|
| R04 | 8/14/2006 | 1 | 1 U |
| R04 | 5/25/2006 | 1 U | 1 U |
| R04 | 2/7/2006 | 1 | 1 U |
| R04 | 11/21/2005 | 1 | 1 U |
| R04 | 8/10/2005 | 2 | 1 U |
| R04 | 5/11/2005 | 1 | 1 U |
| R04 | 2/23/2005 | 1 | 1 U |
| R04 | 11/3/2004 | 0 J | 1 U |
| R04 | 8/9/2004 | 0 J | 1 U |
| R04 | 5/12/2004 | 0 J | 1 U |
| R04 | 2/24/2004 | 1 | 1 U |
| R04 | 11/6/2003 | 1 | 1 U |
| R04 | 8/12/2003 | 1 | 1 U |
| R05 | 8/25/2008 | 5 | 1 |
| R05 | 5/21/2008 | 3 | 1 |
| R05 | 2/7/2008 | 4 | 1 |
| R05 | 11/1/2007 | 4 | 1 |
| R05 | 8/27/2007 | 2 | 1 U |
| R05 | 5/24/2007 | 4 | 1 |
| R05 | 2/26/2007 | 8 | 2 |
| R05 | 11/2/2006 | 5 | 1 |
| R05 | 8/14/2006 | 4 | 1 |
| R05 | 5/25/2006 | 3 | 1 |
| R05 | 2/7/2006 | 5 | 1 |
| R05 | 11/21/2005 | 5 | 1 |
| R05 | 8/10/2005 | 6 | 1 |
| R05 | 5/11/2005 | 5 | 1 |
| R05 | 2/23/2005 | 7 | 2 |
| R05 | 11/3/2004 | 5 | 1 |
| R05 | 8/9/2004 | 2 | 0 J |
| R05 | 5/12/2004 | 5 | 1 |
| R05 | 2/25/2004 | 8 | 2 |
| R05 | 11/6/2003 | 8 | 1 |
| R05 | 8/12/2003 | 1 | 1 U |
| S04 | 8/25/2008 | 1 U | 1 U |
| S04 | 5/21/2008 | 1 U | 1 U |
| S04 | 2/7/2008 | 1 U | 1 U |
| S04 | 11/1/2007 | 1 U | 1 U |
| S04 | 8/27/2007 | 1 U | 1 U |
| S04 | 5/24/2007 | 1 U | 1 U |
| S04 | 2/26/2007 | 1 U | 1 U |
| S04 | 11/2/2006 | 1 U | 1 U |
| S04 | 8/14/2006 | 1 U | 1 U |
| S04 | 5/25/2006 | 1 U | 1 U |
| S04 | 2/7/2006 | 1 U | 1 U |
| S04 | 11/21/2005 | 1 U | 1 U |
| S04 | 8/10/2005 | 1 U | 1 U |
| S04 | 5/11/2005 | 1 U | 1 U |
| S04 | 2/23/2005 | 1 U | 1 U |
| S04 | 11/3/2004 | 1 U | 1 U |
| S04 | 8/9/2004 | 1 U | 1 U |
| S04 | 5/12/2004 | 1 U | 1 U |
| S04 | 2/24/2004 | 1 U | 1 U |
| S04 | 11/6/2003 | 1 U | 1 U |
| S04 | 8/12/2003 | 1 U | 1 U |
| W01 | 8/25/2008 | 30 | 1 U |
| W01 | 5/21/2008 | 21 | 1 U |
| W01 | 2/7/2008 | 27 | 1 U |
| W01 | 11/1/2007 | 32 | 1 U |

# Table 4
## 8/2003-8/2008 Quarterly Groundwater Monitoring Program Results
## 1,1-DCA and t-1,2-DCE
## Former World Kitchen, Inc. Massillon, Ohio Facility

| Location | Collected Date | 1,1-DICHLOROETHANE Result (ug/L) | TRANS-1,2-DICHLOROETHENE Result (ug/L) |
|---|---|---|---|
| W01 | 8/27/2007 | 28 | 1 U |
| W01 | 5/24/2007 | 32 | 1 U |
| W01 | 2/26/2007 | 37 | 1 U |
| W01 | 11/2/2006 | 33 | 1 U |
| W01 | 8/14/2006 | 30 | 1 U |
| W01 | 5/25/2006 | 24 | 1 U |
| W01 | 2/7/2006 | 34 | 1 U |
| W01 | 11/21/2005 | 32 | 1 U |
| W01 | 8/11/2005 | 29 | 1 U |
| W01 | 5/11/2005 | 34 | 1 U |
| W01 | 2/23/2005 | 31 | 1 U |
| W01 | 11/3/2004 | 25 | 1 U |
| W01 | 8/10/2004 | 35 | 22 |
| W01 | 5/12/2004 | 18 | 1 U |
| W01 | 2/25/2004 | 26 | 1 U |
| W01 | 11/6/2003 | 29 | 1 U |
| W01 | 8/12/2003 | 27 | 1 U |
| W10 | 8/25/2008 | 35 | 1 |
| W10 | 5/21/2008 | 30 | 1 |
| W10 | 2/7/2008 | 31 | 1 U |
| W10 | 11/1/2007 | 26 | 1 U |
| W10 | 8/27/2007 | 28 | 0 J |
| W10 | 5/24/2007 | 37 | 1 |
| W10 | 2/26/2007 | 43 | 1 |
| W10 | 11/2/2006 | 42 | 1 |
| W10 | 8/14/2006 | 50 | 8 |
| W10 | 5/25/2006 | 34 | 1 |
| W10 | 2/7/2006 | 36 | 1 |
| W10 | 11/21/2005 | 37 | 1 |
| W10 | 8/11/2005 | 52 | 2 |
| W10 | 5/11/2005 | 56 | 3 |
| W10 | 2/23/2005 | 66 | 2 |
| W10 | 11/3/2004 | 44 | 2 |
| W10 | 8/9/2004 | 44 | 1 |
| W10 | 5/13/2004 | 46 | 2 |
| W10 | 2/25/2004 | 46 | 1 |
| W10 | 11/6/2003 | 39 | 1 |
| W10 | 8/12/2003 | 37 | 1 |

Notes:
U - Not Detected.
J - Estimated Value - result is below detection limit.

# Table 5
## 8/2003-8/2008 Quarterly Groundwater Monitoring Program Results
## Well S04
## Former World Kitchen, Inc. Massillon, Ohio Facility

| Collected Date | 1,1,1-TRICHLOROETHANE | 1,1-DICHLOROETHANE | 1,1-DICHLOROETHENE | CIS-1,2-DICHLOROETHENE | TRANS-1,2-DICHLOROETHENE | TRICHLOROETHENE | VINYL CHLORIDE |
|---|---|---|---|---|---|---|---|
| Clean-up Standard | 200 | 810 | 7 | 70 | 100 | 5 | 2 |
| 8/25/2008 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.5 | 1 U |
| 5/21/2008 | 1 U | 1 U | 1 U | 1 U | 1 U | 2 | 1 U |
| 2/7/2008 | 1 U | 1 U | 1 U | 1 U | 1 U | 2.1 | 1 U |
| 11/1/2007 | 1 U | 1 U | 1 U | 1 U | 1 U | 2.2 | 1 U |
| 8/27/2007 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.6 | 1 U |
| 5/24/2007 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.9 | 1 U |
| 2/26/2007 | 1 U | 1 U | 1 U | 1 U | 1 U | 2.2 | 1 U |
| 11/2/2006 | 1 U | 1 U | 1 U | 1 U | 1 U | 2.9 | 1 U |
| 8/14/2006 | 1 U | 1 U | 1 U | 1 U | 1 U | 2.6 | 1 U |
| 5/25/2006 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.9 | 1 U |
| 2/7/2006 | 1 U | 1 U | 1 U | 1 U | 1 U | 2.4 | 1 U |
| 11/21/2005 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.8 | 1 U |
| 8/10/2005 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.7 | 1 U |
| 5/11/2005 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.4 | 1 U |
| 2/23/2005 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.6 | 1 U |
| 11/3/2004 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.7 | 1 U |
| 8/9/2004 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.8 | 1 U |
| 5/12/2004 | 1 U | 1 U | 1 U | 1 U | 1 U | 2.1 | 1 U |
| 2/24/2004 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.2 | 1 U |
| 11/6/2003 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.5 | 1 U |
| 8/12/2003 | 1 U | 1 U | 1 U | 1 U | 1 U | 3.2 | 1 U |

Notes:
All results are in ug/l.
U - Not Detected.
J - Estimated Value - result is below detection limit.

# Table 6
## 8/2003-8/2008 Quarterly Groundwater Monitoring Program Results
## Well R04
## Former World Kitchen, Inc., Massillon, Ohio Facility

| Collected Date | 1,1,1-TRICHLOROETHANE | 1,1-DICHLOROETHANE | 1,1-DICHLOROETHENE | CIS-1,2-DICHLOROETHENE | TRANS-1,2-DICHLOROETHENE | TRICHLOROETHENE | VINYL CHLORIDE |
|---|---|---|---|---|---|---|---|
| Clean-up Standard | 200 | 810 | 7 | 70 | 100 | 5 | 2 |
| 8/25/2008 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 5/21/2008 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2/7/2008 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 11/1/2007 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 8/27/2007 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 5/24/2007 | 1 U | 0 J | 1 U | 0 J | 1 U | 1 U | 1 U |
| 2/26/2007 | 1 U | 1 | 1 U | 1 | 1 U | 1 U | 1 U |
| 11/2/2006 | 1 U | 1 | 1 U | 1 U | 1 U | 1 U | 1 U |
| 8/14/2006 | 1 U | 1 | 1 U | 1 U | 1 U | 1 U | 1 U |
| 5/25/2006 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| 2/7/2006 | 1 U | 1 | 1 U | 0 J | 1 U | 1 U | 0 J |
| 11/21/2005 | 1 U | 1 | 1 U | 1 U | 1 U | 1 U | 1 U |
| 8/10/2005 | 1 U | 2 | 1 U | 1 | 1 U | 1 | 1 U |
| 5/11/2005 | 1 U | 1 | 0 J | 0 J | 1 U | 0 J | 1 U |
| 2/23/2005 | 1 U | 1 | 1 U | 1 U | 1 U | 1 U | 1 U |
| 11/3/2004 | 1 U | 0 J | 1 U | 0 J | 1 U | 1 U | 0 J |
| 8/9/2004 | 1 U | 0 J | 1 U | 0 J | 1 U | 1 U | 0 J |
| 5/12/2004 | 1 U | 0 J | 1 U | 0 J | 1 U | 1 U | 1 |
| 2/24/2004 | 1 U | 1 | 1 U | 0 J | 1 U | 1 U | 1 |
| 11/6/2003 | 1 U | 1 | 1 U | 0 J | 1 U | 1 U | 1 |
| 8/12/2003 | 1 U | 1 | 1 U | 1 U | 1 U | 1 U | 1 |

Notes:
All result are in ug/l.
U - Not Detected.
J - Estimated Value - result is below detection limit.

# Validated May 2003 Groundwater Monitoring Program Sampling Results Summary
## World Kitchen, Inc., Massillon, Ohio, Facility

| | | | Field Sample ID | TB01-050703-04 | L03-050703-01 | L05-050703-01 | R02-050703-01 | R03-050703-01 | R03-050703-02 |
|---|---|---|---|---|---|---|---|---|---|
| | | | Sample Date | 5/9/2003 | 5/7/2003 | 5/7/2003 | 5/7/2003 | 5/7/2003 | 5/9/2003 |
| | | | Location ID | FIELDQC | L03 | L05 | R02 | R03 | R03 |
| Parameter | Result Units | Clean-up Standard Value | Clean-up Standard Unit | | | | | | |
| 1,1,1-TRICHLOROETHANE | ug/l | 200 | ug/l | 1 U | 1 U | 1 U | 1 U | 7.7 | 7.9 |
| 1,1-DICHLOROETHANE | ug/l | 810 | ug/l | 1 U | 1 U | 7 | 6.2 | 64 | 54 |
| 1,1-DICHLOROETHENE | ug/l | 7 | ug/l | 1 U | 1 U | 1 U | 0.38 J | 5.2 | 5.4 |
| CIS-1,2-DICHLOROETHENE | ug/l | 70 | ug/l | 1 U | 1 U | 17 | 8.7 | 4.9 | 5.1 |
| TRANS-1,2-DICHLOROETHENE | ug/l | 100 | ug/l | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| TRICHLOROETHENE | ug/l | 5 | ug/l | 1 U | 1 U | 1 U | 2.7 | 48 | 44 |
| VINYL CHLORIDE | ug/l | 2 | ug/l | 1 U | 1 U | 33 | 0.32 J | 1 U | 1 U |

| | | | Field Sample ID | R04-050703-01 | R05-050703-01 | S04-050703-01 | W01-050703-01 | W10-050703-01 |
|---|---|---|---|---|---|---|---|---|
| | | | Sample Date | 5/7/2003 | 5/7/2003 | 5/7/2003 | 5/7/2003 | 5/7/2003 |
| | | | Location ID | R04 | R05 | S04 | W01 | W10 |
| Parameter | Result Units | Clean-up Standard Value | Clean-up Standard Unit | | | | | |
| 1,1,1-TRICHLOROETHANE | ug/l | 200 | ug/l | 1 U | 1 U | 1 U | 6.3 | 190 |
| 1,1-DICHLOROETHANE | ug/l | 810 | ug/l | 1.4 | 2.3 | 1 U | 35 | 38 |
| 1,1-DICHLOROETHENE | ug/l | 7 | ug/l | 1 U | 1 U | 1 U | 3.7 | 6.3 |
| CIS-1,2-DICHLOROETHENE | ug/l | 70 | ug/l | 1 U | 14 | 1 U | 6.1 | 53 |
| TRANS-1,2-DICHLOROETHENE | ug/l | 100 | ug/l | 1 U | 0.6 J | 1 U | 1 U | 1.1 |
| TRICHLOROETHENE | ug/l | 5 | ug/l | 1 U | 0.85 J | [illegible] | [illegible] | 69 |
| VINYL CHLORIDE | ug/l | 2 | ug/l | 0.72 J | 5.5 | [illegible] | [illegible] | 0.91 J |

Notes:

U = Analyte was not detected at or above the reporting limit.
J = Result is estimated value below the reporting limit.
10 Analyte detected above the reporting limit.
50 Analyte detected above the reporting limit and above the Clean-up Standard Value.

World Kitchen
Groundwater Data
Beneath North Area
Pumping Well W-10

5/7/03

# Table 3
## Extraction Well W-1 and W-10 Pulse Pumping Results
## World Kitchen, Inc. Massillon, Ohio Facility

| | Well: | W-1[1] | W-1 | W-1 | W-1 | W-1 | W-1 |
|---|---|---|---|---|---|---|---|
| | Sample ID: | **W01-110603-01** | WKI-PW01-082203 | WKI-PW01-103003 | WKI-PW01-103103 | WKI-PW01-121703 | WKI-PW01-121903 |
| | Pumping Status[2]: | **On** | Off 24 Hours[3] | Off 24 Hours[3] | On 24 Hours | Off 48 Hours[3] | On 48 Hours |
| | Sample Date: | **11/6/2003** | 8/22/2003 | 10/30/2003 | 10/31/2003 | 12/17/2003 | 12/19/2003 |
| *Analyte* | *Goal* | | | | | | |
| Vinyl Chloride | 2 | **0.61 J** | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| 1,1-Dichloroethene | 7 | **3** | 6 | 5.3 | 3.2 | 4.5 | 3.3 |
| trans-1,2-Dichloroethene | 100 | **1 U** | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| 1,1-Dichloroethane | 810 | **29** | 52 | 49 | 30 | 35 | 30 |
| cis-1,2-Dichloroethene | 70 | **5.4** | 6 | 6.4 | 5.2 | 6.2 | 5.5 |
| 1,1,1-Trichloroethane | 200 | **4.4** | 11 | 9.6 | 4.7 | 7.5 | 5.6 |
| Trichloroethene | 5 | **24** | 49 | 45 | 24 | 33 | 24 |

| | Well: | W-10[1] | W-10 | W-10 | W-10 |
|---|---|---|---|---|---|
| | Sample ID: | **W10-110603-01** | WKI-PW10-092303 | WKI-PW10-111803 | WKI-PW10-112003 |
| | Pumping Status[2]: | **On** | Off 24 Hours[3] | Off 24 Hours[3] | On 48 Hours |
| | Sample Date: | **11/6/2003** | 9/23/2003 | 11/18/2003 | 11/20/2003 |
| *Analyte* | *Goal* | | | | |
| Vinyl Chloride | 2 | **1** | 25 U | 50 U | 0.73 J |
| 1,1-Dichloroethene | 7 | **4.8** | 97 | 160 | 5.3 |
| trans-1,2-Dichloroethene | 100 | **1.2** | 40 | 50 U | 1.6 |
| 1,1-Dichloroethane | 810 | **39** | 910 | 880 | 37 |
| cis-1,2-Dichloroethene | 70 | **65** | 1300 | 1500 | 78 |
| 1,1,1-Trichloroethane | 200 | **190** | 8600 | 9500 | 220 |
| Trichloroethene | 5 | **67** | 1400 | 1300 | 73 |

Units = ug/L

[1] Quartely sampling results are in bold.

[2] Pumping status at time of sampling.

[3] Wells were sampled approximately 3 minutes after restarting.

11/6/03

## Table 4
## February 2004 Quarterly Groundwater Monitoring Program Sampling Results
## Word Kitchen, Inc. Massillon, Ohio Facility

| Location | Date | Sample ID | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | c-1,2-DCE | t-1,2-DCE | TCE | VC |
|---|---|---|---|---|---|---|---|---|---|
| Clean-Up Standard | | | **200** | **810** | **7** | **70** | **100** | **5** | **2** |
| **AS01** | 2/25/04 | AS01-022504-1 | 2.7 | 85 | 6.7 | 6.1 | 1 U | **130** | **3** |
| **L03** | 2/24/04 | L03-022404-1 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| **L03** | 2/24/04 | L03-022404-3 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| **L05** | 2/24/04 | L05-022404-1 | 1 U | 6.3 | 1 U | 16 | 1 U | 1 U | **25** |
| **R02** | 2/24/04 | R02-022404-1 | 1 U | 21 | 2.1 | 13 | 1 U | **15** | 1 U |
| **R03** | 2/25/04 | R03-022504-1 | 7.5 | 68 | 6.8 | 6.5 | 1 U | **51** | 1 U |
| **R03** | 2/25/04 | R03-022504-2 | 7.8 | 65 | 6.5 | 6.5 | 1 U | **49** | 1 U |
| **R04** | 2/24/04 | R04-022404-1 | 1 U | 1.2 | 1 U | 0.74 J | 1 U | 1 U | 1.4 |
| **R05** | 2/25/04 | R05-022504-1 | 1 U | 8.1 | 0.71 J | **83** | 2.2 | **16** | **35** |
| **S04** | 2/24/04 | S04-022404-1 | 1 U | 1 U | 1 U | 1 U | 1 U | 1.2 | 1 U |
| **W01** | 2/25/04 | W01-022504-1 | 3.9 | 26 | 3.1 | 5.1 | 1 U | **23** | 1 U |
| **W10** | 2/25/04 | W10-022504-1 | **220** | 46 | 1 U | **85** | 1.3 | **76** | 1 U |

**Notes:**

U = Analyte was not detected at or above the reporting limit.

J = Result is estimated value below the reporting limit.

| | |
|---|---|
| 8.7 | Analyte detected above the reporting limit |
| **4.6** | Analyte detected above the reporting limit and above the Clean-up Standard Value. |

**Abbreviations:**

VC= Vinyl Chloride
1,1-DCE= 1,1-Dichloroethene
t-1,2-DCE= trans-1,2-Dichloroethene
1,1-DCA= 1,1-Dichloroethane
c-1,2-DCE= cis-1,2-Dichloroethene
1,1,1-TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

2/25/04

## Table 4
## May 2004 Quarterly Groundwater Monitoring Program Sampling Results
## Word Kitchen, Inc. Massillon, Ohio Facility

| Location | Date | Sample ID | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | c-1,2-DCE | t-1,2-DCE | TCE | VC |
|---|---|---|---|---|---|---|---|---|---|
| Clean-Up Standard | | | 200 | 810 | 7 | 70 | 100 | 5 | 2 |
| S04 | 05/12/04 | S04-051204-4 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| S04 | 05/12/04 | S04-051204-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 2.1 V | 1.0 U |
| R04 | 05/12/04 | R04-051204-1 | 1.0 U | 0.86 J | 1.0 U | 0.59 J | 1.0 U | 1.0 U | 1.4 |
| L03 | 05/12/04 | L03-051204-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| R05 | 05/12/04 | R05-051204-1 | 1.0 U | 5.7 | 1.0 U | 66 | 1.7 | **14** | **31** |
| L05 | 05/12/04 | L05-051204-1 | 1.0 U | 5.5 | 1.0 U | 17 | 1.0 U | 1.0 U | **26** |
| R03 | 05/12/04 | R03-051204-3 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| R03 | 05/12/04 | R03-051204-1 | 7.0 | 54 | 5.9 | 5.4 | 1.0 U | **46** | 1.0 U |
| R03 | 05/12/04 | R03-051204-2 | 7.0 | 54 | 5.9 | 5.5 | 1.0 U | **45** | 1.0 U |
| R02 | 05/13/04 | R02-051304-1 | 1.0 U | 23 | 2.2 | 14 | 1.0 U | **16** | 1.0 U |
| AS01 | 05/13/04 | AS01-051304-1 | 2.3 | 60 | 4.6 | 3.5 | 1.0 U | **87** | **2.1** |
| W01 | 5/12/2004 | W01-051204-1 | 1.0 U | 2.3 | 1.0 U | 18 | 4.1 | 3.0 | **19** |
| W10 | 5/13/2004 | W10-051304-1 | 0.79 J | 7.3 | 2.2 | 46 | 96 | **230** | **85** |

**Notes:**

U = Analyte was not detected at or above the reporting limit.

J = Result is estimated value below the reporting limit.

| | |
|---|---|
| 8.7 | Analyte detected above the reporting limit |
| **4.6** | Analyte detected above the reporting limit and above the Clean-up Standard Value. |

**Abbreviations:**

VC= Vinyl Chloride
1,1-DCE= 1,1-Dichloroethene
t-1,2-DCE= trans-1,2-Dichloroethene
1,1-DCA= 1,1-Dichloroethane
c-1,2-DCE= cis-1,2-Dichloroethene
1,1,1-TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

5/13/04

## Table 4
## November 2004 Quarterly Groundwater Monitoring Program Sampling Results
## Word Kitchen, Inc. Massillon, Ohio Facility

| Location | Date | Sample ID | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | c-1,2-DCE | t-1,2-DCE | TCE | VC |
|---|---|---|---|---|---|---|---|---|---|
| Clean-Up Standard | | | **200** | **810** | **7** | **70** | **100** | **5** | **2** |
| **TB** | 11/3/04 | Trip Blank | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **FB** | 11/3/04 | FB01-110304-3 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **S04** | 11/3/04 | S04-110304-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.7 | 1.0 U |
| **R02** | 11/4/04 | R02-110404-1 | 1.0 U | 9.9 | 0.90 J | 7.9 | 1.0 U | 6.4 | 1.0 U |
| **R03** | 11/3/04 | R03-110304-1 | 7.8 | 56 | 5.1 | 6.7 | 1.0 U | **50** | 1.0 U |
| **R04** | 11/3/04 | R04-110304-1 | 1.0 U | 0.87 J | 1.0 U | 0.60 J | 1.0 U | 1.0 U | 0.58 J |
| **R05** | 11/3/04 | R05-110304-1 | 1.0 U | 5.2 | 1.0 U | 54 | 1.7 | 12 | **20** |
| **L03** | 11/3/04 | L03-110304-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **L05** | 11/3/04 | L05-110304-1 | 1.0 U | 6.4 | 1.0 U | 12 | 1.0 U | 1.0 U | **32** |
| **AS01** | 11/4/04 | AS01-110404-1 | 4.6 | 32 | 1.9 | 2.1 | 1.0 U | **52** | 0.86 J |
| **AS01** | 11/4/04 | AS01-110404-2 | 4.5 | 33 | 2.1 | 2.3 | 1.0 U | **52** | 0.90 J |
| **W01** | 11/3/04 | W01-110304-1 | 4.3 | 25 | 2.9 | 5.5 | 1.0 U | **25** | 1.0 U |
| **W10** | 11/3/04 | W10-110304-1 | **300** | 44 | **7.3** | **130** | 2.2 | **83** | 0.73 J |

**Notes:**

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| | |
|---|---|
| 8.7 | Analyte detected above the reporting limit |
| **4.6** | Analyte detected above the reporting limit and above the Clean-up Standard Value. |

**Abbreviations:**

VC= Vinyl Chloride

1,1-DCE= 1,1-Dichloroethene

t-1,2-DCE= trans-1,2-Dichloroethene

1,1-DCA= 1,1-Dichloroethane

c-1,2-DCE= cis-1,2-Dichloroethene

1,1,1-TCA= 1,1,1-Trichloroethane

TCE= Trichloroethene

11/3/04

Table 4

**February 2005 Quarterly Groundwater Monitoring Program Sampling Results**
**Word Kitchen, Inc. Massillon, Ohio Facility**

| Location | Date | Sample ID | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | c-1,2-DCE | t-1,2-DCE | TCE | VC |
|---|---|---|---|---|---|---|---|---|---|
| **Clean-Up Standard** | | | **200** | **810** | **7** | **70** | **100** | **5** | **2** |
| **TB** | 2/23/05 | Trip Blank | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **FB** | 2/23/05 | FB-022305-3 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **S04** | 2/23/05 | S04-022305-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.6 | 1.0 U |
| **R02** | 2/23/05 | R02-022305-1 | 1.0 U | 18 | 1.5 | 11 | 1.0 U | **13** | 1.0 U |
| **R03** | 2/23/05 | R03-022305-1 | 11 | 85 | **7.2** | 9.2 | 1.0 U | **63** | 1.0 U |
| **R04** | 2/23/05 | R04-022305-1 | 1.0 U | 1.2 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **R05** | 2/23/05 | R05-022305-1 | 1.0 U | 7 | 1.0 U | **71** | 2 | **16** | **30** |
| **L03** | 2/23/05 | L03-022305-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **L05** | 2/23/05 | L05-022305-1 | 1.0 U | 5.1 | 1.0 U | 12 | 1.0 U | 1.0 U | **18** |
| **AS01** | 2/24/05 | AS01-022405-1 | 5.3 | 37 | 2 | 2.4 | 1.0 U | **52** | 0.79 J |
| **AS01** | 2/24/05 | AS01-022405-2 | 5.3 | 37 | 2.1 | 2.5 | 1.0 U | **51** | 0.82 J |
| **W01** | 2/23/05 | W01-022305-1 | 5.6 | 31 | 3.2 | 8.1 | 1.0 U | **32** | 1.0 U |
| **W10** | 2/23/05 | W10-022305-1 | **390** | 66 | **13** | **170** | 2.2 | **130** | 1.2 |

**Notes:**

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| | |
|---|---|
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| **4.6** | Analyte detected above the reporting limit and above the Clean-up Standard Value. |

**Abbreviations:**

VC= Vinyl Chloride
1,1-DCE= 1,1-Dichloroethene
t-1,2-DCE= trans-1,2-Dichloroethene
1,1-DCA= 1,1-Dichloroethane
c-1,2-DCE= cis-1,2-Dichloroethene
1,1,1-TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

2/23/05

# May 2005 Quarterly Groundwater Monitoring Program Sampling Results
## Word Kitchen, Inc. Massillon, Ohio Facility

| Location | Date | Sample ID | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | c-1,2-DCE | t-1,2-DCE | TCE | VC |
|---|---|---|---|---|---|---|---|---|---|
| Clean-Up Standard | | | 200 | 810 | 7 | 70 | 100 | 5 | 2 |
| TB | 5/11/2005 | Trip Blank | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| FB | 5/11/2005 | L03-051105-3 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| S04 | 5/11/2005 | S04-051105-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.4 | 1.0 U |
| R02 | 5/11/2005 | R02-051105-1 | 1.0 U | 7.8 | 0.95 J | 6.4 | 1.0 U | 4.2 | 1.0 U |
| R03 | 5/11/2005 | R03-051105-1 | 19 | 90 | 1.0 U | 9.3 | 1.0 U | **66** | 1.0 U |
| R04 | 5/11/2005 | R04-051105-1 | 1.0 U | 1.4 | 0.41 J | 0.74 J | 1.0 U | 0.37 J | 1.0 U |
| R05 | 5/11/2005 | R05-051105-1 | 1.0 U | 5.6 | 0.56 J | 57 | 1.9 | **13** | **27** |
| L03 | 5/11/2005 | L03-051105-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| L05 | 5/11/2005 | L05-051105-1 | 1.0 U | 5.3 | 1.0 U | 13 | 1.0 U | 1.0 U | **26** |
| AS01 | 5/11/2005 | AS01-051105-1 | 7.5 | 39 | 2.1 | 2.5 | 1.0 U | **58** | 1 |
| AS01 | 5/11/2005 | AS01-051105-2 | 7.2 | 38 | 2.3 | 2.5 | 1.0 U | **55** | 1.0 U |
| W01 | 5/11/2005 | W01-051105-1 | 7.9 | 34 | 4.3 | 6.7 | 1.0 U | **32** | 0.36 J |
| W10 | 5/11/2005 | W10-051105-1 | **430** | 56 | **15** | **150** | 3.2 | **110** | 1.3 |

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| **4.6** | Analyte detected above the reporting limit and above the Clean-up Standard Value. |

**Abbreviations:**

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t-1,2-DCE= trans-1,2-Dichloroethene
1,1-DCA= 1,1-Dichloroethane
c-1,2-DCE= cis-1,2-Dichloroethene
1,1,1-TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

5/11/05

# August 2005 Quarterly Groundwater Monitoring Program Sampling Results
## Word Kitchen, Inc. Massillon, Ohio Facility

| Location | Date | Sample ID | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | c-1,2-DCE | t-1,2-DCE | TCE | VC |
|---|---|---|---|---|---|---|---|---|---|
| Clean-Up Standard | | | **200** | **810** | **7** | **70** | **100** | **5** | **2** |
| **TB** | 8/10/2005 | **Trip Blank** | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **FB** | 8/10/2005 | R02-081005-3 | 1.0 U | 1.0 U | 1.0 U | 0.96 J | 1.0 U | 1.0 U | 1.0 U |
| **S04** | 8/10/2005 | S04-081005-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.7 | 1.0 U |
| **R02** | 8/10/2005 | R02-081005-1 | 1.0 U | 9.3 | 1.0 U | 9.4 | 1.0 U | 4.9 | 1.0 U |
| **R03** | 8/10/2005 | R03-081005-1 | 37 J | 110 | **11 J** | 15 J | 1.0 U | **90 J** | 1.0 U |
| **R04** | 8/10/2005 | R04-081005-1 | 1.0 U | 2.8 | 1.0 U | 1.2 | 1.0 U | 1.1 | 1.0 U |
| **R05** | 8/10/2005 | R05-081005-1 | 1.0 U | 6.6 | 1.0 U | 70 | 1.4 | **16** | **29** |
| **L03** | 8/10/2005 | L03-081005-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **L05** | 8/10/2005 | L05-081005-1 | 1.0 U | 6 | 1.0 U | 18 | 1.0 U | 1.0 U | **34** |
| **AS01** | 8/10/2005 | AS01-081005-1 | 6.8 | 44 | 2.4 | 3.4 | 1.0 U | **73** | 1.3 |
| **AS01** | 8/10/2005 | AS01-081005-2 | 6.5 | 43 | 5.0 U | 5.0 U | 5.0 U | **70** | 5.0 U |
| **W01** | 8/11/2005 | W01-081105-1 | 7.1 | 29 | 3.6 | 6.3 | 1.0 U | **35** | 1.0 U |
| **W10** | 8/11/2005 | W10-081105-1 | **260** | 52 | **10** | **120** | 2.5 | **95** | 1.1 |

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| | |
|---|---|
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| **4.6** | Analyte detected above the reporting limit and above the Clean-up Standard Value. |

**Abbreviations:**

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1,1-DCA= 1,1-Dichloroethane
c-1,2-DCE= cis-1,2-Dichloroethene
1,1,1-TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

8/11/05

# November 2005 Quarterly Groundwater Monitoring Program Sampling Results
## Word Kitchen, Inc. Massillon, Ohio Facility

| Location | Date | Sample ID | 1,1,1-TCA | 1,1-DCA | 1,1-DCE | c-1,2-DCE | t-1,2-DCE | TCE | VC |
|---|---|---|---|---|---|---|---|---|---|
| Clean-Up Standard | | | **200** | **810** | **7** | **70** | **100** | **5** | **2** |
| **TB** | 11/21/2005 | Trip Blank | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **FB** | 11/21/2005 | AS01-112105-3 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **S04** | 11/21/2005 | S04-112105-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.8 | 1.0 U |
| **R02** | 11/21/2005 | R02-112105-1 | 1.0 U | 12 | 1.0 U | 8.6 | 1.0 U | **12** | 1.0 U |
| **R03** | 11/21/2005 | R03-112105-1 | 42 | 97 | **10** | 14 | 1.0 U | **79** | 1.0 U |
| **R04** | 11/21/2005 | R04-112105-1 | 1.0 U | 1.3 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **R05** | 11/21/2005 | R05-112105-1 | 1.0 U | 5.9 | 1.0 U | 65 | 1.8 | **14** | **29** |
| **L03** | 11/21/2005 | L03-112105-1 | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U | 1.0 U |
| **L05** | 11/21/2005 | L05-112105-1 | 1.0 U | 5.9 | 1.0 U | 11 | 1.0 U | 1.0 U | **36** |
| **AS01** | 11/21/2005 | AS01-112105-1 | 8.8 | 51 | 2.9 | 4.3 | 1.0 U | **92** | 1.1 |
| **AS01** | 11/21/2005 | AS01-112105-2 | 8.3 | 51 | 2.9 | 4.2 | 1.0 U | **92** | 1.1 |
| **W01** | 11/21/2005 | W01-112105-1 | 10 | 32 | 3.7 | 6.4 | 1.0 U | **30** | 1.0 U |
| **W10** | 11/21/2005 | W10-112105-1 | 190 | 37 | **7.4** | **90** | 1.7 | **75** | 1.1 |

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1,1-DCA= 1,1-Dichloroethane
c-1,2-DCE= cis-1,2-Dichloroethene
1,1,1-TCA= 1,1,1-Trichloroethane
TCE= Trichloroethene

**October 24, 2001**

DE-9J

**VIA E-MAIL AND CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED** 7099 3400 0000 9585 4427

Mr. Matthew Basso
Manager, Environmental Affairs
American Home Products
100 Campus Drive
Florham Park, NJ 07932

RE: Monitoring Well Selection Rationale
EKCO Housewares, Inc.
OHD 045 205 424

Dear Mr. Basso:

The United States Environmental Protection Agency (U.S. EPA) has received your October 10, 2001 letter providing the Monitor Well Selection Rationale document for the former EKCO Housewares, Inc. facility (now owned and operated by World Kitchen, Inc.) located in Massillon, Ohio.

As we discussed and are in the process of finalizing, the wells to be used to monitor the final remedy at the EKCO facility are provided in the proposed Scope of Work for Corrective Measures Implementation (Attachment 2) of the proposed Administrative Order on Consent (AOC). The Monitoring Well Selection Rationale document attached to your October 10, 2001 letter is not specifically attached to the proposed AOC. U.S. EPA generally agrees with the rationale provided for selecting the monitoring wells and has incorporated the principles in Attachment 2 of the proposed AOC. However, as documented in Attachment 2, the term "point of compliance" requires a certain demonstration that is not fully presented in the Monitor Well Selection Rationale document.

The groundwater cleanup objectives at the EKCO facility include three components: groundwater cleanup levels, point of compliance, and remediation time-frames. Groundwater cleanup levels represent specific concentrations of chemicals designed to be protective for groundwater use and other possible routes of exposure. Point of compliance represents the locations where the groundwater cleanup levels must be achieved. Remediation time-

frames typically include both the time it would take to implement the remedy and the estimated time to achieve the groundwater cleanup levels at the point of compliance.

The groundwater cleanup levels at the EKCO facility are derived from maximum contaminant levels developed under the Safe Drinking Water Act. These are risk-based goals such that attaining the given concentration will not result in adverse health effects or an excess cancer rate.

The point of compliance for groundwater represents where groundwater cleanup levels must be achieved within the aquifer contaminated beneath the EKCO facility. The groundwater point of compliance for RCRA Corrective Action is throughout the area where groundwater is contaminated above the cleanup levels, or, when waste is left in place, at and beyond the boundary of the waste management area encompassing the original sources of groundwater contamination. U.S. EPA typically refers to this point of compliance as the "throughout-the-plume/unit boundary" point of compliance.

The groundwater cleanup levels for certain volatile organic compounds are exceeded throughout-the-plume identified at the EKCO facility. Therefore, U.S. EPA requires a demonstration that all well- ... contamination has been identified be ... anup levels. Attachment 2 of the ... s requirement and incorporates the ... m presented in your Monitor Well ... The Monitor Well Selection ... etter are part of the U.S. EPA

... rding this matter, please contact ... rdo.kenneth@epa.gov".

... linator

EK

2

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Matthew Basso
American Home Products
100 Campus Drive
Florham Park, NJ 07932

2. Article Number (Copy from service label) 7099 3400 0000 9585 4427

PS Form 3811, July 1999 Domestic Return Receipt 102595-99-M-1789

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) L Bullard
B. Date of Delivery
C. Signature X [signature]
☐ Agent ☐ Addressee
D. Is delivery address different from item 1? ☐ Yes ☐ No
If YES, enter delivery address below:

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.
4. Restricted Delivery? (Extra Fee) ☐ Yes

7099 3400 0000 9585 4427

**U.S. Postal Service**
**CERTIFIED MAIL RECEIPT**
*(Domestic Mail Only; No Insurance Coverage Provided)*

Article Sent To: K. Bardo, DE-9J

| | |
|---|---|
| Postage | $ .34 |
| Certified Fee | 2.10 |
| Return Receipt Fee (Endorsement Required) | 1.50 |
| Restricted Delivery Fee (Endorsement Required) | |
| Total Postage & Fees | $ 3.94 |

Postmark Here
CHICAGO IL LOOP STA USPO OCT 25 2001

Name (Please Print Clearly) (to be completed by mailer) Matt Basso
Street, Apt. No.; or PO Box No. 100 Campus Drive
City, State, ZIP+4 Florham Park, NJ 07932

PS Form 3800, July 1999 See Reverse for Instructions

# AMERICAN HOME PRODUCTS CORPORATION

100 CAMPUS DRIVE, FLORHAM PARK, NEW JERSEY 07932, (973) 683-2000

October 10, 2001

**ENVIRONMENT & SAFETY**

Mr. Kenneth Bardo
Project Manager
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

RE: EKCO-Massillon, OH
(EPA ID No. OHD 045-205-424)
EPA's Revision of AOC-Scope of Work
Final Monitoring Well Selection Rationale

Dear Mr. Bardo:

This letter is to document our telephone discussion of October 4, 2001 with regards to my inquiry as to EPA's decision to omit the Monitoring Well Selection Rationale from the Scope of Work ("SW") attached to the draft RCRA corrective action Administrative Order on Consent ("AOC") for the subject site. The Monitoring Well Selection Rationale was initially submitted by American Home Products Corporation ("AHPC") to EPA on July 19, 2001 in a timely manner in response from EPA for such a document to evaluate AHP's proposed SW. At your request, the Monitoring Well Selection Rationale was amended and submitted to EPA on August 21, 2001 as part of a revised SW. As you indicated, EPA omitted the Monitoring Well Selection Rationale from the "Tentative Final" AOC-SW, so that the SW, in your words, could remain as a "clean" and concise attachment to the AOC. You have now indicated that that the Monitoring Well Selection Rationale is complete and final, and has been accepted by EPA. As per your recommendation, the Monitoring Well Selection Rationale is attached to this letter to ensure its inclusion in the administrative record for EPA's decision regarding the AOC and selection of RCRA corrective measures for this site. I would appreciate it if you would send me a short letter confirming the inclusion of this document in the administrative record.

AHPC appreciates your attention to this request.

Sincerely yours

Matthew Basso
Manager, Environmental Affairs
American Home Products Corporation

cc: w/out Attachment
G. Smith - AHPC
K. Koneval - AHPC
P. Howard - AHPC
K. Bourdeau - B&D
L. Bove - Weston
T. Cornute - Weston

# MONITOR WELL SELECTION RATIONALE

## EKCO/World Kitchen, Massillon, Ohio, Facility
## U.S. EPA I.D. No. OHD 045-205-424

This document provides the rationale for the selection of the compliance, assessment, and background groundwater monitor wells described in the Scope of Work (SW). The SW sets forth the work to be conducted to implement the groundwater and soil corrective measures alternatives discussed in Section VI of the ACO.

**Groundwater Remediation Corrective Measure Alternative**

The groundwater remediation approach selected from the Corrective Measures Study (WESTON, 1993 and 1994) is Alternative GW-6, which consists of pulse pumping of groundwater from wells W-1 and W-10 with treatment via air stripping, and air sparging in soil vapor extraction Area 3-East. The locations of recovery/production wells W-1 and W-10, and the air sparging area (Area 3-East) are shown in the attached Figure 1.

Paragraph 11 in the Administrative Consent Order (ACO) requires the implementation of a groundwater monitoring program to monitor the shallow and bedrock aquifers at the facility. The goals of this program are to monitor the progress of groundwater remediation and to establish the basis for determining the completion of the program.

The wells to be sampled during the groundwater monitoring program are classified into three categories: compliance wells, assessment wells, and background wells. Compliance wells will be used as "compliance points", which are defined in the RCRA program as follows (U.S. EPA, 2000): *"the point of compliance for groundwater, in the context of RCRA corrective action, represents where the facility should meet groundwater cleanup levels within a contaminated aquifer at the conclusion of the final remedy (i.e., the facility has achieved its final remediation goals)"*. The compliance wells will be used for comparison to the groundwater performance standards to determine if remediation is complete. Assessment wells will be used to assess groundwater remediation system progress and to determine if changes are needed in recovery well pumping rates, air sparging system and pulse pumping schedules. The assessment wells will not be used to determine compliance with groundwater performance standards except as noted in the SW. The background well will be used to monitor background (upgradient) conditions in the shallow water-bearing unit. The following compliance, assessment, and background wells will be included in the groundwater monitoring program:

- Shallow zone: well L-3 (background), wells L-5 and AS-1 (assessment), well S-4 (compliance).
- Bedrock zone: wells R-2, R-3, R-4, and R-5 (compliance).
- Bedrock zone production/recovery wells: wells W-1 and W-10 (assessment).

All compliance wells, assessment wells and the background well will be sampled quarterly for the first 5 years. However, AHPC reserves the right to petition U.S. EPA to reduce the number of wells sampled, the frequency of sampling, and/or the constituents being sampled for during that period or any time thereafter. At a minimum, after 5 years of quarterly monitoring, the groundwater sampling schedule for all wells will be reduced to semi-annual. The locations of the proposed groundwater monitoring program compliance, assessment, and background wells are shown on the attached Figure 2; and the respective completion depths and groundwater flow directions for these wells are shown on the attached Figure 3. The rationale for the selection of these wells is provided below.

**Compliance Wells**

Compliance wells will be used for determining when groundwater remediation is complete and will consist of bedrock wells R-2, R-3, R-4, and R-5; and shallow well S-4. The four bedrock compliance wells are the best available on-site wells for compliance purposes based on the following: they are completed at the appropriate depths in the appropriate water bearing zone; there is abundant historical groundwater quality data available from them that can be used for evaluating contaminant trends; and they are located, during non-pumping conditions, in the downgradient directions from the main process building (Figure 2) where the on-site sources of contamination are located. All on-site bedrock monitor wells were used as compliance wells with the exception of well R-1. This well was not included as a compliance monitoring well because there were no concentrations detected in it above the groundwater performance standard when it was last sampled in February 1995, and it is located near compliance well R-2.

Two of the bedrock wells (R-2 and R-3) are completed to a depth of approximately 110 to 120 feet below ground surface (ft bgs), and R-4 is completed from approximately 110 to 175 ft bgs. All of these monitor wells are completed in the sandstone bedrock (BR) water-bearing zone (WBZ). Well R-5 is completed in the shallow bedrock from approximately 50 to 60 ft bgs. This

well is in the optimal location to monitor potential bedrock impacts of the former wastewater lagoon.

The BR WBZ is the primary water-bearing zone at the site and is capable of producing significant amounts of water. The two active onsite recovery/production wells, which are completed in the same bedrock interval, are each capable of pumping over 300 gallons per minute (gpm). The recovery/production well pumps are installed at approximately 125 ft bgs; a depth which is similar to the screened intervals of the bedrock compliance wells R-2, R-3, and R-4. The geologic unit that the recovery/production and the bedrock compliance wells are completed in is a 50-ft thick sandstone referred to as the Sharon Sandstone which is a member of the Pennsylvanian Age Pottsville Group. The Sharon Sandstone exists onsite at a depth of approximately 100 to 150 ft bgs; therefore, the completion intervals of the compliance wells R-2, and R-3 and the pump depth of the production/recovery wells are in the approximate center of the Sharon Sandstone water-bearing zone.

There is abundant historical data available from all four of the bedrock compliance wells. Groundwater samples from these wells have been collected and analyzed at least 30 times since the wells were installed between 1984 and 1991, providing groundwater analytical results dating back to the beginning of the environmental investigation at the facility. Since the recovery/production wells commenced pumping in the 1940's, the groundwater flow direction has been toward the facility and toward the pumping centers surrounding wells W-1 and W-10, as shown in Figure 3. If the facility recovery/production wells were turned off, the natural groundwater flow direction could potentially be to the north, east, or south. Groundwater flow would not be to the west due to the significant rise in elevation in that direction. As shown in Figures 2 and 3, the four bedrock compliance wells are located in the potential non-pumping downgradient direction from the main building.

The shallow (SH) WBZ compliance well, S-4, is also in the natural non-pumping downgradient direction from the main process building and the planned air sparging area.

## Assessment Wells

The assessment wells will be used to evaluate the progress of the groundwater remediation system and to determine if changes are needed in the recovery well pumping rates, air sparging system, and the pulse pumping schedules. The assessment wells will not be used to determine completion of remediation except as noted above. There are four assessment wells in the groundwater monitoring program, two in the shallow unit (L-5 and AS-1) and two in the bedrock unit (W-1 and W-10). Groundwater quality, geochemistry, and hydraulic information will be collected from the assessment wells to monitor remediation performance.

The shallow well, L-5, is in an optimal location to assess the interaction between the shallow groundwater and the adjacent Newman Creek, and for determining what effect, if any, the pumping at wells W-1 and W-10 may have on the surface water/groundwater hydraulics. Well AS-1 will be installed as part of the air sparging system in Area-3 East and will be used to assess the air sparging system performance and, if necessary, to adjust air injection and extraction flow rates. The bedrock recovery/production wells W-1 and W-10 are the primary component of the groundwater remediation system. Data collected from these wells will be used to assess system performance and, if necessary, to adjust pumping rates, pump depths, and pulse pumping cycles.

## Background Well

The groundwater monitoring program will also monitor upgradient background conditions. The only site monitor well that is located in the natural non-pumping upgradient direction is well L-3. This well will be used to monitor overburden and bedrock background conditions at the site. Due to the high bedrock elevation in that area of the site, the shallow well, L-3, was installed into the top of the shallow bedrock in order to encounter sufficient water.

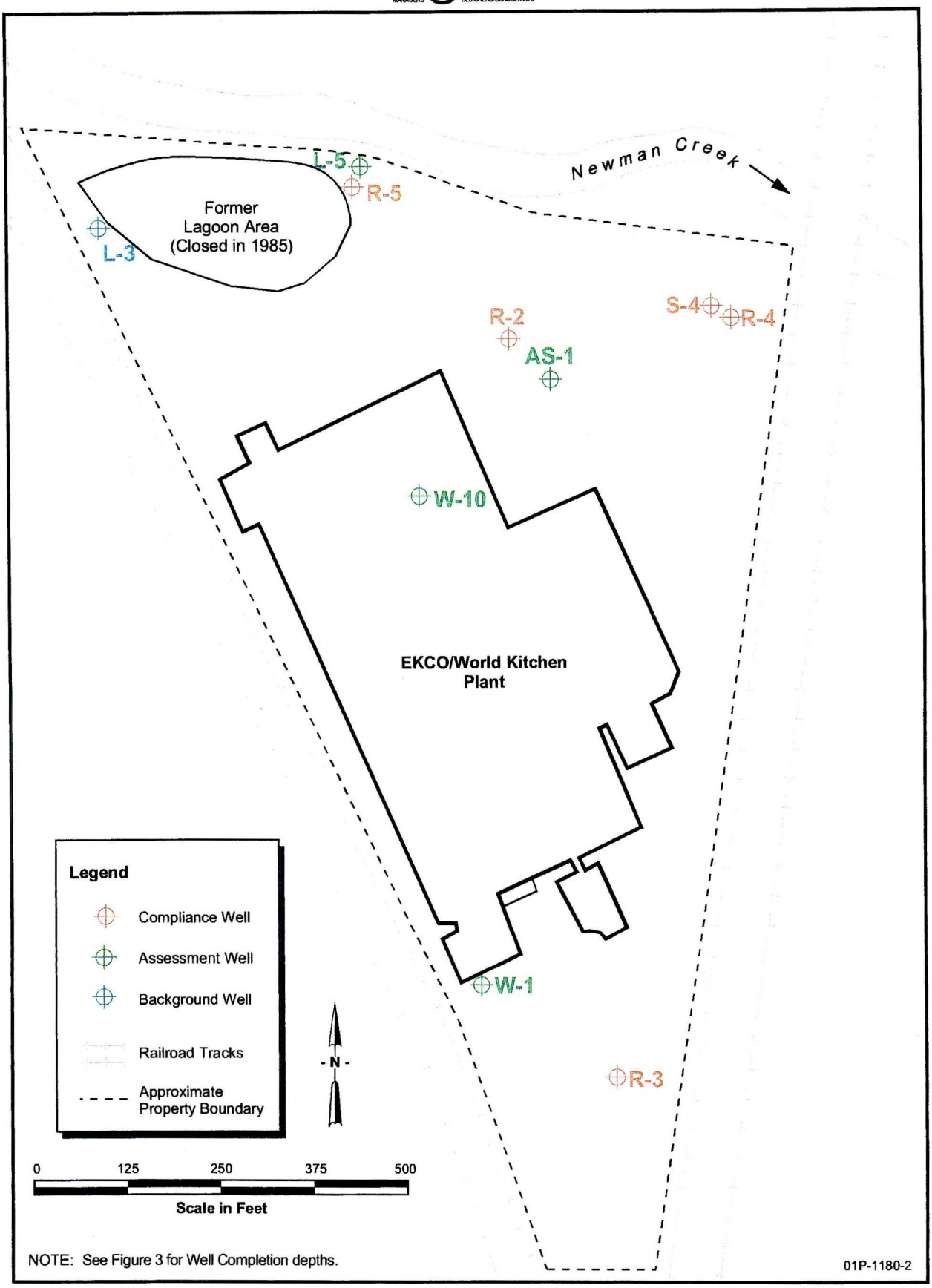
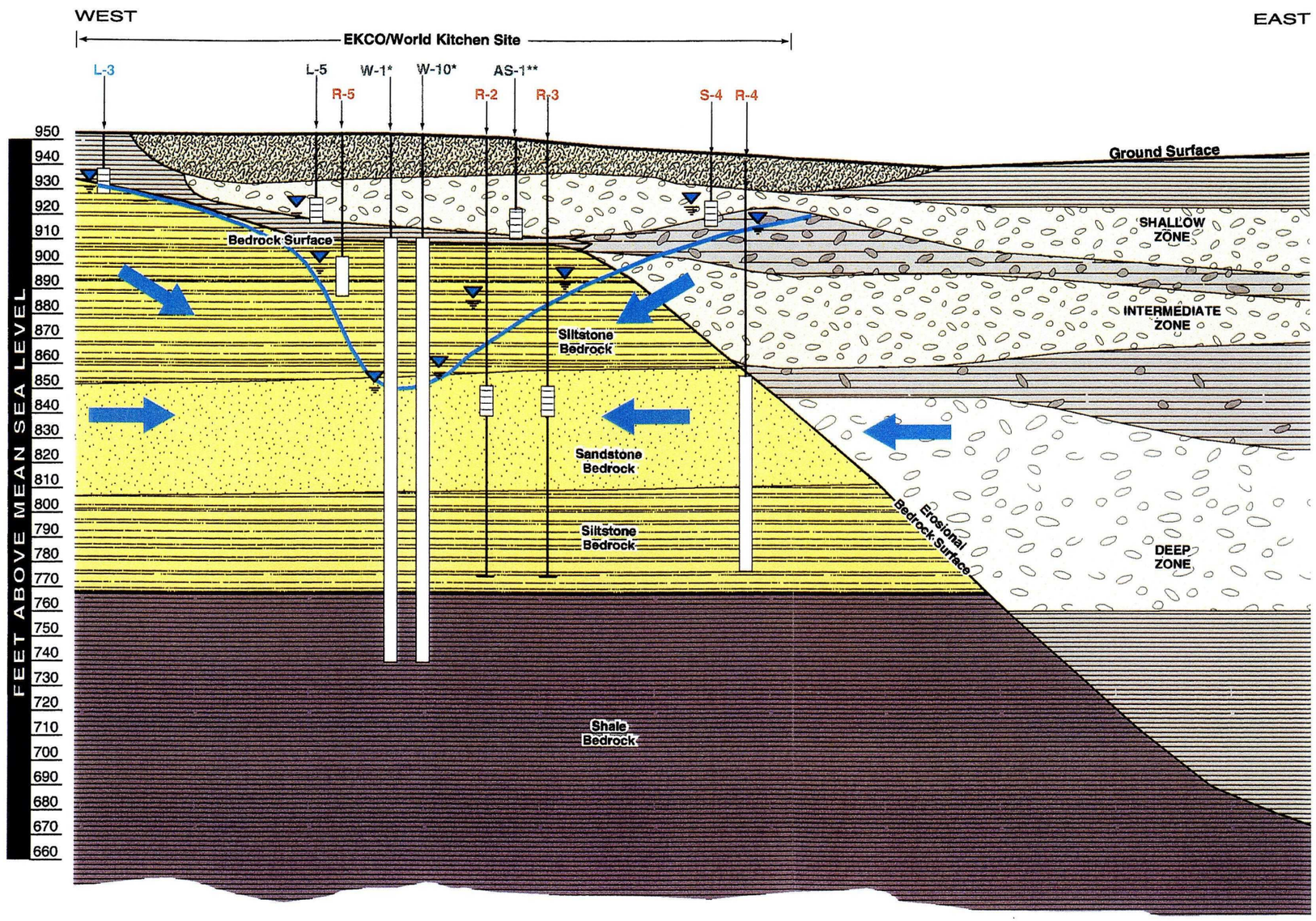



**FIGURE 2 GROUNDWATER MONITORING PROGRAM BACKGROUND, ASSESSMENT, AND COMPLIANCE WELLS**




## LEGEND

- Fill
- Silt or Clay
- Fine Sand and Gravel
- Clay, Sand, Gravel
- Clay or Silt with Gravel
- Coarse Sand, Gravel, Cobbles
- Argillaceous Sandstone and Shale
- Sandstone-Little or No Fines
- Shale
- Water Level (Measured February 2001)
- Groundwater Flow Direction
- Bedrock Groundwater Elevation
- Screened Interval
- Open Borehole Interval
- Original Well Depth
- R-2 Compliance Well
- W-1 Assessment Well
- L-3 Background Well

NOTES:
See Figure 2 for well locations.

* Wells W-1 and W-10 pump at a total flow rate of 400 to 600 gpm.

** Wells W-1 and W-10 pump at a total flow rate of 400 to 600 gpm.

0 250
Approximate Scale in Feet

**FIGURE 3**

**GROUNDWATER MONITORING PROGRAM WELL COMPLETION SCHEMATIC**

01P-1327 7.18.01

**August 2, 2001**

Chris - I have some significant comments on the Scope of Work to be attached to the EKCO Order. I would like to have a conference call with their technical staff and go through these comments and any that you may have. The next and final version of the Scope of Work should be drafted by us and attached to the Order for their signature. Their version is in Word and I am not sure how to convert their e-mail version to WordPerfect. Do you? Did you send the Order yet or are you waiting for these comments? - Ken

**Comment on Monitor Well Selection Rationale**

- The rationale for the groundwater monitoring program should not be part of the Consent Order and does not properly address the "point of compliance" for the groundwater monitoring program. The "point of compliance" is throughout the area where groundwater has been contaminated above cleanup levels. Most monitoring wells have exhibited contamination, yet EKCO only proposes four bedrock compliance wells.

  Rather than monitor all the necessary "point of compliance" wells on a quarterly basis, EKCO can use the four wells proposed (R2, R3, R4, and R5) as an initial monitoring program. They are deeper bedrock wells located near the property boundary. If EKCO eventually meets the cleanup levels in these four bedrock wells, then all the necessary "point of compliance" wells can be sampled to demonstrate that they are meeting the groundwater cleanup levels at the "point of compliance".

  I believe the wells that adequately address the "point of compliance" are R1, R2, R3, R4, R5, R7, L1, L5, I2, I4, I5, I7, S4, S7, W1, W2, and W10. They also monitor the shallow and intermediate zones above the bedrock which together comprise the "uppermost aquifer". At a minimum, the report demonstrating that the groundwater performance standards have been attained at the facility must document that at least these 17 wells in the former contaminant plume meet the groundwater performance standard.

**Comments on Scope of Work**

- Inconsistent facility name; either EKCO/World Kitchen or World Kitchen.

- The schedule in Table 1 should be modified. All plans should be due in 45 days and the duplicate Sampling and Analysis and Quality Assurance Project Plans should be deleted. An O&M Plan should be included for GW-6.

- In Section 3.1, can not define operating requirements now. This comment also applies to Section 4.1, Can only say that the system will be operated and maintained in accordance with the EPA-approved O&M Plan. The O&M plan for GW-6 should be submitted with the other plans due within 45 days of the effective date of the Order. The O&M Plan for

SVE is due within one year of the effective date of the Order

- It the GW-6 system or the SVE system is not operating, AHPC should be notified quicker than 2 business days. Also seven days of downtime before notifying EPA is too long. They should propose the specific response in the O&M Plans due within 45 days and 1 year of the effective date of the Order, and subject to EPA approval. I can send them copies of CECOS and Mead EPA-approved O&M manuals as examples on expected timeframes. Both facilities have pump-and-treat systems.

- The groundwater monitoring program proposed in Section 3.2 can only be an "initial" monitoring program since it does not adequately address the "point of compliance" (see comment on monitor well selection rationale).

- In Section 3.2a, replace "all compliance wells" with "point of compliance". EKCO can only enter the performance monitoring period upon approval by EPA of the attainment of groundwater performance standards report.

- In Section 3.2c, EKCO must also have complied with the EPA-approved O&M Plan to have the option of re-evaluating the groundwater performance standards. That is, EKCO must have demonstrated a technically-defensible and good-faith effort to achieve the groundwater performance standards. Also, the procedure is to submit, review, and approve, not "agreed upon". The last sentence should be deleted.

- In Section 3.2d, at least the 17 compliance wells identified above should be monitored for 2 years. In this case, can probably be done semi-annually becuase of the large number of wells.

- In Section 4.2b, explicitly state that in addition to the mid-point sample, the discrete interval with the highest PID reading will also be sampled and analyzed for the 4 soil constituents.

- In Section 4.2c, soil confirmation sampling would confirm whether the soil performance standard is met, not the "negligible removal rate".

- I need to confirm ACL and TI guidance. I believe there are two ACL guidance documents.

**DRAFT**

# 1999 GROUNDWATER MONITORING REPORT

Prepared for

**EKCO HOUSEWARES, INC.**

Massillon, Ohio

Prepared by

**ROY F. WESTON, INC**
1400 Weston Way
West Chester, Pennsylvania 19380

March 2000

W.O. No. 02994.002.006

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# 1. INTRODUCTION

## 1.1 PURPOSE

Quarterly groundwater sampling had been conducted at the EKCO Housewares, Inc., facility (EKCO) in Massillon, Ohio, from 1989 to 1995 during the months of February, May, August, and November, in support of the RCRA Feasibility Investigation Corrective Measures Study (RFI/CMS) and lagoon closure activities. Wells sampled included five L-series wells (L-1 through L-5) and five R-series wells (R-1 through R-5). Data gathered from these wells were submitted to the Ohio Environmental Protection Agency (OEPA) and the Region 5 United States Environmental Protection Agency (USEPA) on an annual basis. These data fulfilled the Ohio Administrative Code (OAC) 3745-65 assessment monitoring that is required until closure of the RCRA lagoon.

On 9 January 1995, American Home Products, Inc. (AHPC) received official notice that OEPA had determined that the lagoon had been closed in accordance with the approved plan and Rules 3745-66-12 through 3745-66-15 of the OAC. Now that the lagoon is officially closed, the quarterly sampling is no longer required for the RCRA lagoon closure.

Based on discussions with the USEPA and OEPA in May 1995, groundwater sampling is still needed as part of the RFI/CMS which is being conducted at the facility. A modified groundwater sampling program was implemented consisting of the following:

- Sampling four R-wells (R-2 through R-5) once every 6 months during February and August.
- Sampling an additional two L-wells (L-4 and L-5) once every year during February.

This modified sampling program will continue until directed differently by the USEPA. The purpose of this report is to present the results of the February and August 1999 modified sampling program. The report presents the recovery well and monitor well water quality and groundwater flow conditions observed at the site during 1999. These data demonstrate that the existing groundwater remediation system at the EKCO facility is operating effectively and maintaining capture of all groundwater contamination present beneath the site.

## 1.2 SITE LOCATION

The EKCO facility occupies approximately 13 acres in the town of Massillon, Stark County, Ohio (Figure 1-1). The area surrounding the site is largely urban and industrial. Land use to the northwest is more rural with more open space. The EKCO property is triangular in shape and lies an estimated 1,500 ft west of the Tuscarawas River. The facility is bordered to the north by Newman Creek, while the Penn Central and the Baltimore and Ohio Railroads border the EKCO property to the west and east, respectively.

A variety of businesses operate adjacent to the EKCO plant. These include Ohio Packaging (paper) to the south, sand and gravel quarries to the west and northwest, Carter Lumber (retail) and Price Brothers, Inc. (concrete pipe) to the north and the Ohio Water Service (public water supply) waterworks and an automobile reclamation site to the east and northeast. A relatively large inactive municipal landfill exists just east of the Ohio Water Service facility. The landfill is believed to have been principally used by the City of Massillon; however, other users may also have been involved. The landfill was apparently informally operated, that is, no weigh station or access control was believed to have been present, and the landfill was not fenced. It is unclear whether records of ownership, methods of operation, or methods of "closure" have been retained. The Baltimore and Ohio Railroad has numerous spurs and sidetracks adjacent to the EKCO plant which are used for the storage of rail cars and track maintenance vehicles.

## 1.3 SITE HISTORY

In 1945, the EKCO Massillon facility was manufacturing aluminum and stainless steel cookware. By 1951, with the United States' involvement in the Korean Conflict, the plant was manufacturing 90mm and 105mm shell casings for the military. The resulting increase in production necessitated the drilling of two production wells (W-1 and W-2) at the facility. In 1953, a sewer was constructed which carried the plant waste to a discharge point along Newman Creek. At approximately the same time, a surface impoundment was constructed along the northern property boundary adjacent to Newman Creek. Wastewaters from manufacturing were discharged to the surface impoundment.

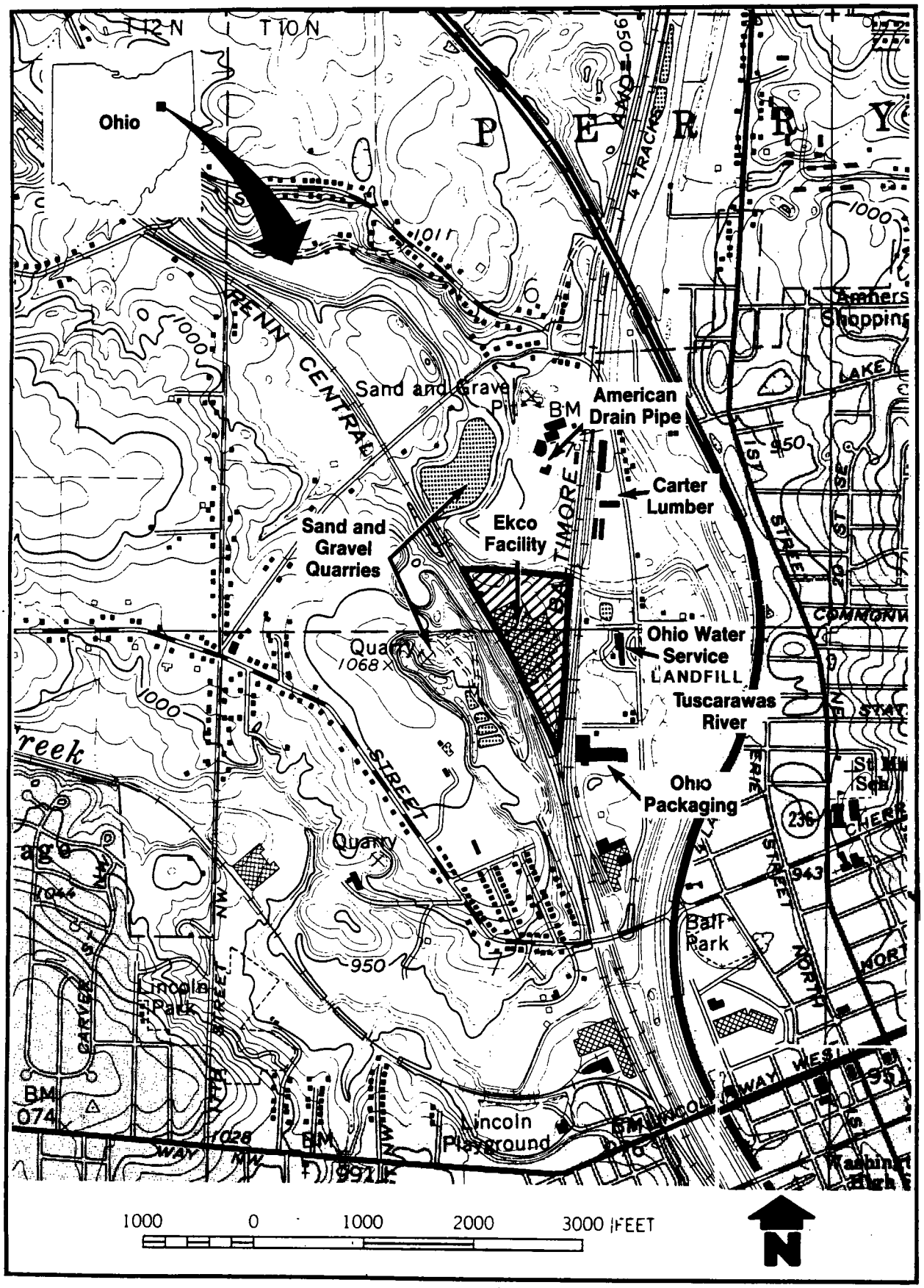



**FIGURE 1-1 SITE LOCATION MAP**
**EKCO HOUSEWARES, INC., MASSILLON, OHIO**
(Ref. 7.5 Minute Massillon Quad, Ohio, 1978)

During 1954, the EKCO facility began alternate manufacturing operations. The primary function of these operations was returned to manufacturing cookware at the facility. Solvents (primarily trichloroethene [TCE] or 1,1,1-trichloroethane [1,1,1-TCA]) were used to clean the products prior to continuing production. However, 1,1,1-TCA and TCE were never used at the same time. Sometime during the mid-1960's, EKCO stopped using TCE and began using 1,1,1-TCA; use of TCE was reinitiated in the 1980's.

By 1967, trends in the cookware manufacturing industry had changed, resulting in the installation of porcelain- and Teflon-coating units at the EKCO facility. In 1969, with the development of new NPDES regulations and permit requirements, the surface impoundment was approved and permitted by the State of Ohio to accept waste products associated with plant activities. These waste products have included:

- Deionizers from plant operations (hydrochloric acid and sodium hydroxide).
- Washings and waste material from manufacturing porcelain-Teflon-coated aluminum cookware (aluminum frit, various coloring inorganics oxides, lead, cadmium, selenium, cobalt).
- Alkaline washer fluids to clean aluminum cookware.

In July 1974, NPDES Permit No. C-3094BD was issued to the EKCO facility. As the 1970's progressed, EKCO discontinued the manufacturing of aluminum and porcelain cookware and use of the lagoon ceased in 1977. By the end of 1978, all copper-coating operations had ended and the principal products manufactured at the facility became pressed and coated non-stick bakeware.

Correspondence between EKCO and the OEPA identified a solvent spill which had occurred between 1979 and 1980 as the only major recorded spill at the facility. The spill was in the vicinity of process water well W-10. Neither the exact location nor the extent of the spill was documented.

The surface impoundment was reactivated in 1980 under the existing NPDES permit and received housing degreaser filter water until mid-1984. The surface impoundment was finally decommissioned in December 1985.

In March 1984, when the plant applied for a renewal of their NPDES permit, analysis of on-site well water for volatile organics was required. The analysis indicated the presence of 1,1,1-TCA and TCE. This discovery resulted in subsequent investigations at EKCO.

The waste stream was diverted from the surface impoundment to discharge in Newman Creek in December 1985. At that time, the surface impoundment (lagoon) was permanently taken out of service. During 1993 and 1994, Roy F. Weston, Inc. (WESTON®) was retained by AHPC to pursue a clean closure for the lagoon. Closure activities were conducted at the site from August 1993 to June 1994. A closure certification report was submitted to the OEPA in July 1994, and approval of the lagoon closure was issued in January 1995. Now that the lagoon is officially closed, quarterly groundwater sampling is no longer required for the RCRA lagoon closure.

EKCO continues to manufacture pressed and coated non-stick bakeware at the Massillon facility. A silicon-based compound is presently used to coat the bakeware to create the non-stick surface.

## 1.4 ENVIRONMENTAL SETTING

### 1.4.1 Climate

Information obtained from the Akron/Canton Weather Service Office reveals a precipitation rate of 35.90 inches per year based on records for a 30-year period, 1951 to 1980 inclusive. The mean annual Class A pan evaporation rate interpreted from a map in the Weather Bureau Technical Paper No. 37 is approximately 40 inches per year.

### 1.4.2 Topography and Surface Drainage

The EKCO facility is approximately triangular in shape. It is bounded on two sides by railroad tracks and on the third by Newman Creek. Surface water runoff at the facility discharges to Newman Creek by two pathways. Surface runoff from the northern part of the facility flows directly into Newman Creek. Surface discharge throughout the remainder of the facility is routed through the storm sewer system, which discharges through Outfall 001 into Newman Creek. A site plan showing the storm sewer system is included in Figure 1-2.

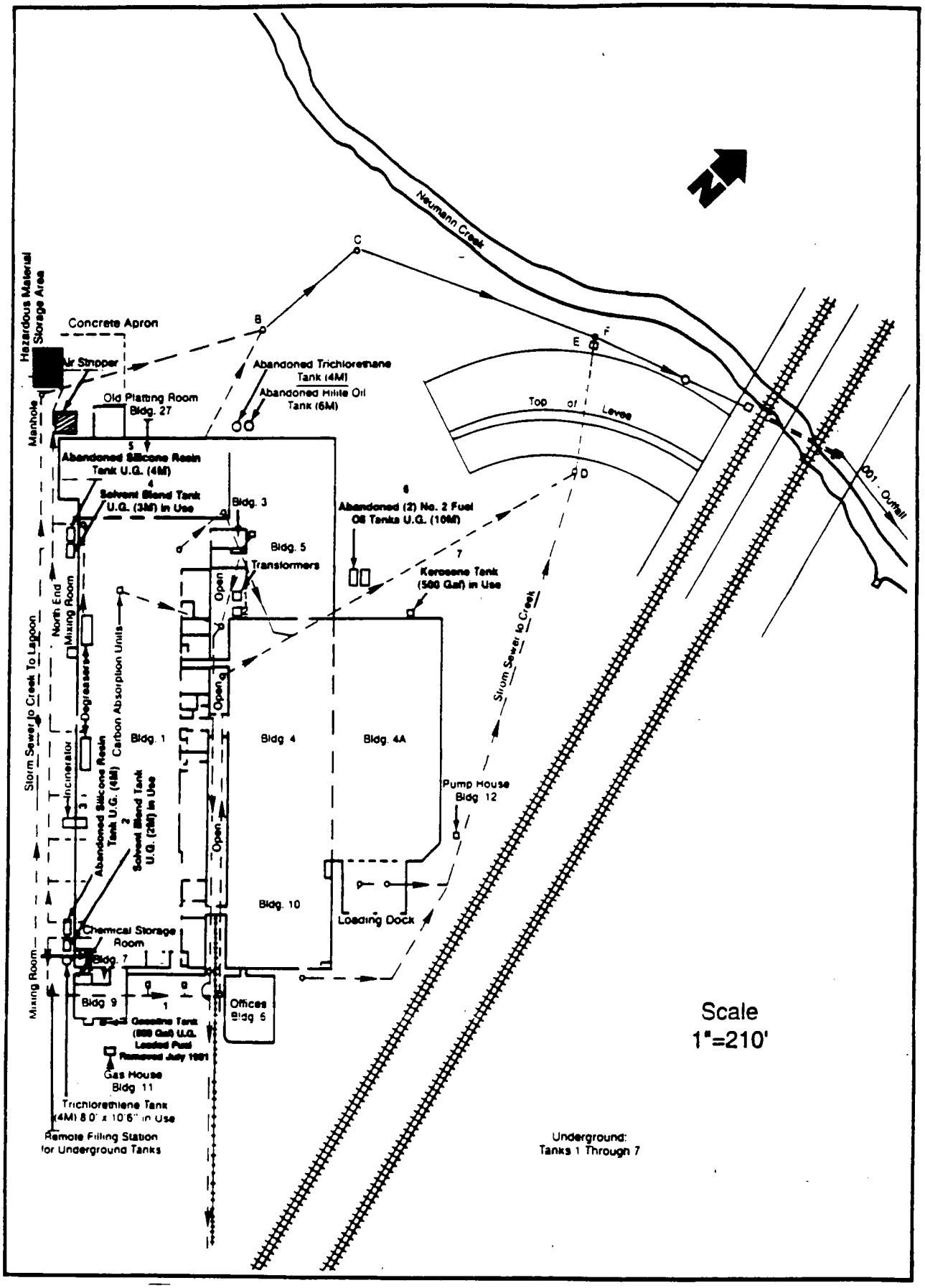



Figure 1-2 **FACILITY DESCRIPTION AND LOCATION EKCO HOUSEWARES, INC., MASSILLON, OHIO**

### 1.4.3 Regional Geology

The geology of Stark County, Ohio, is characterized by unconsolidated glacial drift sediments deposited during the Pleistocene epoch in unconformable contact with underlying Pennsylvanian-age sedimentary rocks.

The drift deposits of Stark County originated predominately from the advance of glacial lobes during the Wisconsinan stage (White, 1982). The drift consists of the interbedding of two principal types of deposits distinguished by two distinct textures. Till deposits are ice-laid material; they are an unsorted mixture of clay, silt, sand, pebbles, cobbles, and boulders.

Outwash deposits are water-laid material deposited in front of the advancing or retreating ice lobe; they are moderately well-sorted mixtures of sand and gravel. The glacial drift deposits range in thickness between 25 ft in areas of bedrock highs to 300 ft in areas of glacially eroded valleys (White, 1982).

Underlying the drift deposits is a series of bedrock shales, sandstones, and argillaceous sandstones belonging to the Pottsville group. This bedrock group dips generally to the southeast at approximately 20 to 40 ft per mile (Cross and Hedges, 1959). The group originated from the erosion of the Appalachian mountain chain to the east during the Pennsylvanian period. The Pleistocene glacial lobes subsequently eroded into the Pennsylvania-age bedrock in Stark County, producing the characteristic bedrock topography of U-shaped valleys and flat uplands.

Two important water-producing sandstones of the Pottsville group are exposed in the Akron-Canton area: the Sharon and Massillon sandstones. The Sharon sandstone consists of a poorly cemented, pure quartz sandstone with intermittent lenses of quartz pebbles. Locally, the Sharon sandstone can be up to 200 ft in thickness (Hansen, 1989). The Massillon sandstone is similar in appearance to the Sharon sandstone except that it is less pure and contains fewer pebbles (Hansen, 1989). Both sandstones are quarried for building stone because of their high silica content.

### 1.4.4 Regional Hydrogeology

#### *1.4.4.1 Unconsolidated Material*

The western portion of Stark County lies within the Middle Tuscarawas River Basin. The units capable of providing sufficient quantities of groundwater to domestic, commercial, and municipal wells underlying this basin include the unconsolidated deposits of sand and gravel and the consolidated layers of sandstone, shale, limestone, and coal. Yields may range from less than 1 gallon per minute (gpm) from clay and shale deposits to more than 1,000 gpm from thick, unconsolidated, permeable sand and gravel deposits (Schmidt, 1962). The generalized stratigraphic table (Table 1-1) briefly describes the physical and water-producing characteristics of the units within the Tuscarawas River Basin. Figure 1-3 illustrates the availability and yield of groundwater in the western portion of Stark County. The outwash deposits beneath the flood plain of the Tuscarawas River have the greatest potential for the development of large groundwater supplies in this basin. Yields from properly developed wells in this unit range from 500 to more than 3,000 gpm. The majority of these wells are developed at depths of less than 160 ft (Schmidt, 1962).

Many of the tributaries to the Tuscarawas River are also underlain by thick outwash deposits composed of predominantly clay interbedded with layers of fine sand and gravel. Portions of these tributary valleys are filled with as much as 270 ft of unconsolidated deposits (Schmidt, 1962). But, because of the predominance of clay, the average yield of these deposits is less than 25 gpm, and water wells are typically drilled through these unconsolidated deposits to the underlying bedrock.

#### *1.4.4.2 Bedrock*

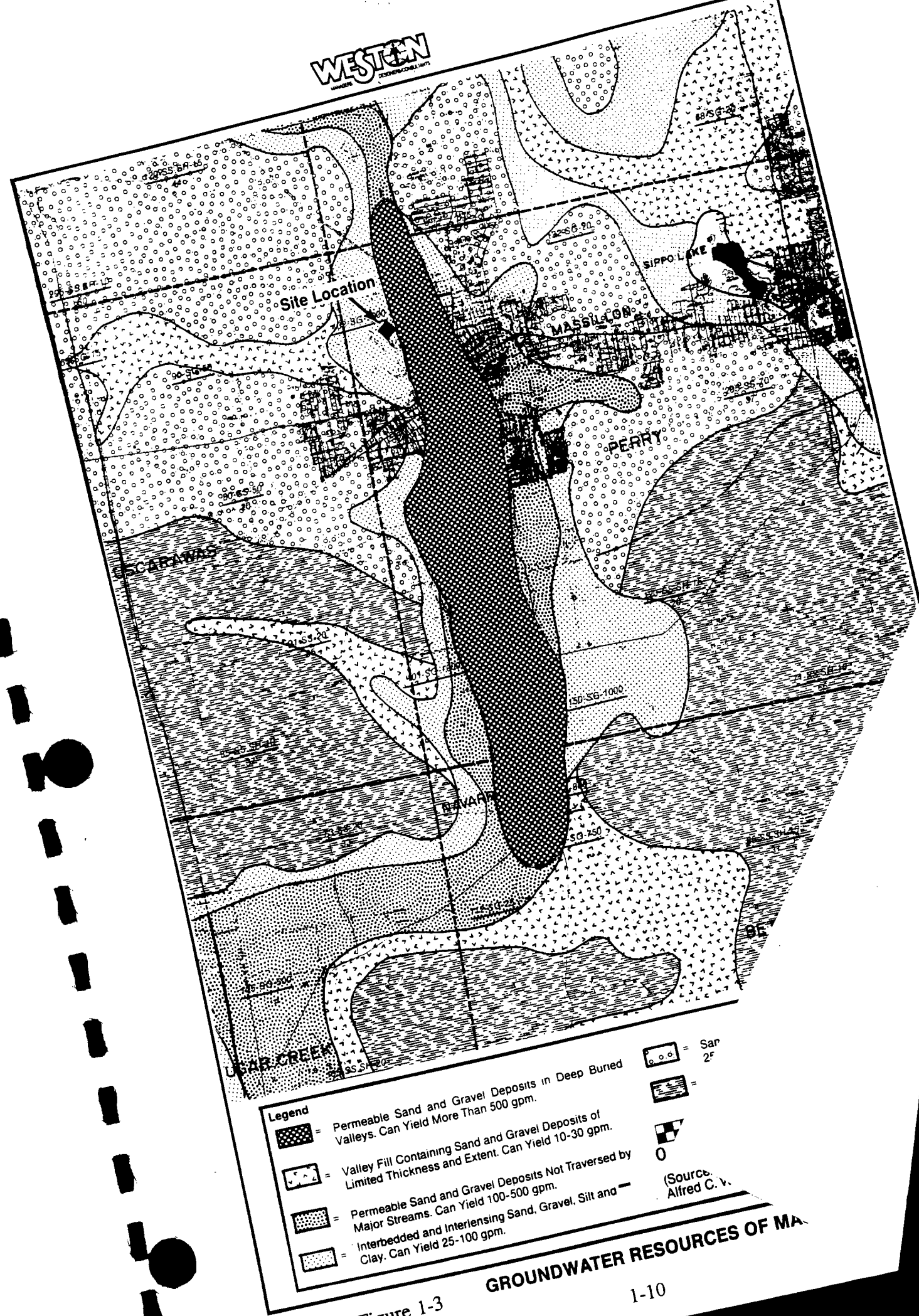
The bedrock underlying the glacial deposits in the basin consists of interbedded, thin to thick layers of sandstone, shale, coal and occasional limestone. All of these are part of the Pottsville group of Pennsylvanian age. The average domestic well is 170 ft in depth and yields about 8 gpm. Yields of commercial and municipal wells developed in the sandstone units of the lower Pottsville formation are reported to range from 25 to 100 gpm for short periods of intermittent pumping (Walker, 1979).

## Table 1-1

## Generalized Stratigraphic Sequence in Middle Tuscarawas River Basin

| System or Series | Group or Formation | Character of Material | Water-Bearing Characteristics |
|---|---|---|---|
| Quaternary | | Clay, silt and alluvium deposited on the flood plains of the principal valleys. | Generally a poor source of groundwater, because of limited thickness and absence of coarse materials. |
| Quaternary Pleistocene | | Interbedded and interlensing layers of sand, gravel, and clay deposited in the buried valleys by glacial meltwaters.<br><br>Thick layers of silt and clay interbedded with relatively thin lenses of sand and gravel. | Quantity of available water depends on character of material and source of recharge. Properly developed wells yield in excess of 1,000 gpm.<br><br>Drilled wells developed in the sand and gravel yield 5 to 15 gpm. |
| Pennsylvanian | Pottsville | Alternating layers of shale, sandstone, limestone, and coal.<br><br>Thin to thick, coarse-grained sandstone. | Yields sufficient water for farm and domestic needs.<br><br>Domestic, farm, and industrial supplies are readily available. Yields of as much as 500 gpm reported; however, regional yield seldom exceeds 15 gpm. |
| Mississippian | | Alternating layers of sandstone and shale. | Farm and domestic supplies are readily developed. If thick shale formations predominate, meager groundwater supplies are developed. |

Source: Schmidt, 1962.




GROUNDWATER RESOURCES OF MA

Figure 1-3

## 1.5 EKCO PRODUCTION/RECOVERY WELLS

There are currently two on-site wells, W-1 and W-10 (Figure 1-4), being used as both recovery wells and as production wells for use in manufacturing processes at the facility. One additional well, W-2, was previously used for groundwater production at the facility but was permanently taken out of service. Groundwater from production wells W-1 and W-10 is treated in an on-site air stripper, then either routed to various plant processes or discharged to Newman Creek via an underground storm sewer. Prior to 1994, the construction and geologic information available for these wells was limited. In March 1994, Interim Remedial Measures (IRM) activities were conducted at the site which included rehabilitation of the W-wells (WESTON, 1994). Geophysical logging conducted during these IRM activities provided additional construction and geologic information for the W-wells. The current construction of well W-1 consists of an open-hole well with steel casing to a depth of 28 ft and a PVC liner to a depth of 49 ft. The geophysical logging indicated that the well is currently open to a depth of 205 ft.

The current construction of well W-10 consists of an open-hole well with steel casing to a depth of 44 ft and a PVC liner to a depth of 45 ft. The geophysical logging indicated that the well is currently open to a depth of 159 ft. During the IRM activities, well W-2 was also retrofitted with a PVC liner, and a dedicated submersible pump was also installed. The current construction of well W-2 consists of an open-hole well with steel casing to a depth of 90 ft and a PVC liner to a depth of 99 ft. The geophysical logging indicated that the well is currently open to a depth of 204 ft. As with all of the bedrock wells on-site, production wells W-1 and W-10 produce the majority of their groundwater from the major sandstone unit which exists beneath the site between the elevations of approximately 790 and 850 ft Mean Sea Level (MSL). This sandstone unit, while productive, was dynamited across its length in wells W-1, W-2, and W-10 to maximize the yield of these wells at the time of installation.

EKCO has derived its water supply from pumping wells W-1, W-2, and W-10 virtually from the inception of operations at the facility. Well records indicate that wells W-1 and W-2 were installed in 1951 and 1953, respectively. There is no well record available for well W-10, but correspondence with EKCO personnel indicates that well W-10 was installed prior to 1943 and that the plant's water supply was derived from these wells since they were installed.

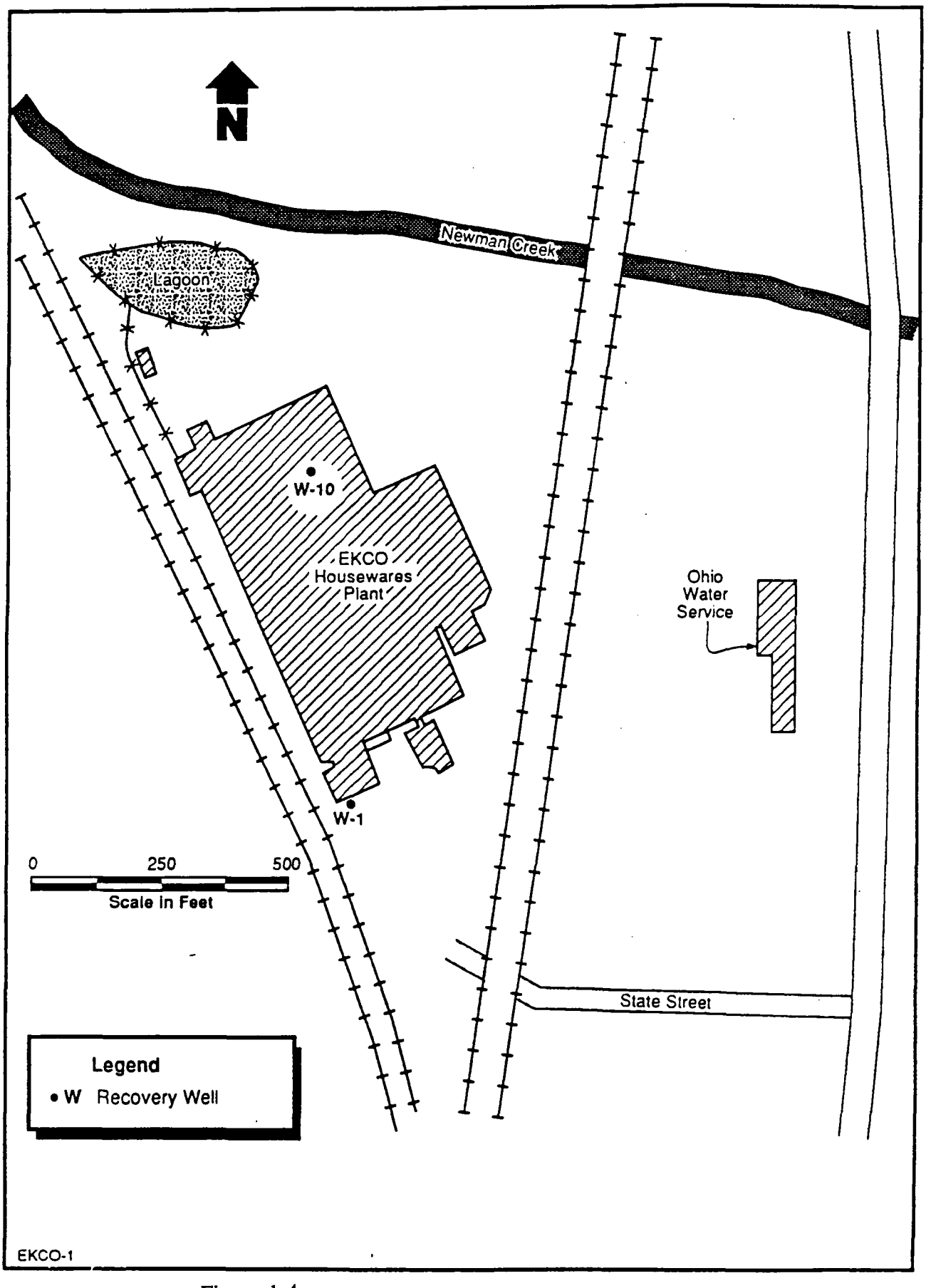



Figure 1-4 **EKCO FACILITY RECOVERY WELLS**

Available records indicate that, prior to 1973, the combined flow of the production wells ranged from 111 to 152 gpm, and from 1973 to 1975 it ranged from 97 to 125 gpm. From 1975 to 1986, it ranged from 97 to 381 gpm (RCRA Closure Plan, 1991). In 1986, the total system flow rate was set at 590 gpm. Since that time, the total system flow rate has generally ranged from 450 to 600 gpm.

# 2. PREVIOUS INVESTIGATIONS

A summary of the previous environmental investigative activities conducted at the EKCO facility is presented in Table 2-1. These activities are discussed below. Floyd Brown and Associates, Inc. (FBA) conducted the first environmental investigations at the facility between 1984 and 1987. WESTON has conducted all subsequent environmental investigations at the facility since 1987.

## 2.1 1984-1987 INVESTIGATIONS

In 1984, with the discovery of 1,1,1-TCA and TCE in the groundwater production wells, EKCO initiated an environmental investigation. During the months of September and October 1984, seven test borings were drilled by Ohio Drilling, Inc. Four test borings (TH-1-84 through TH-4-84) were drilled into the shallow overburden, while the remaining three (TH-5-84 through TH-7-84) were drilled through the overburden and into the underlying bedrock. Soil and water samples were collected from all seven locations, and analyses revealed varying levels of volatile organic compounds (VOCs). Two of the shallow test borings (TH-1-84 and TH-2-84) were completed as 1¼-inch inside diameter (I.D.) piezometers (designated as P-1-84 and P-2-84, respectively), while the remaining two borings were plugged. All three of the open-hole bedrock boreholes were completed with 6-inch casing to bedrock and were designated R-1 through R-3. Dedicated pumps were installed into each of these wells. Analysis of groundwater samples obtained from these wells in 1984 detected VOC, including TCE and dichloroethene (DCE). An additional bedrock well (R-4) was installed in July 1985, along the eastern property boundary. No VOCs were detected in samples collected from this well.

Because production well W-10 was centrally located on the EKCO property, it was decided that a pump and treat program utilizing this well would be initiated at the facility to control migration of VOCs and to remediate the VOCs detected in groundwater. With the concurrence of OEPA, an air stripper was installed by Ohio Drilling, Inc. in February 1985 to treat the groundwater recovered by the pumping of well W-10.

**Table 2-1**
**Summary of**
**Previous Environmental Investigative Activities**

| Date | Event |
|---|---|
| 1984 | Discovery of 1,1,1-TCA and TCE in the groundwater beneath the EKCO facility. Sampling done by Wadsworth Testing Laboratories, Inc. |
| Fall 1984 | Seven soil borings were drilled; four in the overburden and three in the bedrock. Two of the overburden holes were completed as 1¼-inch (I.D.) piezometers and the three bedrock holes were completed as 6-inch (I.D. casing) bedrock wells (R-1 through R-3). |
| July 1985 | An additional bedrock well (R-4) was installed along the eastern boundary. No VOCs were found. |
| February 1986 | W-10 was converted into a recovery well for a pump and treat system. An air stripper was installed on-site. The discharge of the stripper was directed to Newman Creek. |
| June 1986 | Floyd Brown Associates (FBA) developed a preliminary closure plan for the lagoon. PHASE I of the plan called for 12 soil borings. No VOCs were detected in any of the borings. |
| January/February 1987 | A more intensive soil boring program (PHASE II) was conducted by FBA. The program consisted of 25 soil borings. Four of the borings were completed as 1½- inch (I.D.) PVC wells to monitor the lagoon. |
| July 1987 | WESTON was contracted to develop a final closure program for the lagoon and to develop a groundwater quality assessment program. |
| September 1987 | WESTON conducted a baseline assessment of the EKCO facility which included sampling of all on-site wells, including Ohio Water Service (OWS) well #4, collecting OVA readings, well construction information and water level measurements, surveying on-site wells, groundwater utilization survey and a review of plant records. |
| February 1988 | WESTON began monthly sampling of OWS wells #1, 2, 3, and 5. These wells were sampled until March 1990. |
| June/July 1988 | Installation of 13 monitor wells, eight of which were installed to characterize the stratigraphy of water- bearing zones, to determine the depth of bedrock and to assess the hydraulic interconnection between the unconsolidated sand, gravel and clay aquifer and the Pottsville sandstone. The other five wells were installed in accordance with RCRA Part 265, Subpart F, for surface impoundment closure. |
| December 1988 | WESTON performed a soil gas survey to identify potentially contaminated areas. Soil borings identified by the soil gas survey were advanced to determine the vertical extent of any contamination. WESTON also sampled all on-site wells, including the on-site production wells. |

**Table 2-1 (Continued)**
**Summary of**
**Previous Environmental Investigative Activities**

| Date | Event |
|---|---|
| May 1989 | WESTON began the quarterly sampling of the five lagoon wells (L-1 through L-5). |
| April 1991 | WESTON conducted packer tests to evaluate the extent of interconnection between overburden and bedrock wells. |
| June/August 1991 | WESTON installed 13 monitor wells to evaluate off-site groundwater conditions. |
| September 1991 | WESTON sampled all monitor wells and production wells. |
| March 1992 | WESTON sampled all monitor wells and production wells. |
| May 1992 | EKCO removed soil contaminated from the 330-gallon 1,1,1-TCA spill north of the plant. |
| May 1993 | WESTON submitted the Final RFI Report to the USEPA. |
| August 1993 | WESTON initiated lagoon closure activities at the site. |
| September 1993 | WESTON submitted the CMS Report to the USEPA. |
| November 1993 | USEPA approved the Final RFI Report. |
| November 1993 | USEPA approved the CMS Report with changes. |
| April/May 1994 | WESTON conducted Interim Remedial Measures which included the rehabilitation of observation wells R-1, R-2, and R-3 and production wells W-1, W-2, and W-10, and abandoned well D-4-30. |
| June 1994 | WESTON submitted a notice to OEPA announcing that the lagoon closure activities were completed. |
| July 1994 | WESTON submitted a Draft Addendum to the CMS Report which incorporated results of the April/May 1994 Interim Remedial Measures. |
| November 1994 | WESTON submitted a Baseline Health Risk Assessment Report to the USEPA. |
| January 1995 | OEPA determined that the lagoon had been closed in accordance with the approved Closure Plan and Rules 3745-66-12 through 3745-66-15 of the Ohio Administrative Code. |
| May 1995 | WESTON and AHP received direction from OEPA and USEPA that the quarterly groundwater sampling that had been conducted since 1989 was no longer required due to the official closure of the lagoon. A modified groundwater sampling program was implemented. |
| April 1996 | USEPA issued the Proposed Statement of Basis which explained the proposed remedy for cleaning up the site. |

**Table 2-1 (Continued)**
**Summary of**
**Previous Environmental Investigative Activities**

| Date | Event |
|---|---|
| August/September 1996 | USEPA accepted comments from the public on the Proposed Statement of Basis for the site. |
| September 1996 | USEPA held a public meeting to present the Proposed Statement of Basis for the site. |
| September 1996 | AHP and WESTON submitted comments on the Proposed Statement of Basis for the site to the USEPA. |

On 17 June 1986, FBA was retained by EKCO to develop a preliminary closure plan for the lagoon. The closure plan led to a Phase I screening investigation of the lagoon, which involved the drilling and collection of composite samples from 12 soil borings. Laboratory analyses of soil samples from this program indicated elevated levels of cadmium, chromium, and lead in soil samples collected within the lagoon and in locations between the lagoon and Newman Creek. No VOCs were detected in any of the soil samples. See the *Groundwater Quality Assessment Plan for EKCO Housewares* (WESTON, March 1988) for a summary review of FBA's analytical results and the locations of these wells and borings.

The Phase I investigation led to a more intensive Phase II soil boring program conducted by FBA in January and February 1987. The program involved completion of 25 additional soil borings. Four of these soil borings (D-1-27, D-2-30, D-3-17, and D-4-30) were completed as 1½-inch I.D. PVC monitor wells. Analytical results indicated elevated concentrations of cadmium, chromium, and lead in soils to the maximum depth of the borings. However, these concentrations were localized in the area near the inlet of the lagoon. Maximum concentrations near the ground surface of 8,400 mg/kg cadmium, 2,630 mg/kg chromium, and 19,500 mg/kg lead were detected.

## 2.2 1987- PRESENT INVESTIGATIONS

In July 1987, WESTON was retained by EKCO to develop a final closure plan for the lagoon for submittal to OEPA and a groundwater quality assessment program for the entire EKCO facility. In September 1987, WESTON conducted an interim measures assessment to collect baseline information and to determine the need for interim corrective measures. This included the following activities:

- Sampling of Ohio Water Service Well No. 4 and all on-site wells (except the out-of-service process water well, W-2) to establish baseline data for each well and to collect well data (e.g., organic vapor analysis [OVA] readings, construction details, depth to water measurements, etc.).
- Surveying all on-site wells.
- Conducting a groundwater utilization survey which included identifying and locating domestic, commercial and municipal wells within a 1-mile radius of the facility.

- Reviewing plant records and other available documents, which included aerial photographs, tax maps and geologic references.

VOCs were detected in the on-site overburden and bedrock groundwater monitor wells. The primary compounds detected were TCE, 1,1,1-TCA and their breakdown products. The results of the initial investigation are presented in WESTON's *Interim Measures Report*, dated February 1988. WESTON recommended that on-site pumpage be increased, if practical, in order to enhance contaminant recovery and hydraulic control of groundwater underlying the plant.

WESTON initiated a groundwater quality assessment program (GWQAP) for the EKCO facility during the summer of 1988. The primary purpose of this effort was to address groundwater conditions at the facility proceeding under Section 3008(h) of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, U.S.C. 6928(h), and as part of the closure plan for the surface impoundment facility, particularly in reference to 40 CFR Section 265.93. The results of this program are presented in the *Groundwater Quality Assessment Report* (WESTON, 1990).

A RCRA Facility Investigation (RFI) was conducted at the facility to fully evaluate the horizontal and vertical extent of contamination for the entire site. Details of the RFI Scope of Work are outlined in the RFI Work Plan (WESTON, 1990) and the field work was conducted during 1991 and 1992. The Final RFI Report fully discusses the results of the RFI investigation and was submitted to the U.S. EPA in May 1993 and approved in November 1993. A summary of the findings is presented in Section 3 of this report.

This work was performed in accordance with an Administrative Order on Consent (Consent Order), signed between EKCO and the U.S. EPA in March/April 1989. The Draft CMS Report was initiated shortly after the Final RFI Report was approved and submitted to the EPA in September 1993. In November 1993, the EPA approved the CMS with changes. In July 1994, WESTON submitted to the EPA a draft addendum to the CMS Report. This addendum addressed the impacts of the Interim Remedial Measures conducted at the site in April and May 1994 discussed below. Approval of the CMS addendum is still pending.

In 1992, WESTON was retained by AHPC to pursue a clean closure plan for the lagoon. The Lagoon Closure Work Plan was submitted to the OEPA in October 1992 and approved on 13 July 1993. Closure activities were initiated at the site on 24 August 1993. On 1 June 1994, WESTON

submitted a notice to OEPA announcing that the lagoon closure activities were completed. The results of the lagoon closure are presented in the Lagoon Closure Certification Report for EKCO Housewares, Inc., which was submitted to the OEPA in July 1994. On 9 January 1995, AHPC received official notice that OEPA had determined that the lagoon had been closed in accordance with the approved plan and Rules 3745-66-12 through 3745-66-15 of the Ohio Administrative Code.

WESTON conducted well rehabilitation Interim Response Measure (IRM) activities at the EKCO facility from 21 March through 29 April 1994. This work was performed pursuant to the Draft IRM Work Plan, which was submitted to EPA Region V on behalf of AHPC in December 1993 and approved by EPA Region V in February 1994. The results of these activities were submitted to EPA in the June 1994 *Draft Report Interim Remedial Measures.* WESTON has not yet received comments from the agency on this report. The results of the IRM are summarized below.

Rehabilitation of six on-site bedrock wells was performed by properly sealing the well casings against confining layers present in the side walls of the boreholes. This rehabilitation work was designed to eliminate inter-aquifer communication and contaminant migration between the shallow overburden aquifer and the bedrock aquifer beneath the site. The on-site bedrock wells requiring rehabilitation included production/recovery wells W-1 and W-10 and out-of-service production well W-2, and monitor wells R-1, R-2, and R-3. Shallow overburden monitor well D-4-30 was abandoned by overdrilling and grouting the borehole in accordance with the Ohio Department of Natural Resources (ODNR) regulations for well abandonment. Because of the siltation problems associated with the poor condition of the wellhead seal and casing riser, the agency recommended the abandonment of this well. Following completion of rehabilitation activities, monitoring of the groundwater levels in all water-bearing units was performed to assess the extent to which the pumping of the site recovery wells continue to affect the aquifer gradients and capture zones.

The results of the post-rehabilitation groundwater monitoring indicated that the groundwater flow direction in the four primary water-bearing units in the area of the site continues to be toward the site production/recovery wells, W-1 and W-10. The most significant changes in groundwater levels occurred in the bedrock water-bearing zone. Specifically, the retrofitted R-wells exhibited significant drops in water level elevations.

WESTON conducted a baseline Health Risk Assessment (HHRA) at the request of EPA Region V. The objective was to assess health risks to a hypothetical future on-site resident from exposure to VOCs. The final document was submitted on 23 November 1994 and incorporated revisions that were requested by EPA Region V on 24 October 1994. No additional comments have been received from the agency, concerning the HHRA.

In May 1995, WESTON and AHP received direction from OEPA and USEPA that the quarterly groundwater sampling that had been conducted since 1989 was no longer required due to the official closure of the lagoon. A modified groundwater sampling program was implemented. This program consists of sampling four R-wells (R-2 through R-5) once every six months during February and August, and sampling two L-wells (L-4 and L-5) once every year during February.

# 3. SUMMARY OF SITE CHARACTERISTICS

This section presents a summary of the geology, hydrogeology, and geochemistry and an evaluation of the current groundwater remediation system at the EKCO facility. The site characteristics are fully discussed in the RFI Report (WESTON, 1993).

## 3.1 GEOLOGY SUMMARY

The EKCO facility is situated on the western flank of a glacial valley that extends to the north and south and was carved from Pennsylvanian age sedimentary rocks during the Pleistocene glaciation. Prior to the construction of the facility in 1945, a cover of fill material was used to level the natural glacially-formed topography at the building site. Beneath the fill, the glacially deposited sediments form a thin veneer 15 to 20 ft thick in the western portion of the site where bedrock is shallow. The sediments infill the glacial valley to the east, reaching a maximum on-site thickness of approximately 110 feet at the eastern property boundary. Further off-site to the east, these unconsolidated sediments reach thicknesses exceeding 252 ft.

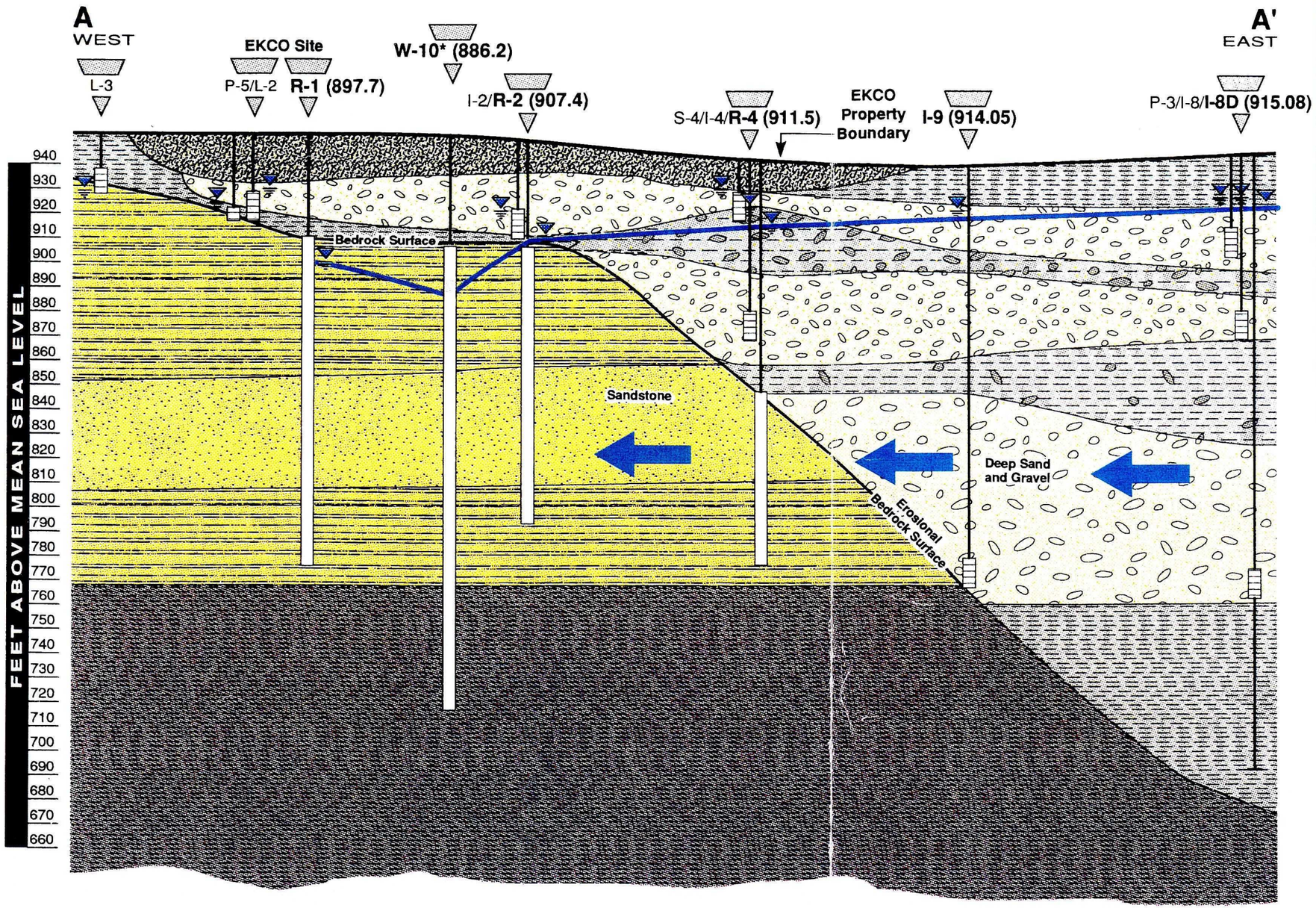
Based on the vertical distribution of the glacial sediments encountered during drilling, seven separate layers of unconsolidated material were identified and correlated between monitor wells in the area of the site. Three relatively higher permeability sand and gravel units were identified, separated by four relatively lower permeability silt and clay units. Underlying the glacial sediments, bedrock is encountered at its highest elevation in the northwestern portion of the site and slopes to the east at an approximate 17° angle. Bedrock encountered at the site consists of four interbedded layers. The shallowest bedrock unit encountered consists of an interbedded low permeable shale and argillaceous sandstone, which is underlain by a highly permeable, well sorted sandstone. The sandstone unit is the primary bedrock water-bearing unit at the site. Below the sandstone is another low permeable interbedded shale and argillaceous sandstone unit, which is directly underlain by shale.

## 3.2 HYDROGEOLOGY SUMMARY

The vertical stratigraphy in the area of the site is divided into four distinct permeable hydrostratigraphic units, i.e., shallow, intermediate, and deep silt, sand and gravel, and sandstone bedrock water-bearing units. These relatively higher permeable units are separated by relatively lower permeable clay and silt or shale and argillaceous sandstone units. In general, the silt, sand, and gravel and the sandstone units act as the primary medium for groundwater flow, and the low permeable silt, clay, shale, and argillaceous sandstone units act as barriers to groundwater flow, however, variations in permeability occur locally (see Figures 3-1 and 3-2).

There are five groundwater production wells in the area of the site which have an effect on the groundwater flow system. EKCO uses the two sandstone bedrock production wells W-1 and W-10, pumping at a total of approximately 600 gpm, to provide water for the manufacturing facility. Ohio Water Service (OWS) pumps the three production wells (OWS-1, -2, and -3) intermittently from the deep sand and gravel up to 2,800 gpm to provide water for the City of Massillon. The OWS production wells are located approximately 2,000 ft northeast of the EKCO facility in the deep sand and gravel glacial valley.

Groundwater contour maps for the site indicate that the pumping of the EKCO production wells W-1 and W-10 appreciably affects the groundwater flow in the shallow, intermediate, and the bedrock water-bearing zones. A drawdown cone exists in these three units around wells W-1 and W-10. As a result of the pumping, the groundwater in the shallow, intermediate, and bedrock water-bearing zones under the entire site is flowing directly toward production wells W-1 and W-10, and does not flow off-site. The deep sand and gravel water-bearing unit is present east of the facility, but not under it. Immediately east of the site, the groundwater in this unit flows west toward the site production wells, W-1 and W-10. Groundwater contour maps for these units were developed using 1999 water level data and are presented in Section 4.




## LEGEND

- Fill
- Silt or Clay
- Sand and Gravel
- Clay, Sand, Gravel
- Clay or Silt with Gravel
- Sand, Gravel, Cobbles
- Argillaceous Sandstone and Shale
- Sandstone-Little or No Fines
- Shale
- Water Level (Measured 22 October 1991)
- Screened Interval
- Open Borehole Interval
- Groundwater Flow Direction

*Well W-10 is not directly on the line of cross-section

0 250
Scale in Feet

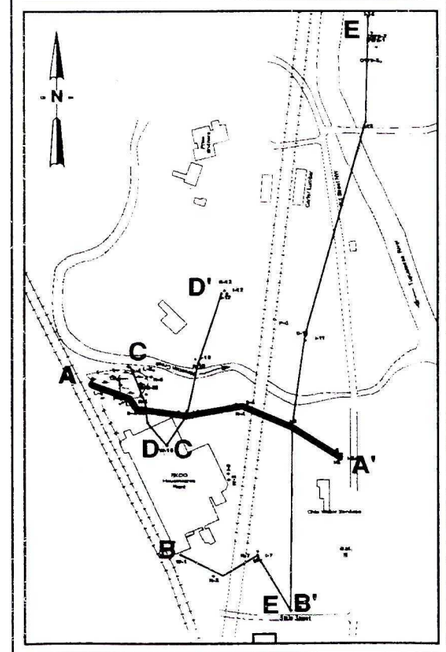
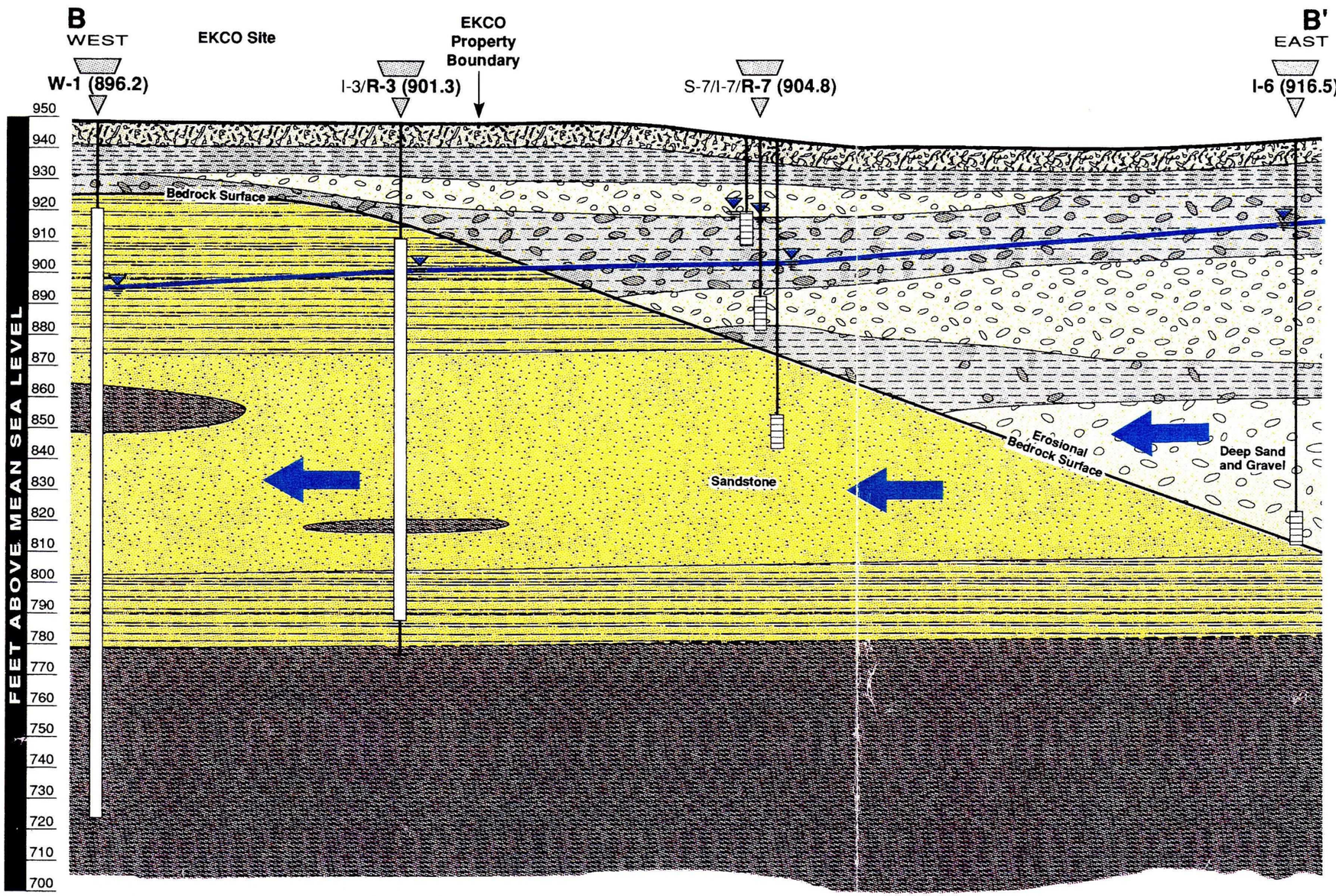



FIGURE 3-1
ANNOTATED GEOLOGIC CROSS SECTION A-A'
AT THE EKCO HOUSEWARES PLANT, MASSILLON, OHIO

622-8678 11/23/93




## LEGEND

- Fill
- Silt or Clay
- Sand and Gravel
- Clay, Sand, Gravel
- Clay or Silt with Gravel
- Sand, Gravel, Cobbles
- Argillaceous Sandstone and Shale
- Sandstone-Little or no Fines
- Shale
- Water Level (Measured 22 October 1991)
- Screened Interval
- Open Borehole Interval
- Groundwater Flow Direction

0 50 100 150 200
Scale in Feet

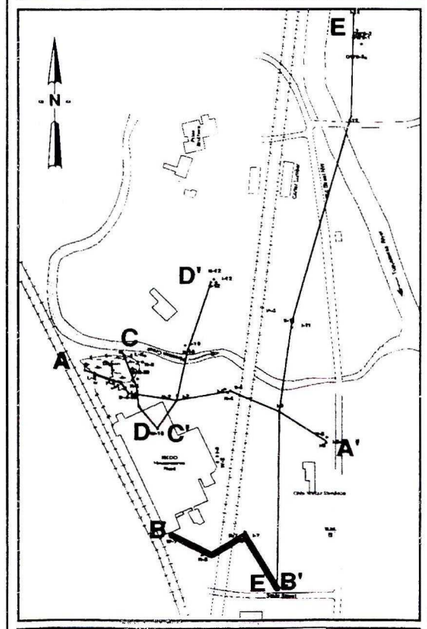



FIGURE 3-2
**ANNOTATED GEOLOGIC CROSS SECTION B-B' AT THE EKCO HOUSEWARES PLANT, MASSILLON, OHIO**

622-8679 11/23/93

## 3.3 GEOCHEMISTRY SUMMARY

### 3.3.1 Source Identification

Based on soil borings advanced in 1988 and 1991, the following three VOC source areas were identified (Figure 3-3):

- Tank area at southwestern end of the building.
- Tank area at northern end of the building.
- Sump at production well W-10.

One additional potential VOC source area was created by a 1,1,1-TCA spill at the northwest end of the building in May 1992. EKCO removed 50 tons of soil from this area.

TCE was the primary constituent detected at the tank area at the southwestern end of the plant and was detected at 2 ppm in SB-06. In the tank area at the northern end of the building, TCE and DCE were the primary constituents detected. TCE was detected at all depth intervals in borings installed at the north end of the building. DCE was detected at 34 ppm in one boring installed through the floor at the north end of the building.

Four underground storage tanks (USTs) (Tanks 2 through 5) were leak-tested in March 1991 and found to be not leaking. The procedures and results of the tank testing activities are presented in the Draft Interim Remedial Measures Report for Underground Storage Tanks at EKCO Housewares, Inc., Massillon, Ohio, April 1990.

### 3.3.2 Groundwater Analytical Results

Groundwater sampling was conducted at the EKCO site in December 1988, September 1991, and March 1992. In addition to these three sampling events, selected wells were sampled quarterly from 1989 to 1995 as part of the lagoon closure plan for the site. Groundwater samples have been collected semiannually since 1995.

The VOCs detected in the groundwater were predominantly TCE, 1,1,1-TCA, and their respective breakdown products. The analytical results indicate that elevated concentrations of TCE and 1,1,1-TCA occur in the shallow water-bearing zone located near the source area north of the plant, in the

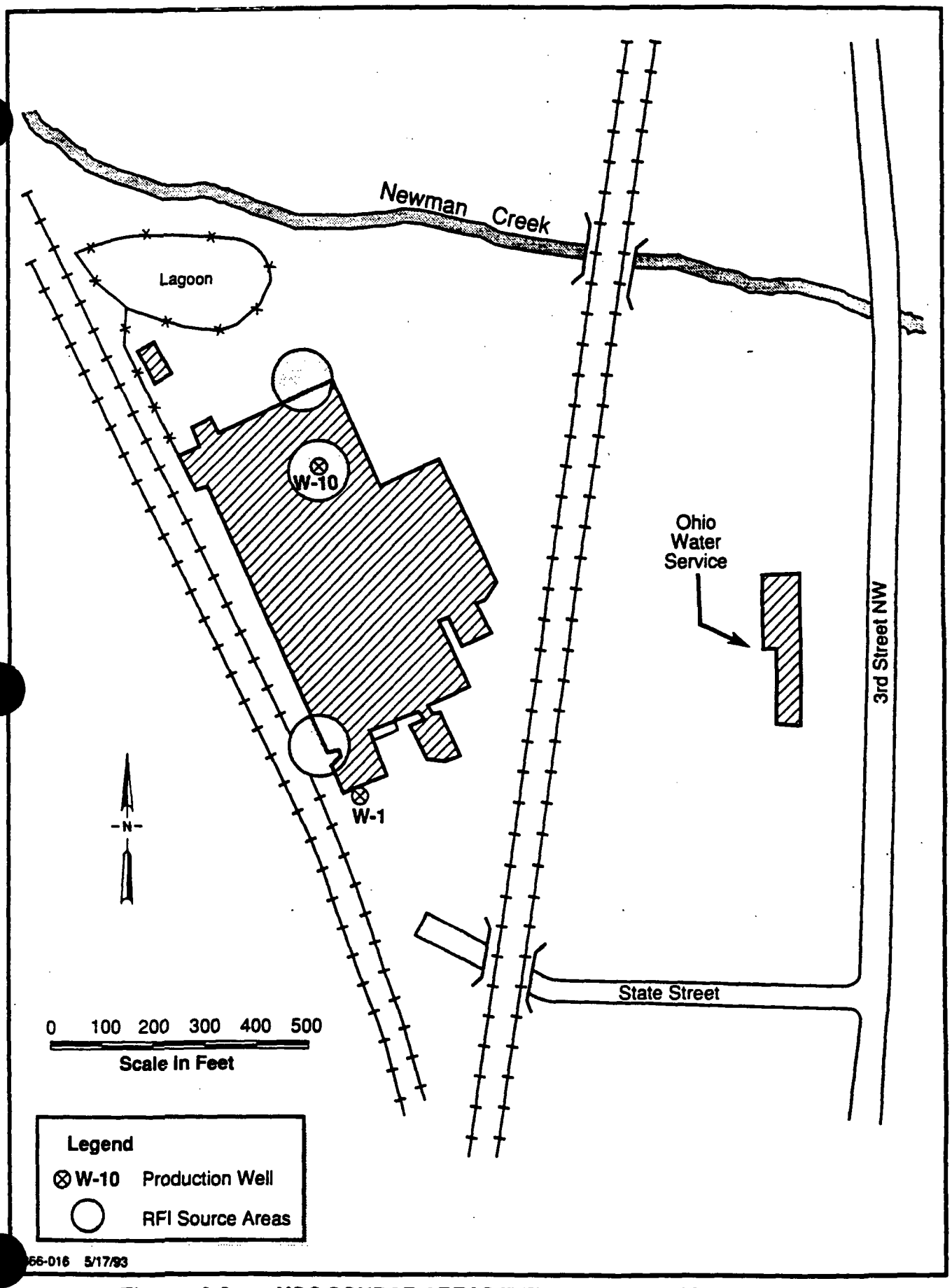



Figure 3-3 VOC SOURCE AREAS IDENTIFIED DURING THE RFI

intermediate water-bearing zone at well I-2, and in the bedrock water-bearing zone located near wells W-10, R-1, and R-2. The percentage of breakdown products increases with increasing distance from the source areas at wells W-10 and north of the plant building. Groundwater in the shallow, intermediate, and bedrock water-bearing zones is contained on-site and flowing toward production wells W-1 and W-10. Any VOCs that exist in the groundwater at the site are being recovered by the site production wells and are being treated by the on-site air stripper system.

Shallow groundwater sampling results indicate that there is a separate and relatively newer off-site TCE source approximately 500 ft north of the EKCO site at well S-12. The exceptionally high level of TCE and the absence of any appreciable breakdown products indicate that it is a fairly recent TCE release and it is unrelated to activities that have occurred at the EKCO site. No metals concentrations have been detected above MCLs in the groundwater.

## 3.4 GROUNDWATER REMEDIATION SYSTEM

Four water-bearing units have been identified in the area of the EKCO facility: the shallow, the intermediate, the deep, and the bedrock. Of these, only the deep aquifer is not present below the EKCO facility. The groundwater remediation system currently in operation at the EKCO facility consists of the two bedrock wells, W-1 and W-10, pumping at a total rate of approximately 600 gpm. The water is then processed through an on-site air stripper system to remove VOCs. The pumping rates measured and total VOCs detected for recovery wells W-1 and W-10 for the period February 1990 through December 1999 are shown in Table 3-1. Recovery well W-1 was not pumping during the months of August and September due to mechanical problems that required maintenance. The highest total VOC concentrations detected in the production wells during 1999 were 1417 parts per billion (ppb) in W-10 and 112 ppb in W-1.

The pumping rates for wells W-1 and W-10 and for the total system for 1990 through 1999 are graphed on Figure 3-4. These graphs show that the pumping rates have remained relatively consistent during the past 10 years, with the exception of down times during well maintenance. There is always at least one well pumping at all times in order to maintain capture of the on-site groundwater plume. Groundwater contour maps of the shallow, intermediate, and bedrock water-bearing units indicate that the groundwater in these units is flowing toward the production wells,

## Table 3-1

## Pumping Rates and Total VOCs Detected for Recovery Wells W-1 and W-10 February 1990 through December 1999

| Recovery Well W-1 | | | | Recovery Well W-10 | | | |
|---|---|---|---|---|---|---|---|
| Sample Date | Pumping Rate (gpm) | Water Treated (gallons) | Total VOCs (µg/L) | Sample Date | Pumping Rate (gpm) | Water Treated (gallons) | Total VOCs (µg/L) |
| 2/1/1990 | 250 | 9,595,000 | 142 | 2/1/1990 | 360 | 13,996,200 | 1,923 |
| 3/5/1990 | 260 | 11,648,000 | 117 | 3/5/1990 | 360 | 16,368,200 | 2,173 |
| 4/3/1990 | 260 | 10,847,000 | 109 | 4/3/1990 | 350 | 14,577,000 | 1,832 |
| 5/2/1990 | 260 | 10,799,000 | 131 | 5/2/1990 | 340 | 14,133,099 | 2,849 |
| 6/4/1990 | 255 | 12,310,000 | 146 | 6/4/1990 | 330 | 16,000,700 | 2,597 |
| 7/6/1990 | 265 | 11,946,000 | 173 | 7/6/1990 | 330 | 15,051,200 | 2,540 |
| 8/3/1990 | 260 | 10,541,000 | 173 | 8/3/1990 | 320 | 13,180,600 | 2,378 |
| 9/5/1990 | 260 | 12,319,000 | 158 | 9/5/1990 | 325 | 13,845,800 | 2,140 |
| 10/2/1990 | 260 | 10,020,000 | 150 | 10/2/1990 | 340 | 12,895,300 | 2,163 |
| 11/1/1990 | 260 | 11,106,000 | 132 | 11/1/1990 | 350 | 14,958,000 | 2,776 |
| 12/4/1990 | 260 | 12,120,000 | 150 | 12/4/1990 | 340 | 16,588,600 | 3,069 |
| 1/7/1991 | 260 | 12,470,000 | 180 | 1/7/1991 | 335 | 16,720,500 | 2,850 |
| 2/1/1991 | 260 | 9,342,000 | 173 | 2/1/1991 | 340 | 12,085,300 | 2,153 |
| 3/8/1991 | 255 | 12,871,000 | 179 | 3/8/1991 | 335 | 16,758,399 | 2,286 |
| 4/1/1991 | 250 | 8,634,000 | 175 | 4/1/1991 | 325 | 11,265,200 | 1,873 |
| 5/1/1991 | 210 | 9,789,000 | 181 | 5/1/1991 | 320 | 13,868,800 | 1,610 |
| 6/4/1991 | 210 | 10,055,000 | 264 | 6/4/1991 | 310 | 15,440,399 | 2,384 |
| 7/1/1991 | 205 | 3,211,920 | 303 | 7/1/1991 | 260 | 4,938,500 | 2,436 |
| 8/1/1991 | 200 | 9,156,000 | 248 | 8/1/1991 | 265 | 11,861,000 | 1,965 |
| 9/3/1991 | 210 | 9,767,000 | 302 | 9/3/1991 | 270 | 12,835,400 | 2,182 |
| 10/3/1991 | 200 | 8,452,000 | 233 | 10/3/1991 | 280 | 11,722,800 | 1,876 |
| 11/5/1991 | 205 | 9,507,000 | 208 | 11/5/1991 | 265 | 12,592,500 | 1,498 |
| 12/13/1991 | 205 | 10,847,000 | 256 | 12/13/1991 | 265 | 14,287,000 | 1,554 |
| 1/6/1992 | 280 | 2,882,000 | ** | 1/6/1992 | 280 | 9,372,000 | 1,594 |
| 2/7/1992 | * | * | * | 2/7/1992 | 285 | 12,845,900 | 1,744 |
| 3/6/1992 | 205 | 5,313,000 | 4,726 | 3/6/1992 | 270 | 4,729,100 | 3,928 |
| 4/13/1992 | 220 | 12,038,400 | 138 | 4/13/1992 | 240 | 10,656,900 | 827 |
| 5/5/1992 | 220 | 6,857,000 | 174 | 5/5/1992 | 235 | 7,570,000 | 1,418 |
| 6/2/1992 | 210 | 8,584,000 | 218 | 6/2/1992 | 265 | 10,566,300 | 1,206 |
| 7/1/1992 | 220 | 8,757,000 | 71 | 7/1/1992 | 270 | 10,848,400 | 1,470 |
| 8/4/1992 | 230 | 10,365,000 | 165 | 8/4/1992 | 275 | 13,297,500 | 1,538 |
| 9/2/1992 | 220 | 9,155,000 | 169 | 9/2/1992 | 280 | 11,747,000 | 1,830 |
| 10/3/1992 | 230 | 9,566,000 | 177 | 10/3/1992 | 295 | 12,405,700 | 1,226 |
| 11/3/1992 | 230 | 10,296,000 | 148 | 11/3/1992 | 305 | 13,744,400 | 1,489 |
| 12/8/1992 | 230 | 11,646,000 | 175 | 12/8/1992 | 300 | 15,364,800 | 1,298 |
| 1/6/1993 | 230 | 10,086,000 | 135 | 1/6/1993 | 310 | 13,320,800 | 666 |
| 2/3/1993 | 245 | 9,073,000 | 183 | 2/3/1993 | 315 | 11,889,900 | 2,162 |
| 3/2/1993 | 230 | 9,065,000 | 135 | 3/2/1993 | 300 | 11,764,300 | 1,420 |
| 4/1/1993 | 230 | 8,373,000 | 162 | 4/1/1993 | 310 | 12,000,900 | 1,954 |
| 5/3/1993 | 235 | 10,938,000 | 136 | 5/3/1993 | 305 | 14,383,000 | 1,673 |
| 6/1/1993 | 230 | 9,408,000 | ND | 6/1/1993 | 310 | 12,023,000 | 1,592 |

## Table 3-1 (Cont.)

## Pumping Rates and Total VOCs Detected for Recovery Wells W-1 and W-10 February 1990 through December 1999

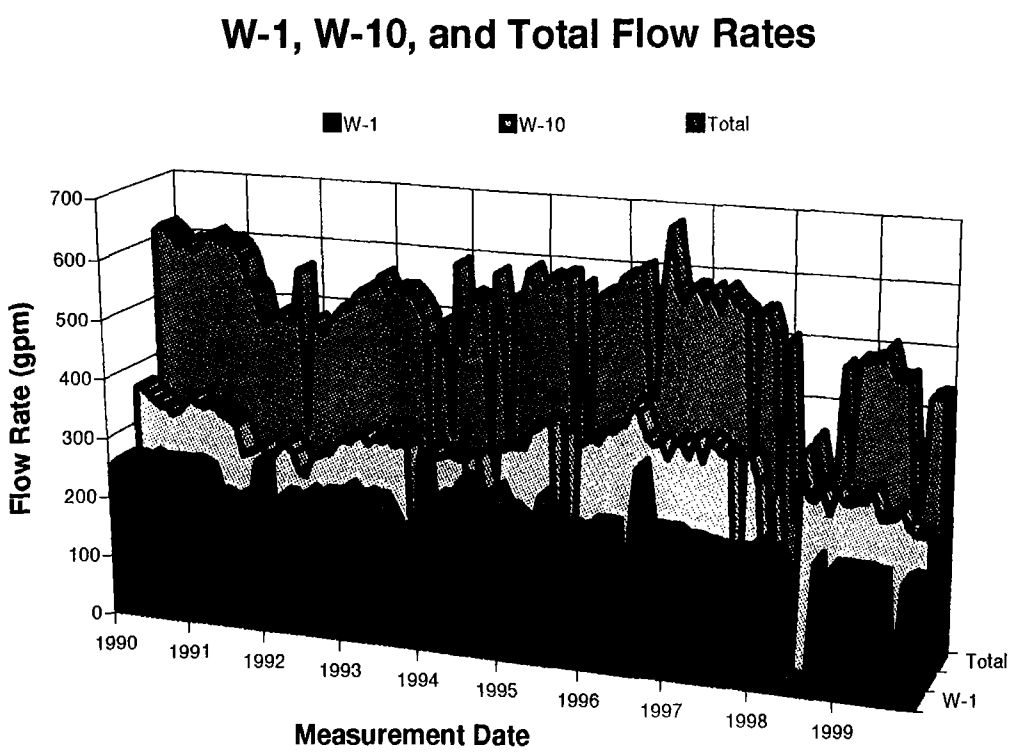
| Recovery Well W-1 | | | | Recovery Well W-10 | | | |
|---|---|---|---|---|---|---|---|
| Sample Date | Pumping Rate (gpm) | Water Treated (gallons) | Total VOCs (µg/L) | Sample Date | Pumping Rate (gpm) | Water Treated (gallons) | Total VOCs (µg/L) |
| 7/1/1993 | 230 | 9,408,000 | 124 | 7/1/1993 | 300 | 12,493,900 | 1,660 |
| 8/9/1993 | 210 | 11,727,000 | 132 | 8/9/1993 | 305 | 16,701,000 | 1,546 |
| 9/2/1993 | 190 | 6,655,000 | 140 | 9/2/1993 | 300 | 10,205,000 | 1,660 |
| 10/1/1993 | 175 | 7,505,000 | 136 | 10/1/1993 | 289 | 12,194,500 | 1,486 |
| 11/3/1993 | 200 | 7,000,000 | ** | 11/3/1993 | 294 | 11,044,200 | 1,422 |
| 12/1/1993 | * | * | * | 12/1/1993 | 300 | 12,173,200 | 1,263 |
| 1/13/1994 | 300 | 19,000,000 | 136 | 1/13/1994 | 290 | 18,560,500 | 1,534 |
| 2/14/1994 | 145 | 9,612,000 | 138 | 2/14/1994 | 295 | 13,229,800 | 1,779 |
| 3/3/1994 | 245 | 10,584,000 | 144 | 3/3/1994 | 295 | 7,058,400 | 1,860 |
| 4/19/1994 | 245 | 14,102,000 | 141 | 4/19/1994 | 290 | 11,995,200 | 2,040 |
| 5/5/1994 | 245 | 5,644,800 | 144 | 5/5/1994 | 290 | 6,604,100 | 1,788 |
| 6/3/1994 | 245 | 9,878,000 | 158 | 6/3/1994 | * | * | * |
| 7/11/1994 | 280 | 15,590,000 | 187 | 7/11/1994 | 300 | 17,280,000 | 1,801 |
| 8/9/1994 | 245 | 9,172,800 | 129 | 8/9/1994 | 235 | 8,798,400 | 1,694 |
| 9/28/1994 | 230 | 15,906,000 | 167 | 9/28/1994 | * | * | * |
| 10/17/1994 | 230 | 6,624,000 | 170 | 10/17/1994 | 315 | 9,072,000 | 2,282 |
| 11/4/1994 | 230 | 5,961,600 | 152 | 11/4/1994 | 315 | 8,164,800 | 1,374 |
| 12/13/1994 | 270 | 13,223,000 | 136 | 12/13/1994 | 320 | 18,011,300 | 958 |
| 1/5/1995 | 240 | 7,919,000 | 166 | 1/5/1995 | 320 | 10,615,900 | 1,163 |
| 2/3/1995 | 240 | 10,022,400 | 170 | 2/3/1995 | 320 | 13,363,200 | 1,082 |
| 3/13/1995 | 230 | 13,923,000 | 186 | 3/13/1995 | 350 | 18,630,700 | 1,016 |
| 4/5/1995 | 220 | 5,254,000 | 114 | 4/5/1995 | 355 | 8,046,800 | 1,088 |
| 5/8/1995 | 220 | 10,493,000 | 108 | 5/8/1995 | 365 | 16,519,000 | 1,287 |
| 6/7/1995 | 220 | 8,940,000 | 80 | 6/7/1995 | 365 | 15,674,400 | 909 |
| 7/12/1995 | 270 | 12,200,000 | 217 | 7/12/1995 | * | * | * |
| 8/16/1995 | 220 | 11,003,000 | 56 | 8/16/1995 | 350 | 17,136,000 | 1,179 |
| 9/26/1995 | 200 | 15,110,000 | 246 | 9/26/1995 | * | * | * |
| 10/25/1995 | 220 | 10,001,000 | 260 | 10/25/1995 | 330 | 8,276,700 | 2,548 |
| 11/7/1995 | 220 | 400,900 | 167 | 11/7/1995 | 340 | 6,739,200 | 813 |
| 12/7/1995 | 215 | 9,349,000 | 122 | 12/7/1995 | 345 | 16,056,000 | 942 |
| 1/26/1996 | 220 | 11,884,000 | 114 | 1/26/1996 | 340 | 19,096,400 | 1,263 |
| 2/29/1996 | 230 | 4,069,000 | 120 | 2/29/1996 | 360 | 7,241,800 | 762 |
| 3/15/1996 | 230 | 11,505,000 | 77 | 3/15/1996 | 360 | 18,152,000 | 1,070 |
| 4/12/1996 | 230 | 4,200,000 | 89 | 4/12/1996 | 370 | 14,820,700 | 951 |
| 5/7/1996 | 230 | 8,076,000 | 74 | 5/7/1996 | 375 | 13,299,100 | 791 |
| 6/7/1996 | * | * | * | 6/7/1996 | 405 | 16,989,700 | 978 |
| 7/29/1996 | * | * | * | 7/29/1996 | 395 | 29,864,900 | 803 |
| 8/15/1996 | 230 | 14,940,000 | 83 | 8/15/1996 | 355 | 8,798,200 | 663 |
| 9/13/1996 | 230 | 9,630,000 | 103 | 9/13/1996 | 345 | 14,661,300 | 1,274 |
| 10/10/1996 | 230 | 9,027,000 | 129 | 10/ /96 | 350 | 13,525,100 | 1,243 |
| 11/13/1996 | 230 | 11,384,000 | 129 | 11/ /96 | 325 | 17,167,400 | 1,081 |

Table 3-1 (Cont.)

**Pumping Rates and Total VOCs Detected for Recovery Wells W-1 and W-10 February 1990 through December 1999**

| Recovery Well W-1 | | | | Recovery Well W-10 | | | |
|---|---|---|---|---|---|---|---|
| Sample Date | Pumping Rate (gpm) | Water Treated (gallons) | Total VOCs (µg/L) | Sample Date | Pumping Rate (gpm) | Water Treated (gallons) | Total VOCs (µg/L) |
| 12/10/1996 | 230 | 8,945,000 | 118 | 12/ /96 | 350 | 13,653,400 | 1,191 |
| 1/10/1997 | 230 | 10,392,000 | 154 | 1/10/1997 | 350 | 15,748,700 | 1,166 |
| 2/28/1997 | 230 | 14,864,000 | 91 | 2/28/1997 | 330 | 24,466,100 | 1,297 |
| 3/19/1997 | 220 | 5,675,000 | 236 | 3/19/1997 | 360 | 9,114,000 | 2,296 |
| 4/3/1997 | 220 | 510,699,000 | 215 | 4/3/1997 | 325 | 8,003,300 | 2,940 |
| 5/13/1997 | 220 | 12,481,000 | 101 | 5/13/1997 | 360 | 20,426,200 | 922 |
| 6/13/1997 | 215 | 9,636,000 | 231 | 6/13/1997 | 350 | 15,873,700 | 1,474 |
| 7/10/1997 | 215 | 8,234,000 | 75 | 7/10/1997 | 340 | 13,564,600 | 701 |
| 8/6/1997 | 210 | 8,161,000 | 92 | 8/6/1997 | 335 | 13,063,700 | 992 |
| 9/12/1997 | 210 | 7,999,000 | 611 | 9/12/1997 | * | * | * |
| 10/8/1997 | 210 | 7,854,000 | 314 | 10/8/1997 | 340 | 15,853,000 | 763 |
| 11/20/1997 | 210 | 13,032,000 | 108 | 11/20/1997 | 340 | 21,052,000 | 913 |
| 12/16/1997 | 210 | 7,688,000 | 105 | 12/16/1997 | 300 | 1,836,800 | 946 |
| 1/29/1998 | 220 | 13,429,000 | 115 | 1/29/1998 | * | * | ** |
| 2/12/1998 | 225 | 4,232,000 | 94 | 2/12/1998 | 280 | 12,992,500 | 1,268 |
| 3/19/1998 | 215 | 10,453,000 | 142 | 3/19/1998 | * | * | ** |
| 4/29/1998 | 215 | 12,598,000 | 207 | 4/29/1998 | * | * | ** |
| 5/21/1998 | 205 | 6,525,000 | 164 | 5/21/1998 | * | * | ** |
| 6/25/1998 | * | * | ** | 6/25/1998 | 350 | 17,281,800 | 877 |
| 7/23/1998 | * | * | ** | 7/23/1998 | 285 | 10,452,700 | 968 |
| 8/27/1998 | * | * | ** | 8/27/1998 | 280 | 10,023,300 | 1,118 |
| 9/22/1998 | * | * | ** | 9/22/1998 | 295 | 6,459,500 | 1,179 |
| 10/27/1998 | 210 | 8,628,000 | 91 | 10/27/1998 | 260 | 12,962,200 | 1,092 |
| 11/30/1998 | * | * | ** | 11/30/1998 | 295 | 13,446,000 | 936 |
| 12/17/1998 | 200 | 5,274,000 | 99 | 12/17/1998 | 275 | 6,954,200 | 1,012 |
| 1/28/1999 | 200 | 12,230,000 | 107 | 1/28/1999 | 280 | 16,674,300 | 1,035 |
| 2/25/1999 | 200 | 8,062,000 | 112 | 2/25/1999 | 285 | 11,197,200 | 1,399 |
| 3/25/1999 | 200 | 8,038,000 | 57 | 3/25/1999 | 285 | 11,527,600 | 1,417 |
| 4/28/1999 | 200 | 9,504,000 | 82 | 4/28/1999 | 305 | 14,510,100 | 992 |
| 5/27/1999 | 200 | 8,352,000 | 87 | 5/27/1999 | 260 | 10,948,600 | 1,003 |
| 6/30/1999 | 195 | 9,266,400 | 85 | 6/30/1999 | 260 | 11,876,000 | 1,082 |
| 7/28/1999 | 195 | 7,862,400 | 89 | 7/28/1999 | 265 | 10,660,900 | 1,080 |
| 8/26/1999 | * | * | ** | 8/26/1999 | 275 | 8,346,100 | 1,205 |
| 9/30/1999 | * | * | ** | 9/30/1999 | 250 | 10,818,100 | 752 |
| 10/28/1999 | 190 | 7,660,800 | 86 | 10/28/1999 | 240 | 9,370,300 | 759 |
| 11/23/1999 | 195 | 7,300,800 | 93 | 11/23/1999 | 240 | 8,847,500 | 761 |
| 12/14/1999 | 195 | 4,773,600 | 110 | 12/14/1999 | 240 | 4,804,000 | 140 |

ND = None Detected
* Well not pumping
**Data not available




| | | | | | |
|---|---|---|---|---|---|
| **Legend** | W-1 | = Recovery Well W-1 | W-10 | = Recovery Well W-10 |
| | Total | = Total system flow rate | | |

Note: This graph is designed for trend analysis. The complete data set is presented in Table 3-1.

**FIGURE 3-4**
**PUMPING RATES FOR RECOVERY WELLS W-1 AND W-10, 1990 THROUGH 1999.**
fig3_4.xls

W-1 and W-10. Because all of the groundwater at the facility in these three units is flowing toward the production wells, W-1 and W-10, any VOCs that exist in the groundwater at the facility are being captured by the site production wells and treated by the on-site air stripper system.

The results of the RFI indicate that no VOC-contaminated groundwater is migrating off-site. Therefore, users of groundwater supplies off-site in the area are not receptors, either actual or potential, for the migration of contaminated groundwater. Results of surface water and sediment samples collected from Newman Creek during the Groundwater Quality Assessments indicate that the discharge of treated groundwater to Newman Creek had not resulted in an adverse environmental impact to the creek.

# 4. 1999 GROUNDWATER FLOW AND WATER QUALITY

This section of the report presents the groundwater quality and water level data, groundwater elevation contour maps, and groundwater velocity calculations for the 1999 groundwater sampling program. The 1995-1999 sampling program was modified from the previous years and is described below.

Quarterly groundwater sampling was conducted at the facility from 1989 through February 1995 during the months of February, May, August, and November in support of the RFI/CMS and lagoon closure activities. Wells sampled included five L-series wells (L-1 through L-5) and five R-series wells (R-1 through R-5). The L-wells are located around the closed lagoon at the north end of the facility, and the R-wells are located across the site. Data gathered from these wells were submitted to the OEPA and the Region 5 USEPA on an annual basis. These data fulfilled the OAC 3745-65 assessment monitoring that is required until closure of the RCRA lagoon.

On 9 January 1995, AHPC received official notice that OEPA had determined that the lagoon had been closed in accordance with the approved plan and Rules 3745-66-12 through 3745-66-15 of the OAC.

Based on discussions with the USEPA and OEPA in May 1995, the quarterly sampling is no longer required for the RCRA lagoon closure, but a modified groundwater sampling program is still needed as part of the RFI/CMS. This modified groundwater sampling program was implemented in August 1995 and consisted of the following:

- Sampling four R-wells (R-2 through R-5) once every 6 months during February and August.
- Sampling two L-wells (L-4 and L-5) once every year during February.

## 4.1 GROUNDWATER FLOW

Groundwater elevation measurements were collected from all wells during all sampling events using an electronic water level measuring device having an accuracy of approximately +/- 0.01 ft. The depth to water measurements, measurement point elevation, and calculated groundwater elevations for the 1999 groundwater sampling events are shown on Table 4-1. Groundwater contour

## Table 4-1

## Summary of Water Level Data Collected During the 1999 Groundwater Sampling Program

| | | 15 February 1999 | | 24 August 1999 | |
|---|---|---|---|---|---|
| Measurement Location | Measurement Point Elevation | Depth to Water | Groundwater Elevation | Depth to Water | Groundwater Elevation |
| I-2 | 946.4 | 31.57 | 915.11 | 34.43 | 913.88 |
| I-4 | 933.23 | 18.53 | 915.02 | 21.41 | 913.26 |
| I-5 | 946.13 | 30.83 | 915.44 | 33.44 | 913.80 |
| I-6 | 940.62 | 23.26 | 917.31 | 25.71 | 916.01 |
| I-7 | 940.04 | 23.52 | 916.02 | 26.13 | 915.39 |
| I-8 | 931.51 | 7.68 | 921.21 | * | * |
| I-8D | 933.46 | 17.82 | 915.61 | * | * |
| I-9 | 932.17 | * | * | * | * |
| I-10 | 935.79 | 10.49 | 923.99 | 10.97 | * |
| I-11 | 933.79 | 22.88 | 912.97 | 26.38 | 909.93 |
| I-12 | 944.54 | 26.35 | 918.56 | 30.35 | 916.73 |
| I-13 | 933.47 | 26.73 | 910.55 | 27.41 | 906.11 |
| I-14 | 932.33 | 27.52 | 909.32 | 27.89 | 904.49 |
| R-1 | 946.91 | 57.71 | 895.65 | 46.84 | 895.42 |
| R-2 | 946.32 | 59.02 | 904.43 | 46.41 | 895.14 |
| R-3 | 947.14 | 57.95 | 901.76 | 42.99 | 901.22 |
| R-4 | 933.28 | 21.12 | 913.91 | 22.44 | 911.98 |
| R-5 | 937.78 | 31.25 | 912.72 | 30.74 | 905.75 |
| R-7 | 941.55 | 36.64 | 910.52 | 32.21 | 909.31 |
| R-10 | 935.8 | 38.44 | 907.99 | 38.91 | * |
| R-12 | 945.35 | 36.51 | 911.80 | * | * |
| S-4 | 934.88 | 10.88 | 923.15 | 11.26 | 921.86 |
| S-7 | 940.94 | 18.14 | 922.22 | 20.41 | 921.46 |
| S-11 | 934.04 | 8.88 | 923.94 | 11.48 | 923.29 |
| S-12 | 944.93 | 20.14 | 923.44 | * | * |
| W-1 | 947.62 | 123.00** | 824.60** | * | * |
| W-2 | 945.29 | * | * | * | * |

**Table 4-1**

**Summary of Water Level Data Collected During the 1995 Groundwater Sampling Program (Continued)**

| | | 15 February 1999 | | 24 August 1999 | |
|---|---|---|---|---|---|
| **Measurement Location** | **Measurement Point Elevation** | **Depth to Water** | **Groundwater Elevation** | **Depth to Water** | **Groundwater Elevation** |
| W-10 | 945.79 | 94.13 | 903.85 | * | * |
| P-3 | 933.68 | 9.97 | 922.91 | * | * |
| P-4 | 938.49 | * | * | * | * |
| P-5 | 948.43 | 21.13 | 926.45 | 24.38 | 925.83 |
| L-1 | 946.33 | 25.26 | 919.32 | 31.90 | 918.29 |
| L-2 | 947.57 | 13.82 | 931.75 | 19.81 | 930.05 |
| L-3 | 946.91 | 12.52 | 932.47 | 14.62 | 929.98 |
| L-4 | 938.22 | 6.44 | 929.94 | * | * |
| L-5 | 936.98 | 7.07 | 929.06 | 7.49 | 928.87 |
| SG-5 | 939.19 | 11.58 | 927.28 | 12.39 | 927.02 |

* Unable to access the well.
** Water level measured 25 February 1999

maps for the two 1999 sampling events were contoured for the shallow, intermediate, and deep/bedrock water-bearing units and are presented in Figures 4-1 through 4-6.

These groundwater contour maps show that the pumping at production wells W-1 and W-10 significantly affects the groundwater flow in all the water-bearing units located beneath and adjacent to the EKCO facility. A drawdown cone exists in these units around production wells W-1 and W-10. As a result of the pumping, the groundwater in the shallow, intermediate and bedrock water-bearing units beneath the site, and the deep unit immediately east of the site, is flowing directly toward production wells W-1 and W-10, and does not flow off or away from the site. The groundwater flow patterns shown on these groundwater contour maps are generally consistent with what has been observed at the site throughout the quarterly and semi-annual monitoring period (1989 through 1999). Groundwater seepage velocities were estimated for the two sampling events, for the shallow and bedrock water-bearing units, but not for the intermediate unit due to a limited amount of water level monitoring points within that unit located along a flow path. The seepage velocities were calculated using the following equation ("Darcy's Law"):

$$V_s = \frac{K_h i}{n_e}$$

- $K_h$ = Saturated horizontal hydraulic conductivity (ft/day).
- $i$ = Horizontal hydraulic gradient (ft/ft).
- $n_e$ = Effective porosity.

The shallow unit seepage velocities were estimated using the groundwater gradient between wells L-4 and L-1 which are in line with recovery well W-10. The effective porosity and the hydraulic conductivity of the shallow unit were estimated to be 0.15 and 1 ft/day, respectively (from WESTON, 1993). The distance between wells L-4 and L-1 is 203 feet. The groundwater velocity was calculated to be 0.35 and 0.55 ft/day for February and August 1999, respectively.

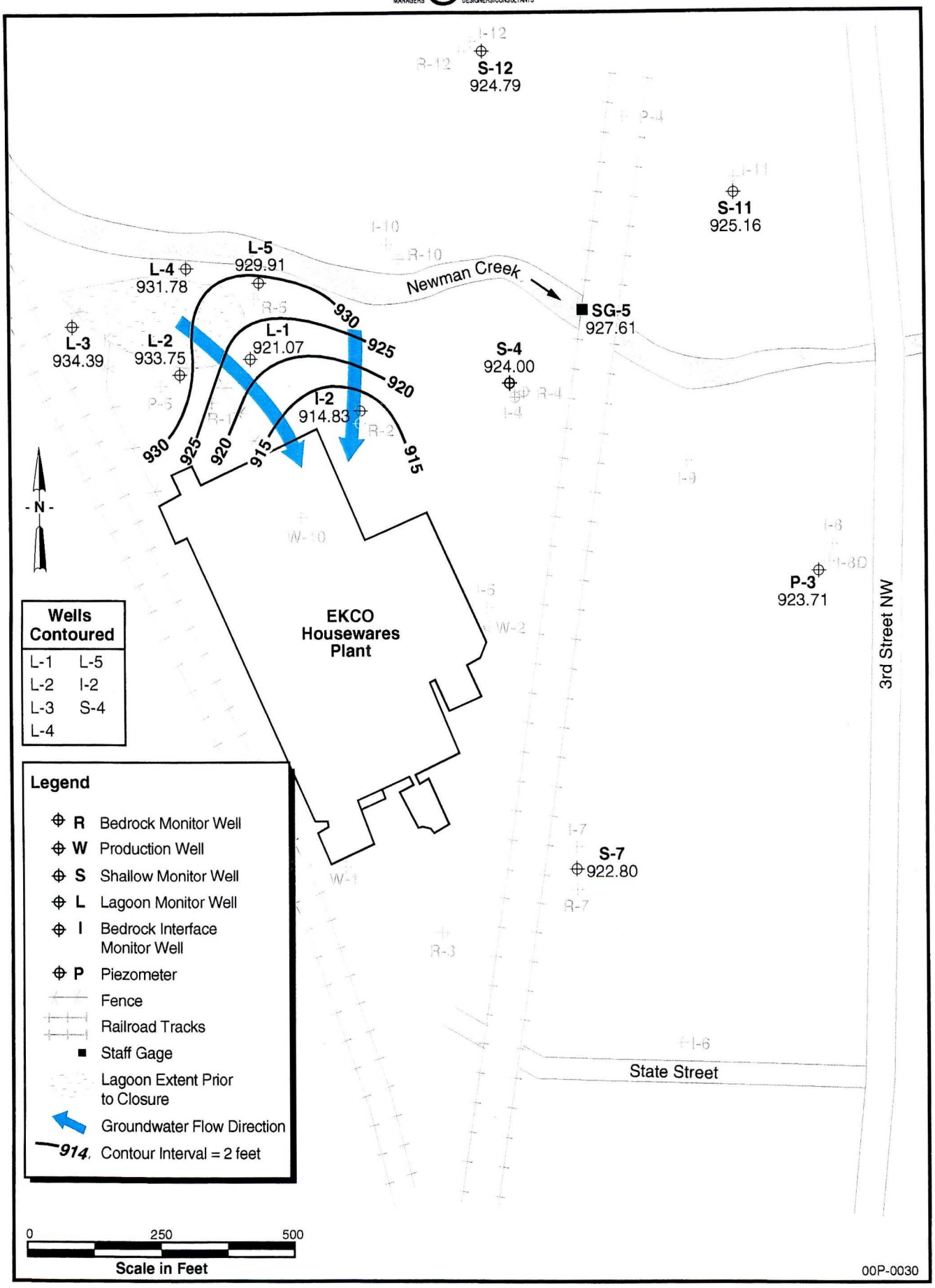



**FIGURE 4-1 GROUNDWATER CONTOUR MAP OF WELLS COMPLETED IN THE SHALLOW WATER-BEARING ZONE WATER LEVELS MEASURED 15 FEBRUARY 1999**

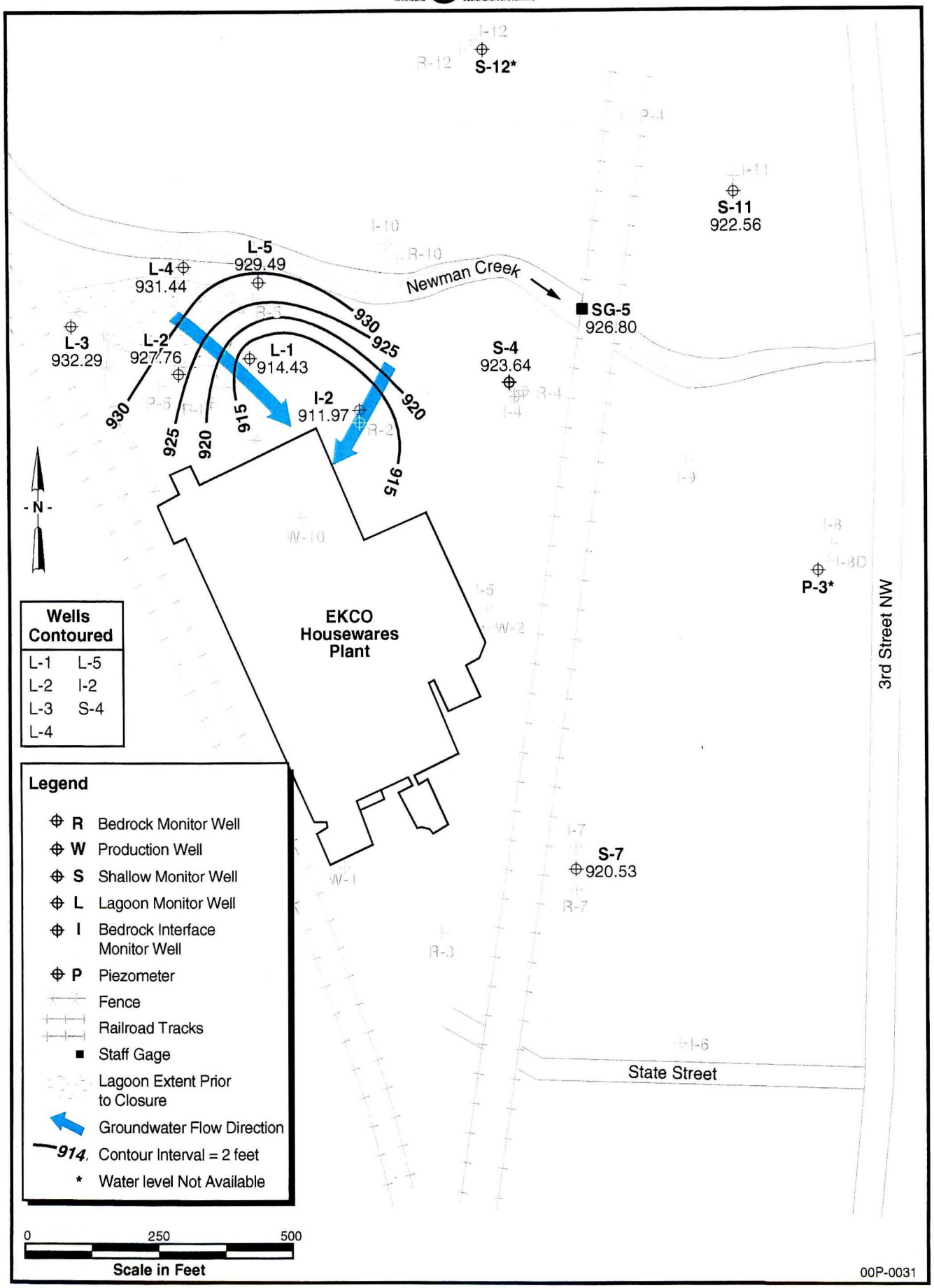



**FIGURE 4-2 GROUNDWATER CONTOUR MAP OF WELLS COMPLETED IN THE SHALLOW WATER-BEARING ZONE WATER LEVELS MEASURED 24 AUGUST 1999**

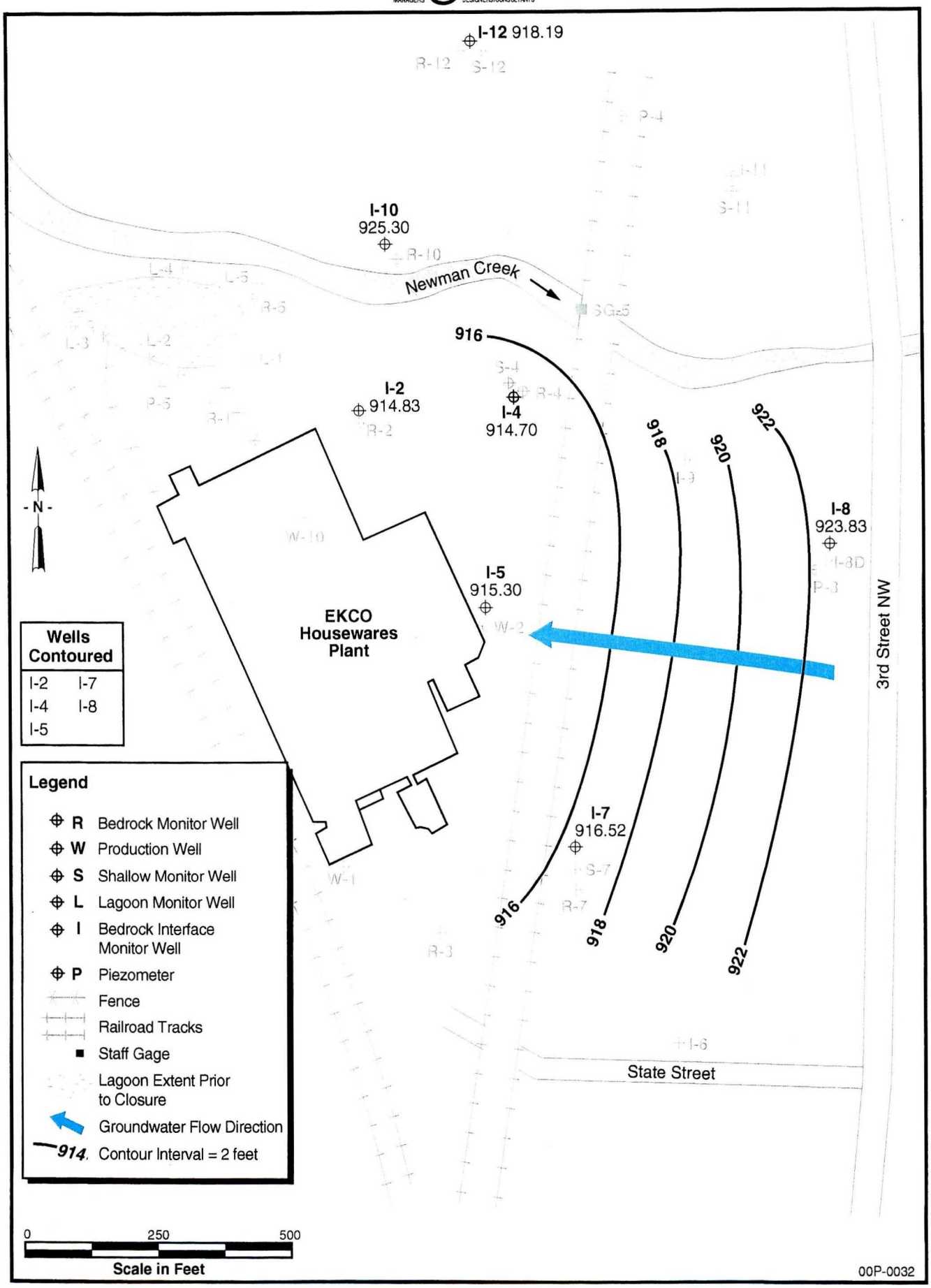



**FIGURE 4-3 GROUNDWATER CONTOUR MAP OF WELLS COMPLETED IN THE INTERMEDIATE WATER-BEARING ZONE WATER LEVELS MEASURED 15 FEBRUARY 1999**

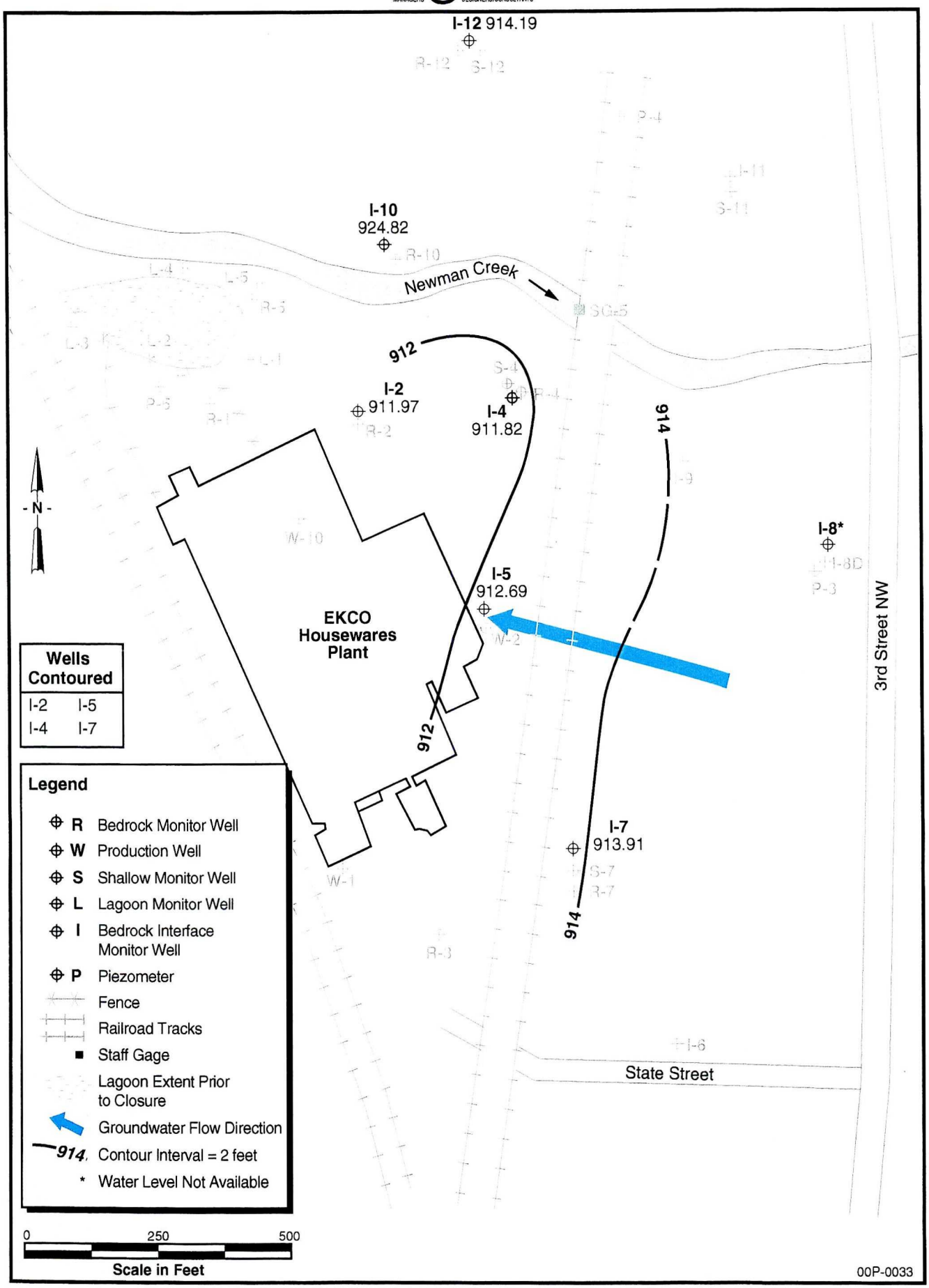



**FIGURE 4-4 GROUNDWATER CONTOUR MAP OF WELLS COMPLETED IN THE INTERMEDIATE WATER-BEARING ZONE WATER LEVELS MEASURED 24 AUGUST 1999**

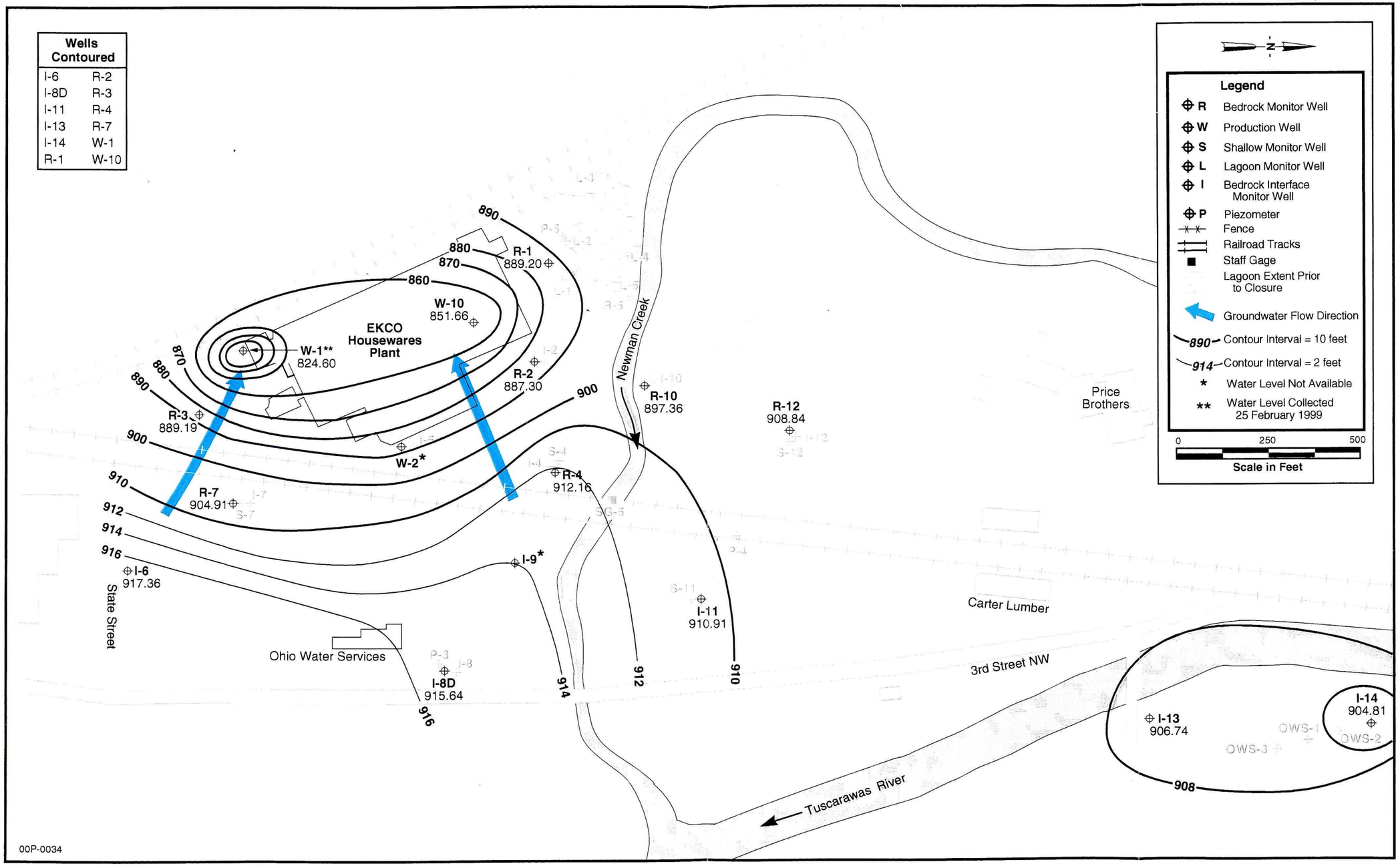



**FIGURE 4-5 GROUNDWATER CONTOUR MAP OF WELLS COMPLETED IN THE DEEP UNCONSOLIDATED AND BEDROCK WATER-BEARING ZONES WATER LEVELS MEASURED 15 FEBRUARY 1999**

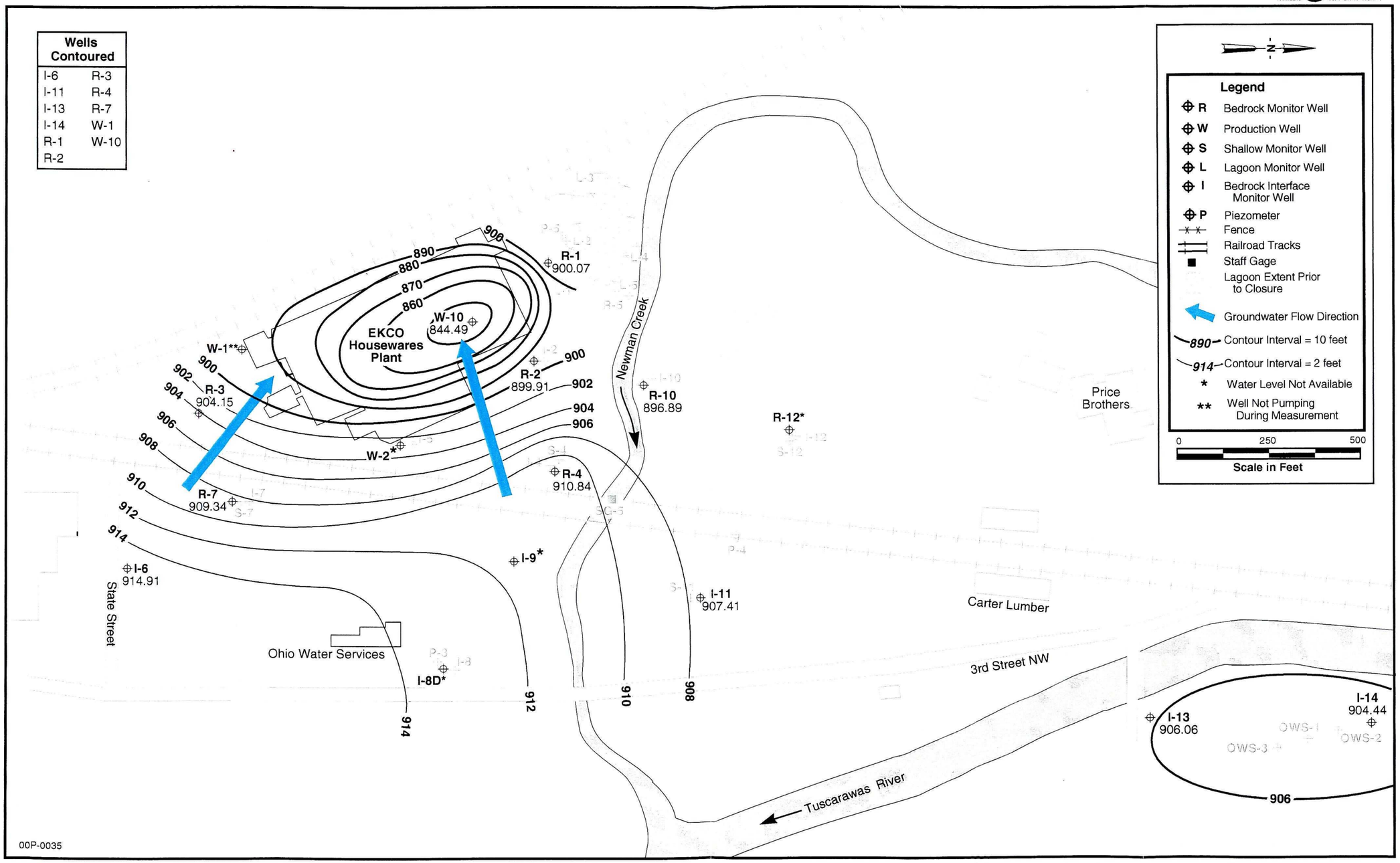



**FIGURE 4-6 GROUNDWATER CONTOUR MAP OF WELLS COMPLETED IN THE DEEP UNCONSOLIDATED AND BEDROCK WATER-BEARING ZONES WATER LEVELS MEASURED 24 AUGUST 1999**

The bedrock unit seepage velocities were estimated using the groundwater gradient between wells R-2 and W-10 and the form of Darcy's Law shown above. The effective porosity and hydraulic conductivity of the bedrock were estimated to be 0.1 and 83 ft/day, respectively (from WESTON, 1993). The distance between wells R-2 and W-10 is 200 feet. The groundwater velocity was calculated to be 146 and 227 ft/day for February and August 1999, respectively. The relatively high groundwater seepage velocity in the bedrock is due to the steep groundwater gradient induced by the pumping of the W-1 and W-10 production wells

## 4.2 GROUNDWATER QUALITY

As discussed in the Lagoon Closure Work Plan (WESTON, 1993), the contaminants of concern identified for the lagoon area were cadmium, chromium, and lead. As discussed previously, the lagoon was officially closed in January 1995. Additionally, inorganic groundwater samples had been collected and analyzed quarterly from 1989 to 1995, and no inorganics were detected at concentrations exceeding MCLs. Conversely, VOCs have been detected in groundwater at concentrations exceeding MCLs at the site. The VOC source areas identified at the site during the RFI are shown in Figure 3-3.

There are eight wells that are currently being sampled at the site. WESTON samples four R-wells (R-2 through R-5) twice a year in February and August, and two L-wells (L-4 and L-5) once a year in February. EKCO samples the two recovery wells (W-1 and W-10) once a month. The results of VOC groundwater samples collected by WESTON during February and August 1999 are summarized on Table 4-2. This table shows the VOCs that were detected and also lists the MCL for each compound where one exists. These data show that MCLs were only exceeded for four compounds: TCE, vinyl chloride, 1,1-DCE and 1,2-DCE (total). The TCE MCL was exceeded in three wells, R-2, R-3, and R-5. The vinyl chloride MCL was exceeded in two wells, R-5 and L-5, the 1,1-DCE MCL was exceeded in one well, R-3, and the 1,2 DCE (total) MCL was exceeded in one well, R-5.

The concentration data collected from these eight wells from 1990 through 1999 were graphed in order to better evaluate the data for potential increasing or decreasing trends. The three analytes that have typically been detected over the MCLs in the monitor wells (TCE, 1,1-DCE, and vinyl

## Table 4-2

## Summary of VOCs Detected in Groundwater During the 1999 Groundwater Sampling Program

| Sample Date: 2/15/99 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **R-Wells and L-Wells** | **MCL** | **R-2** | **R-3** | **R-4** | **R-5** | **L-4** | **L-5** |
| 1,1-DCE | 7 | 2 | 13 | ND | 0.6 | ND | ND |
| 1,1-DCA | - | 21 | 110 | 8 | 8 | 3 | 13 |
| 1,2-DCE (Total) | 70 | 14 | 5 | ND | 71 | 15 | 27 |
| 1,1,1-TCA | 200 | ND | 52 | ND | ND | ND | ND |
| Vinyl Chloride | 2 | ND | ND | 2 | 32 | ND | 38 |
| TCE | 5 | 14 | 92 | ND | 25 | 1 | ND |
| Total VOCs | - | 51 | 272 | 10 | 136.6 | 19 | 78 |

| Sample Date: 8/24/99 | | | | | |
|---|---|---|---|---|---|
| **R-Wells** | **MCL** | **R-2** | **R-3** | **R-4** | **R-5** |
| 1,1-DCE | 7 | 3 | 11 | ND | ND |
| 1,1-DCA | - | 48 | 74 | 5 | 3 |
| 1,2-DCE (Total) | 70 | 22 | 4 | ND | 26 |
| 1,1,1-TCA | 200 | 0.5 | 23 | ND | ND |
| Vinyl Chloride | 2 | ND | ND | ND | 10 |
| TCE | 5 | 28 | 60 | ND | 6 |
| Total VOCs | - | 101.5 | 172 | 5 | 45 |

ND = Not Detected

NS = Not Sampled

MCL = Maximum Contaminant Level

= Indicates MCL exceedance

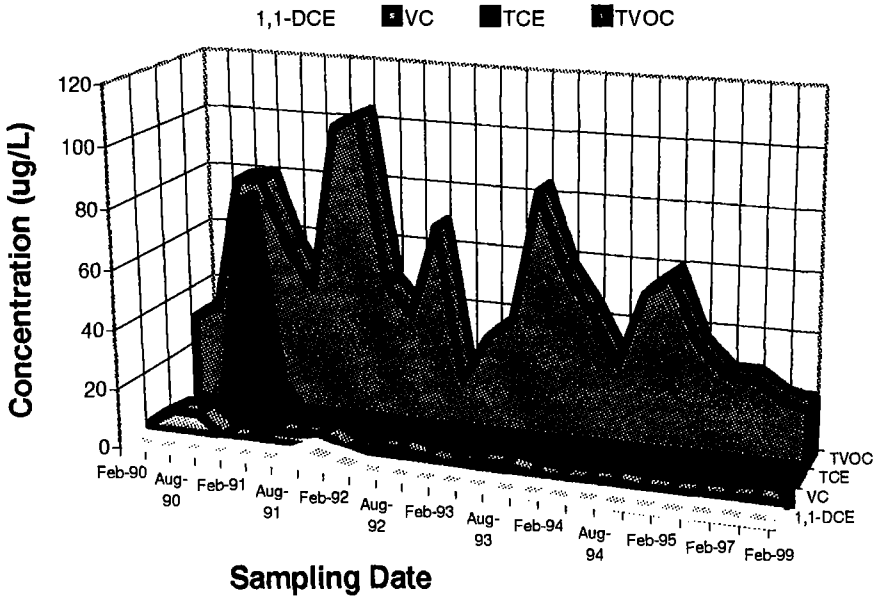
chloride) and the total VOCs were graphed for these monitor wells and recovery wells W-1 and W-10 (Figures 4-7 through 4-10). The data used for these graphs are presented in Appendix A. Of the eight wells graphed, five wells (L-4, L-5, R-2, W-1 and W-10) exhibit a decreasing trend in VOCs. Two of the wells (R-4 and R-5) do not exhibit any decreasing or increasing trend. One of the wells (R-3) exhibited an increasing trend for a period of time after the well rehab, and then decreased back to a similar level of contamination that was present before the well rehab.

Figure 4-7 shows that both well L-4 and L-5 exhibited a "spike" TCE concentration with very little TCE being detected after that in either well. The figure also shows that the VOCs present in well L-5 are predominately vinyl chloride. This is the only well currently being sampled that exhibits that characteristic. Figure 4-8 shows that the total VOCs detected in well R-2 decreased significantly from 1,265 µg/L in February 1994 prior to the IRM rehab (conducted in April 1994) to 51 µg/L in February 1999 after the well rehab was conducted. The VOCs that are currently detected in well R-2 are typically at or below the MCLs. Figure 4-9 shows that concentrations in well R-4 have been near or below the respective MCLs during the entire sampling period. The figure also shows that the concentrations observed in well R-5 are somewhat sporadic and no distinguishable trend is currently apparent.

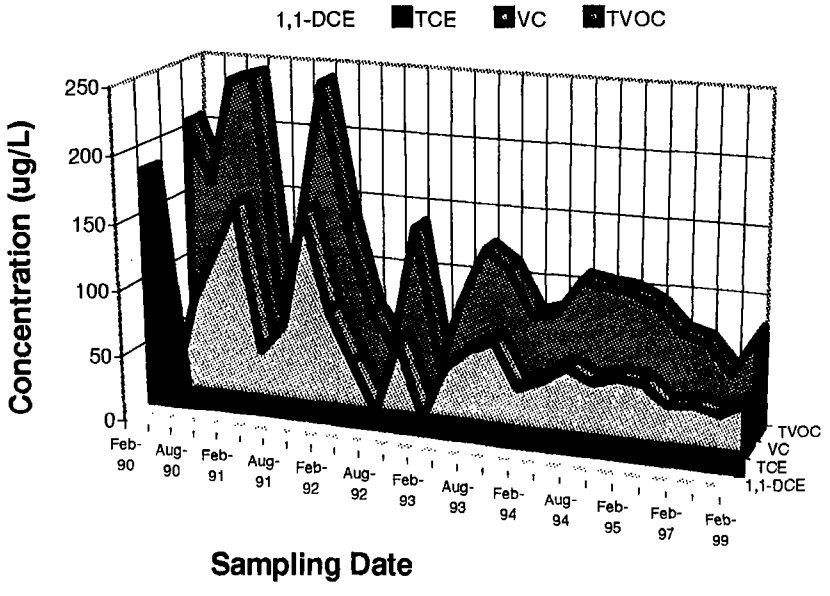
VOC concentration data from the RFI sampling effort which began in 1988 are also summarized in Appendix A. These data show that, in addition to the wells discussed above, wells L-1 and R-1 have also decreased over time. Well R-1 showed a similar trend to that seen in well R-2. The total VOCs detected in well R-1 decreased from 697 µg/L in February 1994 prior to the IRM rehab to non-detect in February 1996, after the rehab. These wells are not currently sampled.

Figure 4-10 shows the concentration graphs for recovery wells W-1 and W-10. The analyte 1,1,1-TCA was also graphed in these graphs because it is detected in well W-10 at relatively high concentrations which are significantly above its MCL of 200 µg/L. The graph shows that, typically, more that half of the total VOCs detected in well W-10 are comprised of 1,1,1-TCA and that the 1,1,1-TCA concentrations are also decreasing over time. The concentration graphs shown in Figures 4-7 through 4-10 and the historical sampling data summarized in Appendix A show that several of the wells are exhibiting decreasing VOC concentrations over time and all of the wells that are

## Well L-4




## Well L-5




| **Legend** | | | | |
|---|---|---|---|---|
| | TVOC | = Total Volatile Organic Compounds | TCE | = Trichloroethene |
| | 1,1-DCE | = 1,1-Dichloroethene | VC | = Vinyl Chloride |

Notes: These graphs are designed for trend analysis. The complete data set is summarized in Appendix A
Sampling frequency changed from quarterly to biannually in February, 1995.

**FIGURE 4-7**
**GROUNDWATER CONCENTRATION GRAPHS OF THE BEDROCK WATER-BEARING ZONE WELLS L-4 AND L-5, 1990 THROUGH 1999.**

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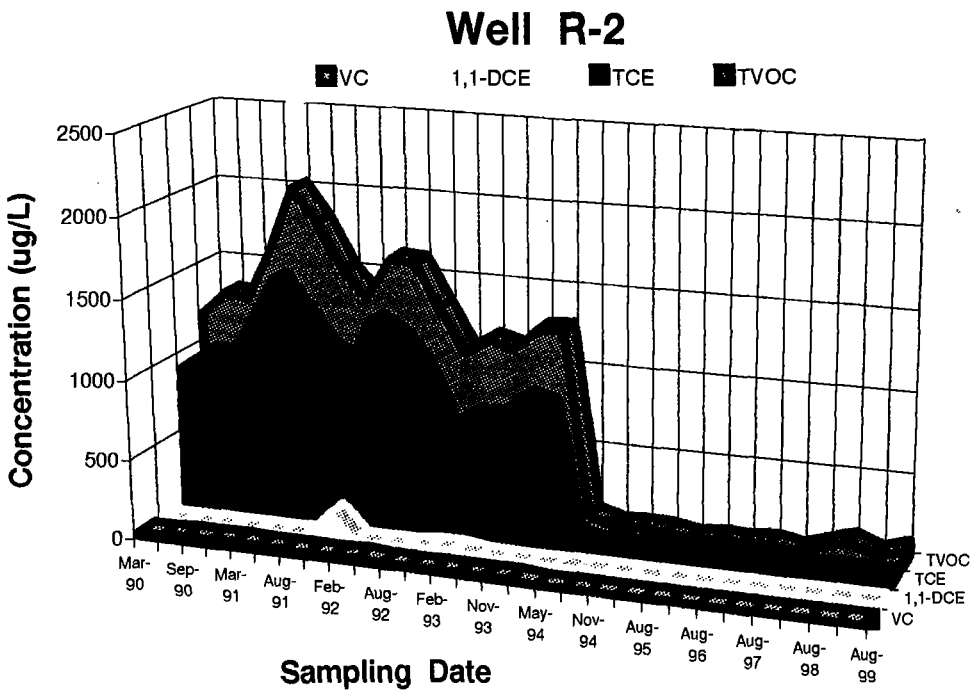


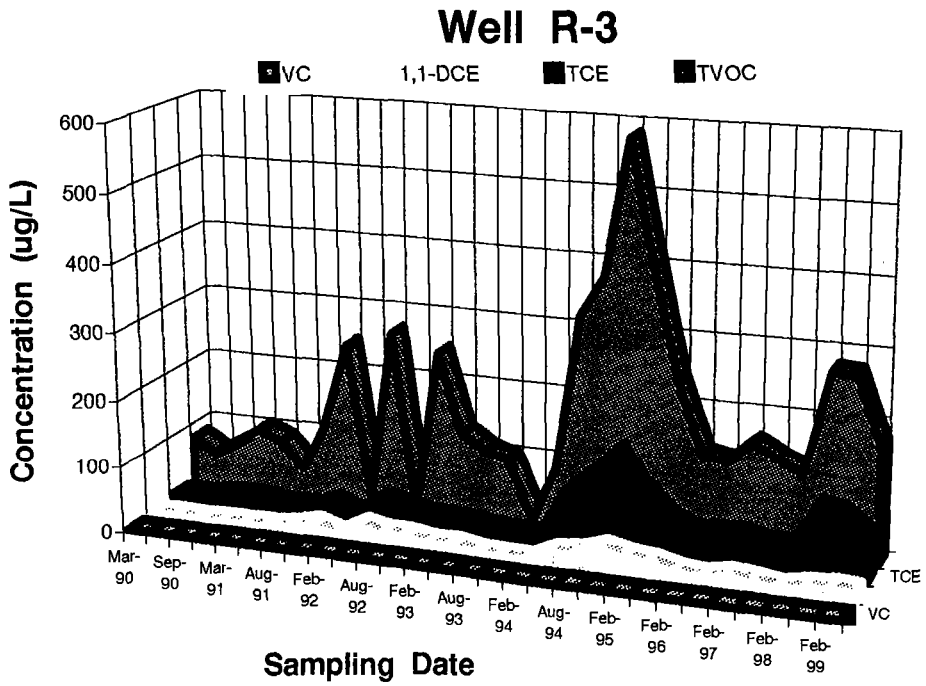


**Legend**

| | | | |
|---|---|---|---|
| TVOC | = Total Volatile Organic Compounds | TCE | = Trichloroethene |
| 1,1-DCE | = 1,1-Dichloroethene | VC | = Vinyl Chloride |

Notes: These graphs are designed for trend analysis. The complete data set is summarized in Appendix A. Sampling frequency changed from quarterly to biannually in February, 1995.

**FIGURE 4-8**
**GROUNDWATER CONCENTRATION GRAPHS OF THE BEDROCK WATER-BEARING ZONE WELLS R-2 AND R-3, 1990 THROUGH 1999.**
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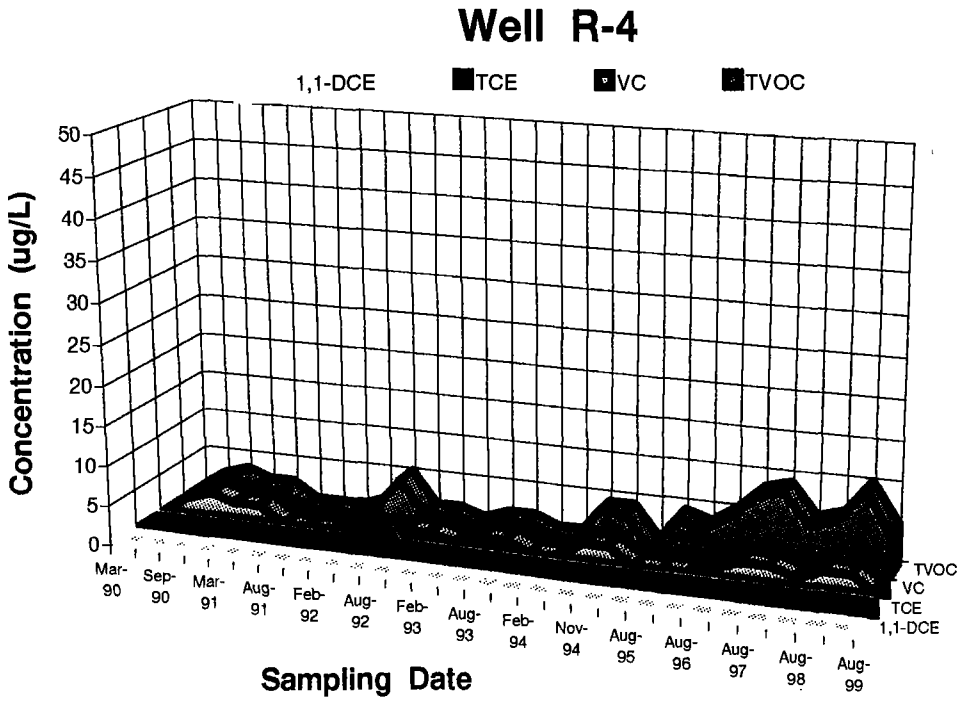


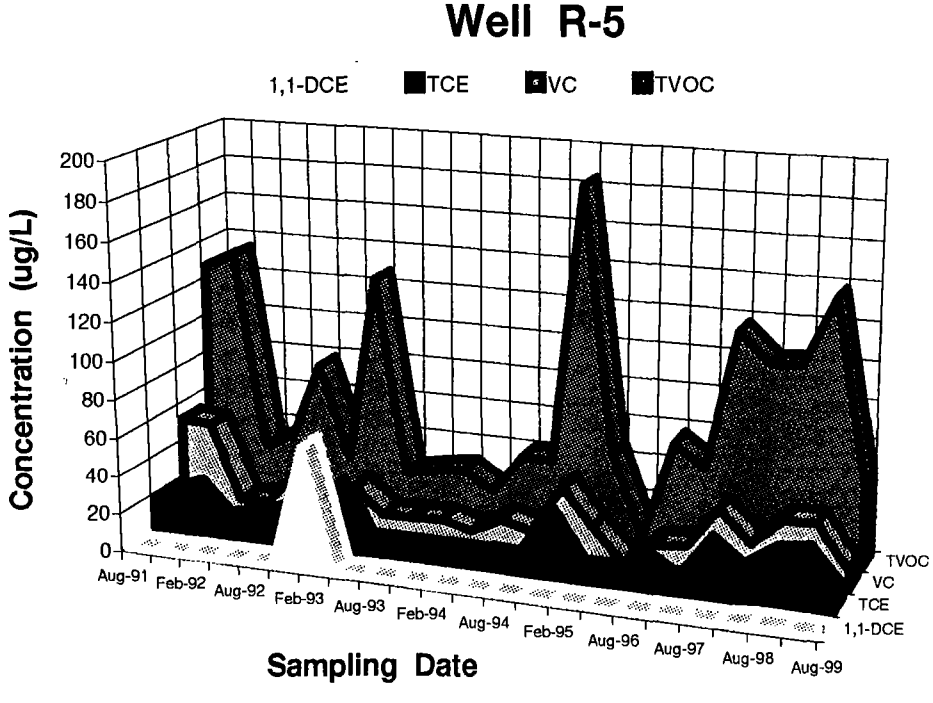


**Legend**

| | | | |
|---|---|---|---|
| TVOC | = Total Volatile Organic Compounds | TCE | = Trichloroethene |
| 1,1-DCE | = 1,1-Dichloroethene | VC | = Vinyl Chloride |

Notes: . These graphs are designed for trend analysis. The complete data set is summarized in Appendix A
Sampling frequency changed from quarterly to biannually in February, 1995.

**FIGURE 4-9**
**GROUNDWATER CONCENTRATION GRAPHS OF THE BEDROCK WATER-BEARING ZONE WELLS R-4 AND R-5, 1990 THROUGH 1999.**
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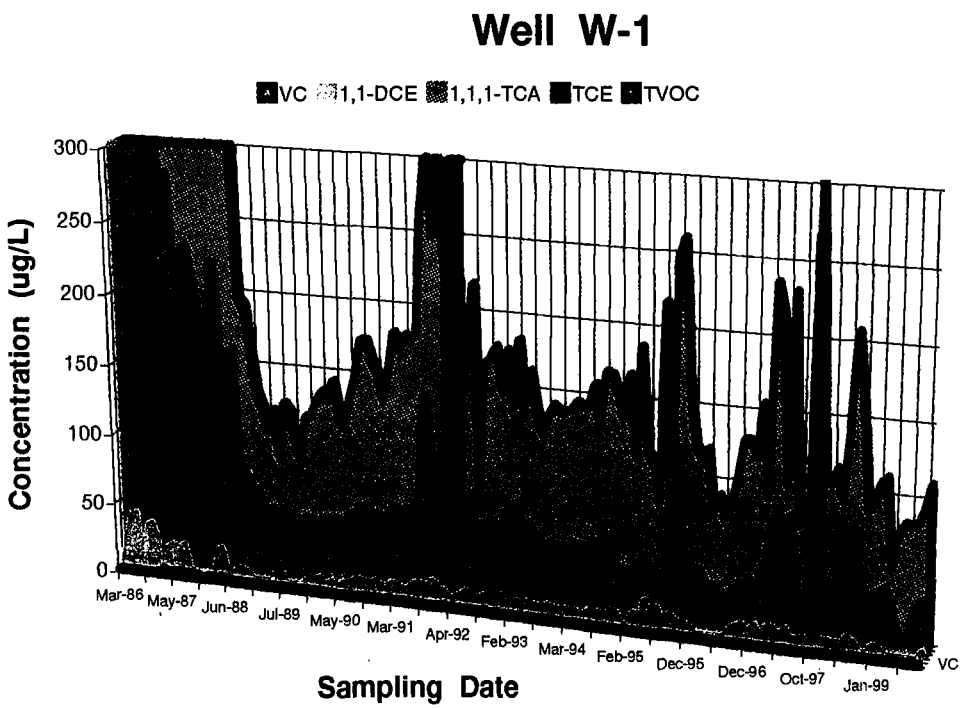


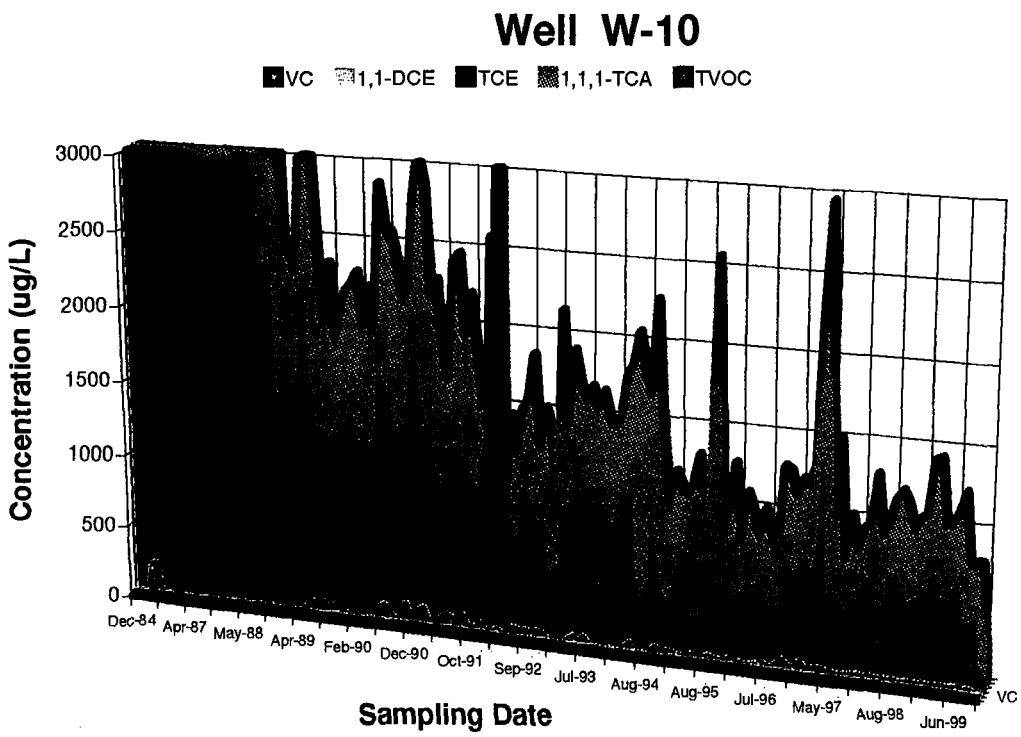


**Legend**

| | | | |
|---|---|---|---|
| TVOC | = Total Volatile Organic Compounds | TCE | = Trichloroethene |
| 1,1-DCE | = 1,1-Dichloroethene | VC | = Vinyl Chloride |

Notes: These graphs are designed for trend analysis. The complete data set is summarized in Appendix A.
Sampling frequency changed from quarterly to biannually in February, 1995

**FIGURE 4-10**
**GROUNDWATER CONCENTRATION GRAPHS OF THE BEDROCK RECOVERY WELLS W-1 AND W-10,1984 THROUGH 1999**
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currently being sampled except for well W-10, are either below or approaching the MCLs for analytes that are detected.

# 5. CONCLUSIONS

The following conclusions are based on available data collected during the 1999 EKCO groundwater sampling program and other past investigations at the site:

- The existing groundwater recovery and treatment systems are operating effectively at the site.
- The pumping of recovery wells W-1 and W-10 is inducing a significant drawdown cone in all water-bearing units located beneath and adjacent to the EKCO facility. As a result of the pumping, the groundwater in the shallow, intermediate, and bedrock water-bearing units beneath the site, and the deep unit immediately east of the site, is flowing directly toward recovery wells W-1 and W-10, and does not flow off or away from the site.
- The groundwater flow patterns observed at the EKCO facility during 1999 are generally consistent with what has been observed at the site throughout the monitoring period (1989 through 1999).
- VOC concentrations in several wells (W-1, W-10, L-1, L-5, R-1, and R-2) have decreased significantly since earlier sampling events which began in 1988. Most notably, the total VOCs detected in wells R-1 and R-2 have decreased from 697 and 1,265 μg/L in February 1994, prior to the IRM well rehab (conducted in April 1994) to non-detect and 101.5 μg/L in August 1995 and August 1999, respectively.

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# APPENDIX A

## SUMMARY OF AVALIABLE DATA FROM 1984 THROUGH 1999 AND RFI GROUNDWATER SAMPLING RESULTS

| Well R-2 | | | | |
|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC |
| Mar-90 | 1162 | 890 | ND | 22 |
| Jun-90 | 1305 | 1000 | ND | 25 |
| Sep-90 | 1286 | 970 | ND | 36 |
| Dec-90 | 1608 | 1200 | ND | 28 |
| Mar-91 | 2012 | 1500 | ND | 32 |
| Jun-91 | 1806 | 1300 | ND | 26 |
| Aug-91 | 1513 | 1100 | ND | 23 |
| Nov-91 | 1349 | 1000 | 160 | 19 |
| Feb-92 | 1609 | 1300 | ND | 19 |
| May-92 | 1596 | 1200 | ND | 26 |
| Aug-92 | 1332 | 1000 | ND | 12 |
| Nov-92 | 1066 | 660 | 17 | 9 |
| Feb-93 | 1161 | 760 | 20 | 11 |
| May-93 | NS | NS | NS | NS |
| Aug-93 | 1118 | 770 | ND | 12 |
| Nov-93 | 1256 | 910 | ND | 12 |
| Feb-94 | 1265 | 870 | ND | 15 |
| May-94 | 100 | 21 | 1 | ND |
| Aug-94 | 54 | 12 | ND | ND |
| Nov-94 | 63 | 15 | 2 | ND |
| Feb-95 | 52 | 17 | 1 | ND |
| Aug-95 | 27 | 5 | ND | ND |
| Feb-96 | 44 | 12 | 1 | ND |
| Aug-96 | 35 | 11 | 1 | ND |
| Feb-97 | 50 | 16 | 2 | 1 |
| Aug-97 | 19 | 3 | ND | ND |
| Feb-98 | 71 | 13 | 2 | 1 |
| Aug-98 | 113 | 29 | 4 | 1 |
| Feb-99 | 51 | 14 | 2 | ND |
| Aug-99 | 101.5 | 28 | 3 | ND |

| Well R-3 | | | | |
|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC |
| Mar-90 | 77 | 8 | ND | ND |
| Jun-90 | 55 | 6 | ND | ND |
| Sep-90 | 76 | 12 | ND | ND |
| Dec-90 | 100 | 15 | ND | ND |
| Mar-91 | 86 | 13 | ND | ND |
| Jun-91 | 45 | 3 | ND | ND |
| Aug-91 | 117 | 7 | 5 | ND |
| Nov-91 | 244 | 20 | 11 | ND |
| Feb-92 | 17 | 6 | ND | ND |
| May-92 | 268 | 32 | 19 | ND |
| Aug-92 | ND | 26 | 11 | ND |
| Nov-92 | 245 | 18 | 11 | ND |
| Feb-93 | 128 | 16 | 5 | ND |
| May-93 | 106 | 14 | 6.5 | ND |
| Aug-93 | 95 | 9.9 | ND | ND |
| Nov-93 | 6 | ND | ND | ND |
| Feb-94 | 91 | 11 | ND | ND |
| May-94 | 321 | 81 | 16 | ND |
| Aug-94 | 382 | 110 | 19 | ND |
| Nov-94 | 581 | 150 | 30 | ND |
| Feb-95 | 401 | 100 | 23 | ND |
| Aug-95 | 238 | 61 | 19 | ND |
| Feb-96 | 135 | 42 | 10 | ND |
| Aug-96 | 129 | 45 | 7 | ND |
| Feb-97 | 159 | 46 | 13 | ND |
| Aug-97 | 140 | 36 | 9 | ND |
| Feb-98 | 123 | 39 | 5 | ND |
| Aug-98 | 274 | 100 | 11 | ND |
| Feb-99 | 272 | 92 | 13 | ND |
| Aug-99 | 172 | 60 | 11 | ND |

| Well R-4 | | | | |
|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC |
| Mar-90 | ND | ND | ND | ND |
| Jun-90 | 2 | ND | ND | 2 |
| Sep-90 | 3 | ND | ND | 3 |
| Dec-90 | 2 | ND | ND | 2 |
| Mar-91 | 2 | ND | ND | 2 |
| Jun-91 | ND | ND | ND | ND |
| Aug-91 | ND | ND | ND | ND |
| Nov-91 | ND | ND | ND | ND |
| Feb-92 | 1 | ND | ND | 1 |
| May-92 | 5 | 5 | ND | ND |
| Aug-92 | 1 | ND | ND | 1 |
| Nov-92 | 1 | ND | ND | 1 |
| Feb-93 | ND | ND | ND | ND |
| May-93 | 1.2 | ND | ND | 1.2 |
| Aug-93 | 1.2 | ND | ND | 1.2 |
| Nov-93 | ND | ND | ND | ND |
| Feb-94 | ND | ND | ND | ND |
| May-94 | NS | NS | NS | NS |
| Aug-94 | 4 | ND | ND | 2 |
| Nov-94 | 4 | ND | ND | 2 |
| Feb-95 | ND | ND | ND | ND |
| Aug-95 | 4 | ND | ND | ND |
| Feb-96 | 3 | ND | ND | ND |
| Aug-96 | 5 | ND | ND | 1 |
| Feb-97 | 8 | ND | ND | 2 |
| Aug-97 | 9 | ND | ND | 2 |
| Feb-98 | 5 | ND | ND | 1 |
| Aug-98 | 6 | ND | ND | 2 |
| Feb-99 | 10 | ND | ND | 2 |
| Aug-99 | 5 | ND | ND | ND |

| Well R-5 | | | | |
|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC |
| Mar-90 | NS | NS | NS | NS |
| Jun-90 | NS | NS | NS | NS |
| Sep-90 | NS | NS | NS | NS |
| Dec-90 | NS | NS | NS | NS |
| Mar-91 | NS | NS | NS | NS |
| Jun-91 | NS | NS | NS | NS |
| Aug-91 | 126 | 17 | ND | 51 |
| Nov-91 | 133 | 22 | ND | 49 |
| Feb-92 | 30 | 6 | ND | 9 |
| May-92 | 37 | 9 | ND | 10 |
| Aug-92 | 77 | 14 | ND | 28 |
| Nov-92 | 28 | 11 | ND | ND |
| Feb-93 | 126 | 31 | 64 | 23 |
| May-93 | 23 | 3 | ND | 10 |
| Aug-93 | 26 | 4 | ND | 10 |
| Nov-93 | 28 | 3 | ND | 11 |
| Feb-94 | 18 | ND | ND | 7 |
| May-94 | 39 | 5 | ND | 15 |
| Aug-94 | 39 | 4 | ND | 11 |
| Nov-94 | 183 | 28 | ND | 36 |
| Feb-95 | 46 | 4 | ND | 17 |
| Aug-95 | NS | NS | NS | NS |
| Feb-96 | 2 | ND | ND | ND |
| Aug-96 | 55 | 12 | ND | 11 |
| Feb-97 | 44 | 2 | ND | 13 |
| Aug-97 | 116 | 24 | ND | 34 |
| Feb-98 | 101 | 12 | ND | 18 |
| Aug-98 | 102 | 23 | 1 | 32 |
| Feb-99 | 136.6 | 25 | 0.6 | 32 |
| Aug-99 | 45 | 6 | ND | 10 |

ND = Not Detected
NS = Not Sampled
ekcoapxanew.xls

| Well L-4 | | | | |
|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC |
| Feb-90 | 29 | ND | ND | 2 |
| May-90 | 33 | ND | ND | 7 |
| Aug-90 | 78 | ND | ND | 7 |
| Nov-90 | 79 | 75 | ND | ND |
| Feb-91 | 56 | 10 | ND | ND |
| May-91 | 43 | ND | ND | 4 |
| Aug-91 | 99 | ND | ND | 4 |
| Nov-91 | 103 | ND | 4 | 5 |
| Feb-92 | 47 | ND | 2 | ND |
| May-92 | 37 | ND | ND | 2 |
| Aug-92 | 68 | ND | ND | 3 |
| Nov-92 | 16 | ND | ND | 1 |
| Feb-93 | 32 | ND | ND | ND |
| May-93 | 39 | ND | ND | 2 |
| Aug-93 | 83 | ND | ND | 2 |
| Nov-93 | 57 | ND | ND | ND |
| Feb-94 | 44 | ND | ND | ND |
| May-94 | 27 | ND | ND | ND |
| Aug-94 | 52 | ND | ND | 1 |
| Nov-94 | 59 | 1 | ND | ND |
| Feb-95 | 36 | ND | ND | ND |
| Aug-95 | NS | NS | NS | NS |
| Feb-96 | 27 | ND | ND | ND |
| Aug-96 | NS | NS | NS | NS |
| Feb-97 | 27 | ND | ND | ND |
| Aug-97 | NS | NS | NS | NS |
| Feb-98 | 21 | 1 | ND | 1 |
| Aug-98 | NS | NS | NS | NS |
| Feb-99 | 19 | 1 | ND | ND |

| Well L-5 | | | | |
|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC |
| Feb-90 | 202 | 180 | ND | ND |
| May-90 | 155 | ND | ND | 71 |
| Aug-90 | 236 | ND | ND | 110 |
| Nov-90 | 241 | ND | ND | 150 |
| Feb-91 | 58 | ND | ND | 38 |
| May-91 | 130 | ND | ND | 59 |
| Aug-91 | 238 | ND | ND | 150 |
| Nov-91 | 135 | ND | ND | 75 |
| Feb-92 | 65 | ND | ND | 37 |
| May-92 | 40 | ND | ND | ND |
| Aug-92 | 134 | ND | ND | 57 |
| Nov-92 | 28 | ND | ND | ND |
| Feb-93 | 82 | ND | ND | 42 |
| May-93 | 123 | ND | ND | 57 |
| Aug-93 | 110 | ND | ND | 65 |
| Nov-93 | 75 | ND | ND | 32 |
| Feb-94 | 80 | ND | ND | 40 |
| May-94 | 106 | ND | ND | 51 |
| Aug-94 | 103 | ND | ND | 42 |
| Nov-94 | 101 | ND | ND | 48 |
| Feb-95 | 92 | ND | ND | 46 |
| Aug-95 | NS | NS | NS | NS |
| Feb-96 | 73 | ND | ND | 31 |
| Aug-96 | NS | NS | NS | NS |
| Feb-97 | 68 | ND | ND | 33 |
| Aug-97 | NS | NS | NS | NS |
| Feb-98 | 46 | ND | ND | 28 |
| Aug-98 | NS | NS | NS | NS |
| Feb-99 | 78 | ND | ND | 38 |

ND = Not Detected
NS = Not Sampled
ekcoapxanew.xls

| Well W-1 | | | | | |
|---|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC | 1,1,1-TCA |
| Dec-84 | NS | NS | NS | NS | NS |
| Mar-86 | 1510 | 620 | ND | ND | 780 |
| Apr-86 | 1175 | 480 | 23 | ND | 540 |
| May-86 | 1340 | 580 | 39 | ND | 560 |
| Jun-86 | 756 | 360 | ND | ND | 310 |
| Aug-86 | 530 | 180 | ND | ND | 230 |
| Sep-86 | 893 | 350 | 33 | ND | 360 |
| Dec-86 | 817 | 320 | 19 | ND | 300 |
| Jan-87 | 673 | 220 | ND | ND | 260 |
| Feb-87 | 680 | 280 | 17 | 3 | 240 |
| Apr-87 | 571 | 180 | 19 | 1 | 210 |
| May-87 | 497 | 200 | 13 | 2 | 160 |
| Jun-87 | 614 | 230 | 20 | 2 | 200 |
| Jul-87 | 447 | 210 | ND | 2 | 140 |
| Aug-87 | 462 | 180 | ND | 2 | 150 |
| Sep-87 | 432 | 150 | ND | 2 | 140 |
| Oct-87 | 440 | 150 | ND | ND | 150 |
| Nov-87 | 511 | 220 | ND | 1 | 180 |
| Mar-88 | 303 | 130 | ND | 1 | 88 |
| Apr-88 | 389 | 120 | 20 | 1 | 78 |
| May-88 | 331 | 160 | ND | 2 | 59 |
| Jun-88 | 195 | 77 | ND | 1 | 38 |
| Jul-88 | 190 | 70 | 7 | ND | 31 |
| Aug-88 | 159 | 64 | 6 | ND | 30 |
| Sep-88 | NS | NS | NS | NS | NS |
| Nov-88 | 129 | 59 | 3 | ND | 13 |
| Dec-88 | 119 | 50 | ND | ND | 20 |
| Jan-89 | NS | NS | NS | NS | NS |
| Feb-89 | 101 | 47 | ND | ND | 10 |
| Mar-89 | 117 | 48 | ND | ND | 15 |
| Apr-89 | 83 | 33 | ND | ND | 8 |
| May-89 | 123 | 48 | ND | ND | 13 |
| Jun-89 | 117 | 43 | 6 | ND | 12 |
| Jul-89 | 94 | 33 | ND | ND | 9 |
| Aug-89 | 84 | 29 | ND | ND | 7 |
| Sep-89 | 115 | 43 | ND | ND | 13 |
| Oct-89 | 117 | 44 | ND | ND | 14 |
| Nov-89 | 127 | 40 | 6 | ND | 13 |
| Dec-89 | 134 | 44 | 5 | ND | 16 |
| Jan-90 | 129 | 43 | 7 | ND | 17 |
| Feb-90 | 142 | 45 | ND | ND | 16 |
| Mar-90 | 117 | 44 | 5 | ND | 18 |
| Apr-90 | 109 | 44 | ND | ND | ND |
| May-90 | 131 | 48 | 5 | ND | 15 |
| Jun-90 | 146 | 51 | 5 | ND | 16 |
| Jul-90 | 173 | 56 | 8 | ND | 19 |
| Aug-90 | 173 | 56 | 9 | ND | 19 |
| Sep-90 | 158 | 52 | 7 | ND | 17 |
| Oct-90 | 150 | 52 | 7 | ND | 18 |
| Nov-90 | 132 | 36 | 9 | ND | 15 |
| Dec-90 | 150 | 51 | 6 | ND | 21 |
| Jan-91 | 180 | 58 | 7 | ND | 26 |
| Feb-91 | 169 | 56 | 9 | ND | 27 |
| Mar-91 | 179 | 58 | 8 | ND | 28 |
| Apr-91 | 175 | 56 | 5 | ND | 28 |
| May-91 | 181 | 57 | 8 | ND | 34 |
| Jun-91 | 264 | 68 | 11 | ND | 66 |
| Jul-91 | 303 | 140 | 11 | ND | 56 |
| Aug-91 | 248 | 70 | 8 | ND | 80 |
| Sep-91 | 302 | 61 | 14 | ND | 98 |
| Oct-91 | 233 | 64 | 10 | ND | 72 |
| Nov-91 | 208 | 46 | 8 | ND | 67 |

| Well W-10 | | | | | |
|---|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC | 1,1,1-TCA |
| Dec-84 | 104000 | 23000 | ND | ND | 81000 |
| Mar-86 | 13500 | 3800 | ND | ND | 9700 |
| Apr-86 | 14100 | 4100 | ND | ND | 10000 |
| May-86 | 12000 | 3500 | 200 | ND | 8300 |
| Jun-86 | 10800 | 3300 | ND | ND | 7500 |
| Aug-86 | 7800 | 1800 | ND | ND | 6000 |
| Sep-86 | 12100 | 3600 | ND | ND | 8500 |
| Dec-86 | 13320 | 3900 | ND | ND | 9200 |
| Jan-87 | 12200 | 3800 | ND | ND | 8400 |
| Feb-87 | 11118 | 3500 | ND | 8 | 7500 |
| Apr-87 | 10376 | 2800 | ND | 6 | 7400 |
| May-87 | 7308 | 2500 | ND | 8 | 4800 |
| Jun-87 | 8055 | 2300 | ND | 5 | 5600 |
| Jul-87 | 6808 | 2400 | ND | 8 | 4400 |
| Aug-87 | 7506 | 2200 | ND | 6 | 5300 |
| Sep-87 | 9508 | 2700 | ND | 8 | 6800 |
| Oct-87 | 11902 | 2600 | ND | 2 | 9300 |
| Nov-87 | 10106 | 2700 | ND | 6 | 7400 |
| Mar-88 | 7706 | 2100 | ND | 6 | 5600 |
| Apr-88 | 5604 | 1600 | ND | 4 | 4000 |
| May-88 | 11215 | 3000 | ND | 15 | 8200 |
| Jun-88 | 22704 | 4700 | ND | 4 | 18000 |
| Jul-88 | 4010 | 1300 | ND | 10 | 2700 |
| Aug-88 | 3815 | 1200 | ND | 15 | 2600 |
| Sep-88 | 3262 | 960 | ND | 2 | 2300 |
| Nov-88 | 3705 | 1100 | ND | 5 | 2600 |
| Dec-88 | 2447 | 980 | ND | 7 | 1400 |
| Jan-89 | 2355 | 900 | ND | 3 | 1400 |
| Feb-89 | 2233 | 830 | ND | 3 | 1400 |
| Mar-89 | 2983 | 790 | ND | 3 | 2100 |
| Apr-89 | 3018 | 840 | ND | 3 | 2100 |
| May-89 | 3028 | 760 | ND | 4 | 2200 |
| Jun-89 | 2333 | 710 | 64 | 2 | 1500 |
| Jul-89 | 1915 | 570 | 40 | ND | 1200 |
| Aug-89 | 2309 | 790 | 66 | ND | 1400 |
| Sep-89 | 1824 | 570 | ND | 1 | 1200 |
| Oct-89 | 2003 | 580 | 52 | 2 | 1300 |
| Nov-89 | 2144 | 630 | 72 | 3 | 1300 |
| Dec-89 | 2191 | 550 | ND | 2 | 1500 |
| Jan-90 | 2263 | 690 | ND | 3 | 1500 |
| Feb-90 | 1923 | 650 | ND | 4 | 1200 |
| Mar-90 | 2173 | 600 | ND | 3 | 1400 |
| Apr-90 | 1832 | 630 | ND | 2 | 1200 |
| May-90 | 2849 | 800 | ND | 1 | 1900 |
| Jun-90 | 2561 | 740 | ND | 3 | 1700 |
| Jul-90 | 2540 | 690 | 100 | 2 | 1600 |
| Aug-90 | 2378 | 680 | 50 | ND | 1500 |
| Sep-90 | 2108 | 660 | ND | 4 | 1300 |
| Oct-90 | 2163 | 660 | ND | 3 | 1500 |
| Nov-90 | 2776 | 660 | 120 | 4 | 1800 |
| Dec-90 | 3069 | 880 | ND | 3 | 2000 |
| Jan-91 | 2850 | 840 | ND | 10 | 1800 |
| Feb-91 | 2153 | 610 | 110 | 3 | 1300 |
| Mar-91 | 2256 | 670 | ND | 3 | 1400 |
| Apr-91 | 1813 | 600 | ND | 3 | 1100 |
| May-91 | 1610 | 560 | ND | 3 | 880 |
| Jun-91 | 2384 | 680 | 83 | 6 | 1400 |
| Jul-91 | 2436 | 1200 | 64 | 2 | 1000 |
| Aug-91 | 1902 | 500 | ND | 2 | 1200 |
| Sep-91 | 2182 | 470 | 94 | 3 | 1400 |
| Oct-91 | 1846 | 570 | ND | 2 | 1100 |
| Nov-91 | 1480 | 350 | ND | 2 | 940 |

ND = Not Detected
NS = Not Sampled
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| Well W-1 (Continued) | | | | | |
|---|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC | 1,1,1-TCA |
| Jan-92 | NS | NS | NS | NS | NS |
| Feb-92 | NS | NS | NS | NS | NS |
| Mar-92 | 4726 | 4500 | ND | 1 | 150 |
| Apr-92 | 138 | 63 | 5 | ND | 24 |
| May-92 | 174 | 60 | 6 | ND | 38 |
| Jun-92 | 218 | 73 | 10 | ND | 48 |
| Jul-92 | 68 | 24 | ND | ND | 14 |
| Aug-92 | 165 | 52 | 7 | ND | 28 |
| Sep-92 | 169 | 56 | 8 | ND | 30 |
| Oct-92 | 177 | 54 | 9 | ND | 34 |
| Nov-92 | 148 | 37 | 8 | ND | 27 |
| Dec-92 | 175 | 59 | 10 | ND | 28 |
| Jan-93 | 132 | 63 | ND | ND | 19 |
| Feb-93 | 183 | 71 | ND | ND | 26 |
| Mar-93 | 135 | 47 | 7 | ND | 20 |
| Apr-93 | 162 | 57 | 7 | ND | 23 |
| May-93 | 136 | 49 | 8 | ND | 19 |
| Jun-93 | ND | ND | ND | ND | ND |
| Jul-93 | 120 | 46 | 6 | ND | 17 |
| Aug-93 | 132 | 43 | 6 | ND | 19 |
| Sep-93 | 140 | 45 | 7 | ND | 21 |
| Oct-93 | 136 | 44 | 7 | ND | 21 |
| Nov-93 | NS | NS | NS | NS | NS |
| Jan-94 | 136 | 40 | 5 | ND | 34 |
| Feb-94 | 138 | 45 | 6 | ND | 23 |
| Mar-94 | 144 | 47 | 6 | ND | 25 |
| Apr-94 | 141 | 46 | 6 | ND | 23 |
| May-94 | 141 | NA | NA | NA | NA |
| Jun-94 | 157 | 51 | 6 | ND | 30 |
| Aug-94 | 129 | 46 | 6 | ND | 22 |
| Sep-94 | 167 | 57 | 7 | ND | 40 |
| Oct-94 | 165 | 50 | ND | ND | 56 |
| Nov-94 | 153 | 31 | 9 | ND | 31 |
| Dec-94 | 136 | 34 | 8 | ND | 21 |
| Jan-95 | 166 | 32 | ND | ND | 25 |
| Feb-95 | 110 | 30 | ND | ND | 25 |
| Mar-95 | 186 | 37 | 10 | ND | 36 |
| Apr-95 | 114 | 44 | ND | ND | 38 |
| May-95 | 109 | 30 | 19 | ND | 24 |
| Jun-95 | 80 | 26 | ND | ND | 25 |
| Jul-95 | 217 | 48 | 15 | ND | 47 |
| Aug-95 | 56 | 20 | ND | ND | 15 |
| Sep-95 | 247 | 45 | 11 | ND | 81 |
| Oct-95 | 260 | 48 | 6.7 | ND | 123 |
| Nov-95 | 167 | 33 | 6 | ND | 53 |
| Dec-95 | 122 | 38 | 5 | ND | 28 |
| Jan-96 | 114 | 38 | ND | ND | 22 |
| Feb-96 | 120 | 30 | ND | ND | 25 |
| Mar-96 | 77 | 29 | ND | ND | 12 |
| Apr-96 | 89 | 29 | ND | ND | 15 |
| May-96 | 75 | 18 | ND | ND | 9 |
| Jun-96 | NS | NS | NS | NS | NS |
| Jul-96 | NS | NS | NS | NS | NS |
| Aug-96 | 83 | 25 | ND | ND | 20 |
| Sep-96 | 103 | 28 | 6 | ND | 11 |
| Oct-96 | 129 | 30 | 9 | ND | 11 |
| Nov-96 | 129 | 36 | 10 | ND | 14 |
| Dec-96 | 118 | 28 | 6 | ND | 17 |

| Well W-10 (Continued) | | | | | |
|---|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC | 1,1,1-TCA |
| Jan-92 | 1594 | 450 | 52 | 2 | 910 |
| Feb-92 | 1744 | 430 | ND | 4 | 1100 |
| Mar-92 | 3928 | 2600 | ND | 3 | 1100 |
| Apr-92 | 827 | 230 | 22 | 1 | 430 |
| May-92 | 1418 | 380 | ND | ND | 840 |
| Jun-92 | 1206 | 330 | 46 | 2 | 660 |
| Jul-92 | 1470 | 360 | 50 | 2 | 900 |
| Aug-92 | 1538 | 410 | 38 | 2 | 900 |
| Sep-92 | 1830 | 390 | 41 | 2 | 1200 |
| Oct-92 | 1226 | 230 | 36 | 3 | 780 |
| Nov-92 | 1489 | 250 | 48 | 2 | 1000 |
| Dec-92 | 1298 | 300 | 34 | 2 | 800 |
| Jan-93 | 666 | 180 | ND | 3 | 370 |
| Feb-93 | 2130 | 470 | ND | 3 | 1400 |
| Mar-93 | 1403 | 330 | ND | 3 | 870 |
| Apr-93 | 1883 | 460 | ND | 3 | 1300 |
| May-93 | 1673 | 390 | 46 | 2 | 1000 |
| Jun-93 | 1574 | 350 | ND | 4 | 970 |
| Jul-93 | 1661 | 400 | 51 | 3 | 990 |
| Aug-93 | 1531 | 340 | ND | 2 | 930 |
| Sep-93 | 1638 | 360 | ND | 3 | 990 |
| Oct-93 | 1463 | 330 | ND | 3 | 870 |
| Nov-93 | 1422 | 360 | ND | ND | 820 |
| Jan-94 | 1510 | 320 | ND | 4 | 910 |
| Feb-94 | 1752 | 370 | ND | 3 | 1000 |
| Mar-94 | 1836 | 380 | ND | ND | 1100 |
| Apr-94 | 2040 | 430 | 56 | 3 | 1200 |
| May-94 | 1788 | NA | NA | NA | NA |
| Jun-94 | NS | NS | NS | NS | NS |
| Aug-94 | 1649 | 340 | ND | 3 | 1000 |
| Sep-94 | NS | NS | NS | NS | NS |
| Oct-94 | 2253 | 450 | ND | 3 | 1400 |
| Nov-94 | 1374 | 219 | 41 | ND | 653 |
| Dec-94 | 958 | 239 | 26 | 2 | 350 |
| Jan-95 | 1163 | 209 | 27 | 1 | 526 |
| Feb-95 | 1082 | 201 | 28 | 4 | 604 |
| Mar-95 | 1016 | 232 | ND | 8 | 607 |
| Apr-95 | 1088 | 217 | 13 | ND | 678 |
| May-95 | 1287 | 203 | 19 | ND | 1000 |
| Jun-95 | 909 | 205 | 24 | 2 | 604 |
| Jul-95 | NS | NS | NS | NS | NS |
| Aug-95 | 1179 | 282 | 16 | 2 | 620 |
| Sep-95 | NS | NS | NS | NS | NS |
| Oct-95 | 2548 | 300 | 29 | ND | 1720 |
| Nov-95 | 813 | 118 | 8 | 3 | 488 |
| Dec-95 | 942 | 170 | 13 | 4 | 550 |
| Jan-96 | 1263 | 289 | 22 | 3 | 746 |
| Feb-96 | 762 | 182 | ND | ND | 400 |
| Mar-96 | 1070 | 202 | 16 | 4 | 649 |
| Apr-96 | 951 | 19 | 15 | 4 | 685 |
| May-96 | 791 | 157 | 13 | 2 | 446 |
| Jun-96 | 978 | 159 | 16 | 4 | 570 |
| Jul-96 | 803 | 166 | 26 | 5 | 423 |
| Aug-96 | 663 | 159 | ND | ND | 350 |
| Sep-96 | 1274 | 174 | 21 | 5 | 805 |
| Oct-96 | 1243 | 216 | 64 | 4 | 723 |
| Nov-96 | 1080 | 188 | 34 | 3 | 627 |
| Dec-96 | 1191 | 180 | 16 | 3 | 775 |

ND = Not Detected
NS = Not Sampled

| Well W-1 (Continued) | | | | | |
|---|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC | 1,1,1-TCA |
| Jan-97 | 154 | 35 | 11 | ND | 23 |
| Feb-97 | 91 | 42 | ND | ND | ND |
| Mar-97 | 236 | 76 | 10 | ND | 54 |
| Apr-97 | 215 | 86 | 11 | ND | 26 |
| May-97 | 101 | 31 | 5 | ND | 17 |
| Jun-97 | 231 | 83 | 11 | ND | 36 |
| Jul-97 | 75 | 24 | 4 | ND | 13 |
| Aug-97 | 92 | 26 | 5 | ND | 17 |
| Sep-97 | 61 | 32 | 6 | ND | 17 |
| Oct-97 | 314 | 270 | 3 | ND | 15 |
| Nov-97 | 108 | 33 | 6 | ND | 21 |
| Dec-97 | 105 | 34 | 6 | ND | 19 |
| Jan-98 | 115 | 37 | 6 | ND | 25 |
| Feb-98 | 94 | 27 | 5 | ND | 24 |
| Mar-98 | 142 | 47 | 5 | ND | 39 |
| Apr-98 | 207 | 42 | 10 | ND | 75 |
| May-98 | 164 | 45 | 6 | ND | 78 |
| Jun-98 | NS | NS | NS | NS | NS |
| Jul-98 | NS | NS | NS | NS | NS |
| Aug-98 | NS | NS | NS | NS | NS |
| Sep-98 | NS | NS | NS | NS | NS |
| Oct-98 | 88 | 32 | ND | ND | 15 |
| Nov-98 | NS | NS | NS | NS | NS |
| Dec-98 | 94 | 34 | ND | ND | 16 |
| Jan-99 | 108 | 37 | 5 | ND | 17 |
| Feb-99 | 112 | 39 | 5 | ND | 17 |
| Mar-99 | 53 | 33 | ND | ND | 14 |
| Apr-99 | 76 | 11 | ND | ND | ND |
| May-99 | 82 | ND | ND | ND | ND |
| Jun-99 | 81 | ND | ND | ND | ND |
| Aug-99 | NS | NS | NS | NS | NS |
| Sep-99 | NS | NS | NS | NS | NS |
| Oct-99 | 82 | 28 | ND | ND | 12 |
| Nov-99 | 94 | 32 | ND | ND | 14 |
| Dec-99 | 110 | 36 | 5 | ND | 16 |

| Well W-10 (Continued) | | | | | |
|---|---|---|---|---|---|
| Date | TVOC | TCE | 1,1-DCE | VC | 1,1,1-TCA |
| Jan-97 | 1166 | 172 | 64 | 6 | 719 |
| Feb-97 | 1297 | 233 | 26 | 1 | 677 |
| Mar-97 | 2296 | 403 | 33 | 7 | 1400 |
| Apr-97 | 2940 | 488 | 37 | 7 | 1870 |
| May-97 | 922 | 148 | 19 | 4 | 508 |
| Jun-97 | 1474 | 435 | 32 | 4 | 552 |
| Jul-97 | 701 | 124 | 13 | 2 | 373 |
| Aug-97 | 992 | 134 | 14 | 2 | 620 |
| Sep-97 | NS | NS | NS | NS | NS |
| Oct-97 | 763 | 131 | 18 | 1 | 478 |
| Nov-97 | 914 | 142 | 26 | 2 | 508 |
| Dec-97 | 946 | 143 | 18 | 2 | 571 |
| Jan-98 | NS | NS | NS | NS | NS |
| Feb-98 | 1268 | 182 | 23 | 2 | 796 |
| Mar-98 | NS | NS | NS | NS | NS |
| Apr-98 | NS | NS | NS | NS | NS |
| May-98 | NS | NS | NS | NS | NS |
| Jun-98 | 877 | 190 | 15 | 2 | 470 |
| Jul-98 | 968 | 190 | 16 | 2 | 570 |
| Aug-98 | 1118 | 200 | 14 | 1 | 640 |
| Sep-98 | 1179 | 240 | 14 | 1 | 660 |
| Oct-98 | 1092 | 250 | 12 | 2 | 600 |
| Nov-98 | 936 | 180 | 14 | 2 | 500 |
| Dec-98 | 1012 | 190 | 15 | 2 | 550 |
| Jan-99 | 1035 | 180 | 14 | 2 | 590 |
| Feb-99 | 1399 | 260 | 14 | 2 | 770 |
| Mar-99 | 1417 | 300 | 16 | 2 | 750 |
| Apr-99 | 992 | 190 | 16 | 2 | 540 |
| May-99 | 1003 | 180 | 15 | ND | 550 |
| Jun-99 | 1082 | 170 | 15 | 2 | 660 |
| Aug-99 | 1205 | 220 | 19 | 2 | 660 |
| Sep-99 | 752 | 120 | 11 | 1 | 420 |
| Oct-99 | 759 | 110 | 11 | 1 | 460 |
| Nov-99 | 761 | 120 | 10 | ND | 460 |
| Dec-99 | 140 | 31 | 6 | ND | 21 |

ND = Not Detected
NS = Not Sampled
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## Table 4-6

## Shallow Groundwater Volatile Organic Compounds Sampling Results (ppb)

| ANALYTE | P-3 | | | S-4 | | | S-7 | | | S-11 | | | S-12 | | | D-4-30 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/88 | 9/91* | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 |
| PCE | * | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND | 55 | 34 | 19 |
| TCE | * | 29 | 62 | .16J | 2 | 5 | 16 | 4 | 9 | * | ND | ND | * | 590 | 2300 | 220000 | 75000 | 25000 |
| 1,1-DCE | * | 6 | 6 | ND | ND | ND | 1.9 | ND | ND | * | ND | ND | * | ND | ND | 1900 | 930 | 310 |
| 1,2-DCE | * | 5 | 6 | ND | ND | ND | ND | ND | ND | * | ND | ND | * | 56 | 36 | 270 | 290 | 130 |
| VC | * | ND | ND | 3.5 | ND | ND | ND | ND | ND | * | ND | ND | * | ND | 5 | 8J | ND | ND |
| 1,1,1-TCA | * | 51 | 92 | .21BJ | ND | ND | 150 | 6 | 7 | * | ND | ND | * | 2 | 5 | 52000 | 17000 | 9700 |
| 1,1-DCA | * | 51 | 84 | ND | ND | ND | 37 | ND | 3 | * | ND | ND | * | ND | ND | 1800 | 1600 | 110 |
| TOLUENE | * | ND | ND | .80 | ND | ND | 13 | ND | ND | * | ND | ND | * | ND | ND | 130 | 11 | ND |
| MeCL | * | ND | ND | ND | ND | 7 | ND | ND | 4 | * | ND | 8 | * | ND | 9 | ND | ND | 4 |
| ACETONE | * | ND | ND | 17 | ND | ND | 17 | ND | ND | * | ND | ND | * | ND | ND | ND | 9JB | ND |
| 1,2-DCA | * | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND | 73 | 34 | ND |
| 1,1,2-TCA | * | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND | 140 | 66 | ND |
| BENZENE | * | ND | ND | ND | ND | ND | .37 | ND | ND | * | ND | ND | * | ND | ND | ND | ND | ND |
| CHLOROFORM | * | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND | 10 | 5 | ND |
| CARBON DISULFIDE | * | ND | ND | 2.8 | ND | ND | ND | 1 | ND | * | ND | ND | * | ND | ND | ND | ND | ND |
| XYLENE | * | ND | ND | .42 | ND | ND | 1.4 | ND | ND | * | ND | ND | * | ND | ND | 5 | ND | ND |
| ETHYLBENZENE | * | ND | ND | .33 | ND | ND | .29 | ND | ND | * | ND | ND | * | ND | ND | 3J | ND | ND |
| 2-BUTANONE | * | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND | ND | ND | ND |
| 4-METHYL 2-PENTANONE | * | ND | ND | ND | ND | ND | ND | ND | ND | * * | ND | ND | * | ND | ND | 7J | ND | ND |
| 1,3,5 TRI-METHYLBENZENE | * | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND | ND | ND | ND |
| TRICHORO-FLOUROMETHANE | * | ND | ND | ND | ND | ND | ND | ND | ND | * * | ND | 2 | * | ND | 2 | ND | ND | ND |
| CHLOROETHANE | * | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND | ND | ND | ND |

* Note: Comparison of the sample time in the field log book and on the laboratory sample bottles indicates that the sample bottles for wells P-3 and I-8D were accidently switched in September 1991. Both the wells are being sampled again in August 1992 to confirm the results.

## Table 4–6

## Shallow Groundwater Volatile Organic Compounds Sampling Results (ppb)

| ANALYTE | L–1 | | | L–2 | | | L–3 | | | L–4 | | | L–5 | | | I–2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/88 | 9/91 | 2/92 | 12/88 | 9/91 | 2/92 | 12/88 | 9/91 | 2/92 | 12/88 | 9/91 | 2/92 | 12/88 | 9/91 | 2/92 | 12/88 | 9/91 | 3/92 |
| PCE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| TCE | 6210 | 51 | 360 | 130 | 85 | 110 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 510 | 460 | 490 |
| 1,1–DCE | 3J | 2 | 2 | ND | ND | ND | ND | ND | ND | ND | ND | 2 | ND | ND | ND | 22 | 55 | 70 |
| 1,2–DCE | 61 | 34 | 90 | ND | 1 | 3 | ND | ND | ND | ND | 70 | 20 | 92 | 69 | 18 | 480 | 130 | 160 |
| VC | 48 | 34 | 21 | ND | ND | ND | ND | ND | ND | ND | 4 | ND | 110 | 150 | 37 | 22 | 42 | 29 |
| 1,1,1–TCA | 49 | 10 | 2 | 26 | 8 | 5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 57 | 25 | 27 |
| 1,1–DCA | 67 | 33 | 59 | ND | 1 | 2 | ND | ND | ND | ND | 22 | 21 | ND | 18 | 10 | 60 | 950 | 960 |
| TOLUENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5 | ND | ND | ND | ND | ND | ND | ND | ND |
| MeCL | ND | ND | 1 | ND | ND | 2 | ND | ND | 2 | ND | ND | ND | ND | .9JB | ND | ND | ND | 3 |
| ACETONE | ND | ND | ND | ND | ND | 6 | ND | .8JB | ND | ND | ND | ND | ND | ND | ND | ND | 8JB | ND |
| 1,2–DCA | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4J | ND | ND | ND | ND | ND |
| 1,1,2–TCA | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| BENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CHLOROFORM | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CARBON DISULFIDE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| XYLENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| ETHYLBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2–BUTANONE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 4–METHYL 2–PENTANONE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 1,3,5 TRI–METHYLBENZENE | ND | ND | ND | ND | ND | ND ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| TRICHORO–FLOUROMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| CHLOROETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5 |

Notes: ND = Not Detected
B = Analyte Found in the Blank
J = Analyte Detected at a Concentration Below the Detection Limit

## Table 4–7

## Intermediate Groundwater Volatile Organic Compounds Sampling Results (ppb)

| Intermediate Groundwater ANALYTE | I–2 | | | I–4 | | | I–5 | | | I–7 | | | I–8 | | | I–10 | | | I–12 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 |
| PCE | ND | ND | ND | ND | ND | ND | ND | ND | ND | .86 | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND |
| TCE | 510 | 460 | 490 | ND | ND | 2 | 240 | ND | 1 | 830 | ND | 14 | .96 | ND | 1 | * | ND | ND | * | .8 | ND |
| 1,1–DCE | 22 | 55 | 70 | ND | ND | ND | 5 | ND | ND | 160 | ND | 2 | ND | ND | ND | * | ND | ND | * | ND | ND |
| 1,2–DCE | 480 | 130 | 160 | ND | ND | ND | ND | ND | ND | 16 | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND |
| VC | 22 | 42 | 29 | ND | ND | ND | ND | ND | ND | 5.3 | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND |
| 1,1,1–TCA | 57 | 25 | 27 | ND | ND | ND | 40 | ND | ND | 440 | ND | 11 | .32JB | ND | ND | * | ND | ND | * | ND | ND |
| 1,1–DCA | 60 | 950 | 960 | 50 | 64 | 96 | 86 | 48 | 18 | 2200 | 440 | 140 | 3.8 | ND | ND | * | ND | ND | * | ND | ND |
| TOLUENE | ND | ND | ND | 25J | ND | ND | ND | ND | ND | 1.9 | ND | ND | 15.4 | ND | ND | * | ND | ND | * | ND | ND |
| MeCL | ND | ND | 3 | ND | ND | 8 | ND | ND | 3 | ND | ND | 3 | ND | ND | 3 | * | ND | 9 | * | ND | 4 |
| ACETONE | ND | 8JB | ND | 4.4 | ND | ND | ND | ND | ND | 8.1 | ND | ND | 21 | ND | ND | * | ND | ND | * | ND | ND |
| 1,2–DCA | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.7 | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND |
| 1,1,2–TCA | ND | ND | ND | ND | ND | ND | ND | ND | ND | 7.4 | ND | ND | ND | ND | ND | * | ND | ND | * | ND | ND |
| BENZENE | ND | ND | ND | ND | ND | ND | 4J | ND | ND | .13 | ND | ND | .15 | ND | ND | * | ND | ND | * | ND | ND |
| CHLOROFORM | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | .18 | ND | ND | * | ND | ND | * | ND | ND |
| CARBON DISULFIDE | ND | ND | ND | 1.1 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | 1 |
| XYLENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.5 | ND | ND | * | ND | ND | * | ND | ND |
| ETHYLBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | .22 | ND | ND | .32 | ND | ND | * | ND | ND | * | ND | ND |
| 2–BUTANONE | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.6 | ND | ND | 4.7 | ND | ND | * | ND | ND | * | ND | ND |
| 4–METHYL 2–PENTANONE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | 5 | ND |
| 1,3,5 TRI–METHYLBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | .4 | ND |
| TRICHORO–FLOUROMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | * | ND | ND | * | ND | .8 |
| CHLOROETHANE | ND | ND | 5 | ND | ND | ND | ND | ND | ND | 6.4 | ND | 2 | ND | ND | ND | * | ND | ND | * | ND | ND |

Notes: ND = Not Detected
B = Analyte Found in the Blank
J = Analyte Detected at a Concentration Below the Detection Limit

# Table 4–8

## Deep Groundwater Volatile Organic Compounds Sampling Results (ppm)

| Deep Groundwater ANALYTE | I–6 | | | I–8D | | | I–9 | | | I–11 | | | I–13 | | | I–14 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 |
| PCE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| TCE | ND | ND | 1 | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | 1 | * | ND | ND |
| 1,1–DCE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,2–DCE | ND | ND | ND | * | ND | ND | * | 2 | 3 | * | ND | ND | * | ND | ND | * | ND | ND |
| VC | ND | ND | ND | * | 1 | ND | * | 5 | 7 | * | 4 | 9 | * | 4 | 3 | * | ND | ND |
| 1,1,1–TCA | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,1–DCA | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| TOLUENE | 1.6 | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | .9 | ND | * | ND | ND |
| MeCL | ND | ND | 4 | * | ND | 5 | * | ND | 5 | * | ND | 5 | * | ND | 4 | * | ND | 6 |
| ACETONE | 19 | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,2–DCA | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,1,2–TCA | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| BENZENE | .27 | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| CHLOROFORM | .18 | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| CARBON DISULFIDE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | .1 | * | ND | ND |
| XYLENE | .87 | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| ETHYLBENZENE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 2–BUTANONE | 4.2 | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 4–METHYL 2–PENTANONE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,3,5 TRI–METHYLBENZENE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| TRICHORO–FLOUROMETHANE | ND | ND | ND | * | ND | ND | * | ND | 1 | * | ND | 1 | * | ND | .7 | * | ND | .6 |
| CHLOROETHANE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |

* Note: Comparison of the sample time in the field log book and on the laboratory sample bottles indicates that the sample bottles for wells P–3 and I–8D were accidently switched in the field in September 1991. Both the wells are being sampled again in August 1992 to confirm the results.

Notes: ND = Not Detected
B = Analyte Found in the Blank
J = Analyte Detected at a Concentration below the Detection Limit

# Table 4–9

## Bedrock Groundwater Organic Compounds Sampling Results (ppm)

| Bedrock Groundwater ANALYTE | W–1 | | | W–10 | | | R–1 | | | R–2 | | | R–3 | | | R–4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 |
| PCE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| TCE | 66 | 36 | 140 | 1100 | 470 | 790 | 800 | 390 | NS | 2600 | 760 | NS | ND | 8 | NS | .19J | 2 | NS |
| 1,1–DCE | ND | ND | 8 | 49 | 22 | 21 | 29 | ND | NS | ND | 51 | NS | 27 | ND | NS | ND | ND | NS |
| 1,2–DCE | ND | ND | 12 | 53 | 170 | 200 | 90 | 83 | NS | 320 | 180 | NS | ND | ND | NS | ND | NDE | NS |
| VC | ND | ND | ND | ND | ND | 3 | 35J | 25 | NS | 220 | 130 | NS | 9J | ND | NS | ND | 2 | NS |
| 1,1,1–TCA | ND | 65 | 37 | 2700 | 1100 | 1600 | 400 | 54 | NS | ND | 16 | NS | ND | 49 | NS | ND | ND | NS |
| 1,1–DCA | 64 | 75 | 70 | 140 | 77 | 100 | 70 | 17 | NS | 110 | 240 | NS | 110 | 51 | NS | .72 | 2 | NS |
| TOLUENE | ND | ND | ND | ND | ND | .6J | ND | ND | NS | ND | ND | NS | ND | ND | NS | .54 | ND | NS |
| MeCL | ND | ND | 3 | ND | ND | 3 | ND | ND | NS | ND | ND | NS | 5 | ND | NS | ND | ND | NS |
| ACETONE | ND | ND | ND | ND | ND | ND | 19.05 | ND | NS | ND | ND | NS | ND | ND | NS | 6 | ND | NS |
| 1,2–DCA | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| 1,1,2–TCA | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| BENZENE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | .09 | ND | NS |
| CHLOROFORM | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| CARBON DISULFIDE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| XYLENE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | .21 | ND | NS |
| ETHYLBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| 2–BUTANONE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| 4–METHYL 2–PENTANONE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| 1,3,5 TRI–METHYLBENZENE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| TRICHORO–FLOUROMETHANE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |
| CHLOROETHANE | ND | ND | ND | ND | ND | ND | ND | ND | NS | ND | ND | NS | ND | ND | NS | ND | ND | NS |

## Table 4–9

## Bedrock Groundwater Organic Compounds Sampling Results (ppm)

## (Continued)

| Bedrock Groundwater ANALYTE | R–5 | | | R–7 | | | R–10 | | | R–12 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 | 12/88 | 9/91 | 3/92 |
| PCE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| TCE | 40 | 20 | 6 | * | 35 | 69 | * | 39 | 170 | * | 4 | 17 |
| 1,1–DCE | .84 | IFF8 | 9 | * | 4 | 7 | * | 8 | 27 | * | ND | 3 |
| 1,2–DCE | 100 | 51 | 12 | * | 2 | 6 | * | 30 | 110 | * | 4 | 16 |
| VC | ND | 34 | ND | * | ND | ND | * | 7 | 35 | * | .9 | ND |
| 1,1,1–TCA | ND | ND | ND | * | 4 | 6 | * | 2 | 4 | * | ND | ND |
| 1,1–DCA | 4.9 | 5 | 1 | * | 21 | 38 | * | 58 | 260 | * | 5 | 22 |
| TOLUENE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| MeCL | ND | ND | 2 | * | ND | 7 | * | ND | 8 | * | ND | 9 |
| ACETONE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,2–DCA | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,1,2–TCA | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| BENZENE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| CHLOROFORM | .55 | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| CARBON DISULFIDE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| XYLENE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| ETHYLBENZENE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 2–BUTANONE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 4–METHYL 2–PENTANONE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| 1,3,5 TRI–METHYLBENZENE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |
| TRICHORO–FLOUROMETHANE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | 2 |
| CHLOROETHANE | ND | ND | ND | * | ND | ND | * | ND | ND | * | ND | ND |

Notes: ND = Not Detected
B = Analyte Found in the Blank
J = Analyte Detected at a Concentration Below the Detection Limit

# APPENDIX B

# 1999 GROUNDWATER SAMPLING DATA

Committed To *Your* Success

**Severn Trent Laboratories**
2417 Bond Street
University Park, IL 60466

Tel: (708) 534-5200
Fax: (708) 534-5211
www.stl-inc.com

February 25, 1999

Mr. Tom Cornuet
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

RE: Ekco Housewares
Lot 9902G226

Dear Mr. Cornuet:

Enclosed is the analytical report for the project and lot number listed above. Please be advised that Recra LabNet-Chicago has been purchased by Severn Trent Laboratories, effective January 4, 1999. A formal letter of notification has been sent to your company. If you have any questions, please contact me at 708-534-5200.

Sincerely,
Severn Trent Laboratories

Eric A. Lang
Project Manager

jb

Enclosures

Approved By:

Michael J. Healy
General Manager

The results presented in this report relate only to the analytical testing and conditions of sample at receipt. This report pertains to only those samples actually tested. All 34 pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

Severn Trent Laboratories Chicago
8260 ANALYTICAL DATA PACKAGE FOR
RFW-Ekco Housewares

LABORATORY CHRONICLE

LOT # :9902G226

| CLIENT ID | Sample # | MTX | PREP # | COLLECTN | DATE REC | EXT/PREP | ANALYSIS |
|---|---|---|---|---|---|---|---|
| L-4 | 001 | W | 99GVT033 | 02/15/99 | 02/17/99 | N/A | 02/19/99 |
| R-2 | 002 | W | 99GVT033 | 02/15/99 | 02/17/99 | N/A | 02/19/99 |
| R-3 | 003 | W | 99GVT033 | 02/15/99 | 02/17/99 | N/A | 02/19/99 |
| R-3 | 003 D1 | W | 99GVT034 | 02/15/99 | 02/17/99 | N/A | 02/19/99 |
| R-4 | 004 | W | 99GVT033 | 02/15/99 | 02/17/99 | N/A | 02/19/99 |
| R-4 | 004 MS | W | 99GVT034 | 02/15/99 | 02/17/99 | N/A | 02/19/99 |
| R-4 | 004 MSD | W | 99GVT034 | 02/15/99 | 02/17/99 | N/A | 02/20/99 |
| L-5 | 005 | W | 99GVT033 | 02/16/99 | 02/17/99 | N/A | 02/19/99 |
| L-5 | 005 D1 | W | 99GVT034 | 02/16/99 | 02/17/99 | N/A | 02/20/99 |
| R-5 | 006 | W | 99GVT033 | 02/16/99 | 02/17/99 | N/A | 02/19/99 |
| R-5 | 006 D1 | W | 99GVT034 | 02/16/99 | 02/17/99 | N/A | 02/20/99 |
| R-5 DUP | 007 | W | 99GVT034 | 02/16/99 | 02/17/99 | N/A | 02/20/99 |
| R-5 DUP | 007 D1 | W | 99GVT036 | 02/16/99 | 02/17/99 | N/A | 02/22/99 |
| TB020399 | 008 | W | 99GVT033 | 02/15/99 | 02/17/99 | N/A | 02/19/99 |
| FB-02/16/99 | 009 | W | 99GVT033 | 02/16/99 | 02/17/99 | N/A | 02/19/99 |

LAB QC:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| VBLKOR | MB1 | W | 99GVT033 | N/A | N/A | N/A | 02/19/99 |
| VBLKOR | MB1 BS | W | 99GVT033 | N/A | N/A | N/A | 02/19/99 |
| VBLKNA | MB1 | W | 99GVT034 | N/A | N/A | N/A | 02/19/99 |
| VBLKNA | MB1 BS | W | 99GVT034 | N/A | N/A | N/A | 02/19/99 |
| VBLKOV | MB1 | W | 99GVT036 | N/A | N/A | N/A | 02/22/99 |
| VBLKOV | MB1 BS | W | 99GVT036 | N/A | N/A | N/A | 02/22/99 |

SIGNATURE Gregory L. Good DATE 2/24/99

NY CERTIFICATION # 11006

## Severn Trent Laboratories Chicago

# GLOSSARY OF DATA QUALIFIERS AND ABBREVIATIONS

**Data Qualifiers**

| | |
|---|---|
| B | Compound was found in the blank and the sample |
| D | Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D |
| E | Concentration exceeds the instrument calibration range and was subsequently diluted |
| I | Appears on the "results spreadsheet" to indicate an interference |
| J | Result is an estimated value below the reporting limit or a tentatively identified compound (TIC) |
| M | Summary Compound |
| (M) | Manually integrated compound |
| N | Positive ID of a TIC that is not quantitated against a standard and must be accompanied by a CAS No. |
| T | Compound was found in the TCLP extraction blank and the sample |
| u | Analyte was not detected at or above the reporting limit |
| X | Result obtained indirectly through calculation based on results from other analyses |
| Y | The chromatographic response resembles a typical fuel pattern |
| Z | The chromatographic response does not resemble a typical fuel pattern |

**Abbreviations**

| | |
|---|---|
| Batch | Designation given to identify a specific extraction, digestion or preparation set (equivalent to prep batch) |
| BS | Blank spike analysis was conducted on reagent grade water or a matrix free from the analyte of interest |
| BSD | Blank spike duplicate |
| BRL | Below reporting limit |
| CAP | Capillary Column |
| CD | Calculation factor used by the Laboratory's Information Management System (LIMS) |
| Contract | Contract laboratory identification code |
| DF | Dilution factor |
| DL | Appears in the sample ID to indicate a secondary dilution was performed |
| LCS/LC | Denotes laboratory control standard |
| LAB ID | The full 12 character laboratory identification number (equivalent to RFW#) |
| MB | Method blank or (PB) preparation blank |
| MS | Matrix spike |
| MSD | Matrix spike duplicate |
| NA | Not applicable |
| NC | Non-calculable precision due to insufficient concentration of analyte present in the sample |
| NR | Not required |
| NS | Not spiked |
| PACK | Packed Column |
| RE | Appears in the sample ID to indicate a re-analysis |
| REP | Replicate analysis |
| Reprep | Sample was reprepared and then reanalyzed |
| RFW# | The full 12 character laboratory identification number (equivalent to LAB ID) |
| RFW Lot | The first 8 characters of the RFW# |
| RPD | Relative percent difference of duplicate (unrounded) analyses |
| RRF | Relative response factor |
| RT | Retention time |
| RTW | Retention time window |
| SP | Blank spike, blank spike duplicate, matrix spike or matrix spike duplicate |
| WO# | Work order no. code used to define a specific client, job, phase and task |

**NOTES:**

- One or a combination of these data qualifiers and abbreviations may appear in the analytical report.
- Soil, sediment and sludge results are reported on a dry weight basis except when analyzed for landfill disposal or incineration parameters. All other results on a solid matrix are reported on an "as received" basis unless noted differently.
- Reporting limits are adjusted for preparation sample size, sample dilutions and sample moisture content if analyzed on a dry weight basis.

# Severn Trent Laboratories Chicago

# GC/MS METHOD REFERENCE

**The following methods are used as reference for the analysis of samples contained within this RFW Lot :**

**GC/MS VOLATILES**

- ____ SW-846 8260A
- ✓ SW-846 8260B
- ____ EPA 524.2
- ____ 40 CFR Part 136, Method 624
- ____ CLP OLM03.1/3.2
- ____ OLC02.0/2.1

**GC/MS SEMIVOLATILES**

- ____ SW-846 8270A
- ____ SW-846 8270B
- ____ SW-846 8270C
- ____ 40 CFR Part 136, Method 625
- ____ CLP OLM03.1/3.2
- ____ OLC02.0/2.1

CHI-22-05-001/E-1/99

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: L-4
Project # 02994-002-005-9999
Lab ID: 9902G226-001
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 15 | 0.5 | |
| 1,1-Dichloroethane | 3 | 0.5 | |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **L-4**
Project # 02994-002-005-9999
Lab ID: **9902G226-001**
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | 1 | 0.5 | |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-2
Project # 02994-002-005-9999
Lab ID: 9902G226-002
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | 2 | 0.5 | |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 14 | 0.5 | |
| 1,1-Dichloroethane | 21 | 0.5 | |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **R-2**
Project # 02994-002-005-9999
Lab ID: **9902G226-002**
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | 14 | 0.5 | |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-3
Project # 02994-002-005-9999
Lab ID: 9902G226-003
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | 13 | 0.5 | |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 5 | 0.5 | |
| 1,1-Dichloroethane | E | 0.5 | |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | E | 0.5 | |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-3
Project # 02994-002-005-9999
Lab ID: 9902G226-003
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | E | 0.5 | |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-3
Project # 02994-002-005-9999
Lab ID: 9902G226-003 DL
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,1-Dichloroethane | 110 | 2 | D |
| 1,1,1-Trichloroethane | 52 | 2 | D |
| Trichloroethene | 92 | 2 | D |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **R-4**
Project # 02994-002-005-9999
Lab ID: **9902G226-004**
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | 2 | 0.5 | |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | BRL | 0.5 | U |
| 1,1-Dichloroethane | 8 | 0.5 | |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-4
Project # 02994-002-005-9999
Lab ID: 9902G226-004
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | BRL | 0.5 | U |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **L-5**
Project # 02994-002-005-9999
Lab ID: **9902G226-005**
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | E | 0.5 | |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 27 | 0.5 | |
| 1,1-Dichloroethane | 13 | 0.5 | |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **L-5**
Project # 02994-002-005-9999
Lab ID: **9902G226-005**
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | BRL | 0.5 | U |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: L-5
Project # 02994-002-005-9999
Lab ID: 9902G226-005 DL
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Vinyl chloride | 38 | 1 | D |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-5
Project # 02994-002-005-9999
Lab ID: 9902G226-006
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | 32 | 0.5 | |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | 0.6 | 0.5 | |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | E | 0.5 | |
| 1,1-Dichloroethane | 8 | 0.5 | |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **R-5**
Project # 02994-002-005-9999
Lab ID: **9902G226-006**
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | 25 | 0.5 | |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-5
Project # 02994-002-005-9999
Lab ID: 9902G226-006 DL
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloroethene (total) | 71 | 2 | D |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-5 DUP
Project # 02994-002-005-9999
Lab ID: 9902G226-007
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | 29 | 0.5 | |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | 0.6 | 0.5 | |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | E | 0.5 | |
| 1,1-Dichloroethane | 7 | 0.5 | |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **R-5 DUP**
Project # 02994-002-005-9999
Lab ID: **9902G226-007**
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | 25 | 0.5 | |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Housewares
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Wednesday February 24th, 1999

RE: R-5 DUP
Project # 02994-002-005-9999
Lab ID: 9902G226-007 DL
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloroethene (total) | 84 | 5 | D |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **TB020399**
Project # 02994-002-005-9999
Lab ID: **9902G226-008**
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | BRL | 0.5 | U |
| 1,1-Dichloroethane | BRL | 0.5 | U |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **TB020399**
Project # 02994-002-005-9999
Lab ID: **9902G226-008**
Sample Date: 02/15/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | BRL | 0.5 | U |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **FB-02/16/99**
Project # 02994-002-005-9999
Lab ID: **9902G226-009**
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | BRL | 0.5 | U |
| 1,1-Dichloroethane | BRL | 0.5 | U |
| Vinyl acetate | BRL | 2 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |

To: **RFW-Ekco Housewares**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Wednesday February 24th, 1999

RE: **FB-02/16/99**
Project # 02994-002-005-9999
Lab ID: **9902G226-009**
Sample Date: 02/16/99
Date Received: 02/17/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Trichloroethene | BRL | 0.5 | U |
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

STL Chicago
METHOD 8260 VOLATILES

Report Date: 02/23/99 17:15

RFW Batch Number: 9902G226 Client: RFW-Ekco Housewares Work Order: 02994-002-005-9 Page: 1a

| | Cust ID: | L-4 | | R-2 | | R-3 | | R-3 | | R-4 | | R-4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | | 002 | | 003 | | 003 DL | | 004 | | 004 MS | |
| | Matrix: | WATER | | WATER | | WATER | | WATER | | WATER | | WATER | |
| | D.F.: | 1 | | 1 | | 1 | | 5 | | 1 | | 1 | |
| | Units: | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | |
| Surrogate Recovery | 1,2-Dichloroethane-d4 | 109 | % | 110 | % | 112 | % | 104 | % | 113 | % | 100 | % |
| | Toluene-d8 | 104 | % | 106 | % | 106 | % | 100 | % | 104 | % | 98 | % |
| | 4-Bromofluorobenzene | 105 | % | 105 | % | 106 | % | 102 | % | 105 | % | 100 | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Chloromethane | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 86 | % |
| Vinyl chloride | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 2 | | 88 | % |
| Bromomethane | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 93 | % |
| Chloroethane | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 88 | % |
| 1,1-Dichloroethene | | 0.5 | U | 2 | | 13 | | NA | | 0.5 | U | 104 | % |
| Acetone | | 2 | U | 2 | U | 2 | U | NA | | 2 | U | 79 | % |
| Carbon Disulfide | | 2 | U | 2 | U | 2 | U | NA | | 2 | U | 79 | % |
| Methylene Chloride | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 104 | % |
| 1,2-Dichloroethene (total) | | 15 | | 14 | | 5 | | NA | | 0.5 | U | 111 | % |
| 1,1-Dichloroethane | | 3 | | 21 | | | E | 110 | | 8 | | 107 | % |
| Vinyl acetate | | 2 | U | 2 | U | 2 | U | NA | | 2 | U | 86 | % |
| 2-Butanone | | 2 | U | 2 | U | 2 | U | NA | | 2 | U | 91 | % |
| Chloroform | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 110 | % |
| 1,1,1-Trichloroethane | | 0.5 | U | 0.5 | U | | E | 52 | | 0.5 | U | 110 | % |
| Carbon Tetrachloride | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 111 | % |
| Benzene | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 106 | % |
| 1,2-Dichloroethane | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 112 | % |
| Trichloroethene | | 1 | | 14 | | | E | 92 | | 0.5 | U | 112 | % |
| 1,2-Dichloropropane | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 114 | % |
| Bromodichloromethane | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 112 | % |
| cis-1,3-Dichloropropene | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 100 | % |
| 4-Methyl-2-pentanone | | 2 | U | 2 | U | 2 | U | NA | | 2 | U | 96 | % |
| Toluene | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 106 | % |
| trans-1,3-Dichloropropene | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 109 | % |
| 1,1,2-Trichloroethane | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 111 | % |
| Tetrachloroethene | | 0.5 | U | 0.5 | U | 0.5 | U | NA | | 0.5 | U | 108 | % |

*= Outside of EPA CLP QC limits.

| Cust ID: | L-4 | | R-2 | | R-3 | | R-3 | R-4 | | R-4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| RFW#: | 001 | | 002 | | 003 | | 003 DL | 004 | | 004 MS | |
| 2-Hexanone | 2 | U | 2 | U | 2 | U | NA | 2 | U | 98 | % |
| Dibromochloromethane | 0.5 | U | 0.5 | U | 0.5 | U | NA | 0.5 | U | 112 | % |
| Chlorobenzene | 0.5 | U | 0.5 | U | 0.5 | U | NA | 0.5 | U | 111 | % |
| Ethylbenzene | 0.5 | U | 0.5 | U | 0.5 | U | NA | 0.5 | U | 108 | % |
| Xylene (total) | 0.5 | U | 0.5 | U | 0.5 | U | NA | 0.5 | U | 111 | % |
| Styrene | 0.5 | U | 0.5 | U | 0.5 | U | NA | 0.5 | U | 105 | % |
| Bromoform | 0.5 | U | 0.5 | U | 0.5 | U | NA | 0.5 | U | 115 | % |
| 1,1,2,2-Tetrachloroethane | 0.5 | U | 0.5 | U | 0.5 | U | NA | 0.5 | U | 113 | % |

*= Outside of EPA CLP QC limits.

STL Chicago
METHOD 8260 VOLATILES

RFW Batch Number: 9902G226 Client: RFW-Ekco Housewares Work Order: 02994-002-005-9 Report Date: 02/23/99 17:15 Page: 2a

| | Cust ID: | R-4 | | L-5 | | L-5 | | R-5 | | R-5 | | R-5 DUP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 004 MSD | | 005 | | 005 DL | | 006 | | 006 DL | | 007 | |
| | Matrix: | WATER | | WATER | | WATER | | WATER | | WATER | | WATER | |
| | D.F.: | 1 | | 1 | | 2 | | 1 | | 5 | | 1 | |
| | Units: | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | |
| Surrogate Recovery | 1,2-Dichloroethane-d4 | 102 | % | 118 | % | 107 | % | 116 | % | 104 | % | 109 | % |
| | Toluene-d8 | 102 | % | 107 | % | 102 | % | 105 | % | 100 | % | 106 | % |
| | 4-Bromofluorobenzene | 104 | % | 108 | % | 105 | % | 107 | % | 103 | % | 108 | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Chloromethane | | 86 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| Vinyl chloride | | 90 | % | | E | 38 | | 32 | | NA | | 29 | |
| Bromomethane | | 95 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| Chloroethane | | 87 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| 1,1-Dichloroethene | | 103 | % | 0.5 | U | NA | | 0.6 | | NA | | 0.6 | |
| Acetone | | 76 | % | 2 | U | NA | | 2 | U | NA | | 2 | U |
| Carbon Disulfide | | 76 | % | 2 | U | NA | | 2 | U | NA | | 2 | U |
| Methylene Chloride | | 101 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| 1,2-Dichloroethene (total) | | 108 | % | 27 | | NA | | | E | 71 | | | E |
| 1,1-Dichloroethane | | 102 | % | 13 | | NA | | 8 | | NA | | 7 | |
| Vinyl acetate | | 76 | % | 2 | U | NA | | 2 | U | NA | | 2 | U |
| 2-Butanone | | 91 | % | 2 | U | NA | | 2 | U | NA | | 2 | U |
| Chloroform | | 106 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| 1,1,1-Trichloroethane | | 107 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| Carbon Tetrachloride | | 110 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| Benzene | | 104 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| 1,2-Dichloroethane | | 108 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| Trichloroethene | | 111 | % | 0.5 | U | NA | | 25 | | NA | | 25 | |
| 1,2-Dichloropropane | | 111 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| Bromodichloromethane | | 109 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| cis-1,3-Dichloropropene | | 97 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| 4-Methyl-2-pentanone | | 96 | % | 2 | U | NA | | 2 | U | NA | | 2 | U |
| Toluene | | 104 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| trans-1,3-Dichloropropene | | 102 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| 1,1,2-Trichloroethane | | 109 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |
| Tetrachloroethene | | 110 | % | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U |

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9902G226 Client: RFW-Ekco Housewares Work Order: 02994-002-005-9 Page: 2b

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| Cust ID: | R-4 | | L-5 | | L-5 | R-5 | | R-5 | R-5 DUP | |
|---|---|---|---|---|---|---|---|---|---|---|
| RFW#: | 004 MSD | | 005 | | 005 DL | 006 | | 006 DL | 007 | |
| 2-Hexanone | 98 | % | 2 | U | NA | 2 | U | NA | 2 | U |
| Dibromochloromethane | 112 | % | 0.5 | U | NA | 0.5 | U | NA | 0.5 | U |
| Chlorobenzene | 110 | % | 0.5 | U | NA | 0.5 | U | NA | 0.5 | U |
| Ethylbenzene | 108 | % | 0.5 | U | NA | 0.5 | U | NA | 0.5 | U |
| Xylene (total) | 111 | % | 0.5 | U | NA | 0.5 | U | NA | 0.5 | U |
| Styrene | 109 | % | 0.5 | U | NA | 0.5 | U | NA | 0.5 | U |
| Bromoform | 116 | % | 0.5 | U | NA | 0.5 | U | NA | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | 112 | % | 0.5 | U | NA | 0.5 | U | NA | 0.5 | U |

*= Outside of EPA CLP QC limits.

STL Chicago
METHOD 8260 VOLATILES

RFW Batch Number: 9902G226 Client: RFW-Ekco Housewares Work Order: 02994-002-005-9 Report Date: 02/23/99 17:15 Page: 3a

30

| | Cust ID: | R-5 DUP | TB020399 | FB-02/16/99 | VBLKOR | VBLKOR BS | VBLKNA |
|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 007 DL | 008 | 009 | 99GVT033-MB1 | 99GVT033-MB1 | 99GVT034-MB1 |
| | Matrix: | WATER | WATER | WATER | WATER | WATER | WATER |
| | D.F.: | 10 | 1 | 1 | 1 | 1 | 1 |
| | Units: | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L |
| Surrogate Recovery | 1,2-Dichloroethane-d4 | 97 % | 108 % | 109 % | 106 % | 111 % | 100 % |
| | Toluene-d8 | 94 % | 105 % | 105 % | 103 % | 105 % | 101 % |
| | 4-Bromofluorobenzene | 98 % | 105 % | 104 % | 103 % | 110 % | 102 % |
| | | fl | fl | fl | fl | fl | fl |
| Chloromethane | | NA | 0.5 U | 0.5 U | 0.5 U | 104 % | 0.5 U |
| Vinyl chloride | | NA | 0.5 U | 0.5 U | 0.5 U | 96 % | 0.5 U |
| Bromomethane | | NA | 0.5 U | 0.5 U | 0.5 U | 111 % | 0.5 U |
| Chloroethane | | NA | 0.5 U | 0.5 U | 0.5 U | 102 % | 0.5 U |
| 1,1-Dichloroethene | | NA | 0.5 U | 0.5 U | 0.5 U | 107 % | 0.5 U |
| Acetone | | NA | 2 U | 2 U | 2 U | 84 % | 2 U |
| Carbon Disulfide | | NA | 2 U | 2 U | 2 U | 84 % | 2 U |
| Methylene Chloride | | NA | 0.5 U | 0.5 U | 0.5 U | 114 % | 0.5 U |
| 1,2-Dichloroethene (total) | | 84 | 0.5 U | 0.5 U | 0.5 U | 114 % | 0.5 U |
| 1,1-Dichloroethane | | NA | 0.5 U | 0.5 U | 0.5 U | 122 * % | 0.5 U |
| Vinyl acetate | | NA | 2 U | 2 U | 2 U | 92 % | 2 U |
| 2-Butanone | | NA | 2 U | 2 U | 2 U | 94 % | 2 U |
| Chloroform | | NA | 0.5 U | 0.5 U | 0.5 U | 120 % | 0.5 U |
| 1,1,1-Trichloroethane | | NA | 0.5 U | 0.5 U | 0.5 U | 110 % | 0.5 U |
| Carbon Tetrachloride | | NA | 0.5 U | 0.5 U | 0.5 U | 104 % | 0.5 U |
| Benzene | | NA | 0.5 U | 0.5 U | 0.5 U | 108 % | 0.5 U |
| 1,2-Dichloroethane | | NA | 0.5 U | 0.5 U | 0.5 U | 119 * % | 0.5 U |
| Trichloroethene | | NA | 0.5 U | 0.5 U | 0.5 U | 110 % | 0.5 U |
| 1,2-Dichloropropane | | NA | 0.5 U | 0.5 U | 0.5 U | 117 * % | 0.5 U |
| Bromodichloromethane | | NA | 0.5 U | 0.5 U | 0.5 U | 116 % | 0.5 U |
| cis-1,3-Dichloropropene | | NA | 0.5 U | 0.5 U | 0.5 U | 99 % | 0.5 U |
| 4-Methyl-2-pentanone | | NA | 2 U | 2 U | 2 U | 101 % | 2 U |
| Toluene | | NA | 0.5 U | 0.5 U | 0.5 U | 108 % | 0.5 U |
| trans-1,3-Dichloropropene | | NA | 0.5 U | 0.5 U | 0.5 U | 107 % | 0.5 U |
| 1,1,2-Trichloroethane | | NA | 0.5 U | 0.5 U | 0.5 U | 120 * % | 0.5 U |
| Tetrachloroethene | | NA | 0.5 U | 0.5 U | 0.5 U | 103 % | 0.5 U |

*= Outside of EPA CLP QC limits.

KDD 2/24/99

RFW Batch Number: 9902G226 Client: RFW-Ekco Housewares Work Order: 02994-002-005-9 Page: 3b

| Cust ID: | R-5 DUP | TB020399 | FB-02/16/99 | VBLKOR | VBLKOR BS | VBLKNA |
|---|---|---|---|---|---|---|
| RFW#: | 007 DL | 008 | 009 | 99GVT033-MB1 | 99GVT033-MB1 | 99GVT034-MB1 |
| 2-Hexanone | NA | 2 U | 2 U | 2 U | 99 % | 2 U |
| Dibromochloromethane | NA | 0.5 U | 0.5 U | 0.5 U | 114 % | 0.5 U |
| Chlorobenzene | NA | 0.5 U | 0.5 U | 0.5 U | 114 % | 0.5 U |
| Ethylbenzene | NA | 0.5 U | 0.5 U | 0.5 U | 111 % | 0.5 U |
| Xylene (total) | NA | 0.5 U | 0.5 U | 0.5 U | 117 % | 0.5 U |
| Styrene | NA | 0.5 U | 0.5 U | 0.5 U | 116 * % | 0.5 U |
| Bromoform | NA | 0.5 U | 0.5 U | 0.5 U | 117 % | 0.5 U |
| 1,1,2,2-Tetrachloroethane | NA | 0.5 U | 0.5 U | 0.5 U | 117 * % | 0.5 U |

*= Outside of EPA CLP QC limits.

MD 2/24/99

STL Chicago
METHOD 8260 VOLATILES

RFW Batch Number: 9902G226 Client: RFW-Ekco Housewares Work Order: 02994-002-005-9 Report Date: 02/23/99 17:15 Page: 4a

| | Cust ID: | VBLKNA BS | | VBLKOV | | VBLKOV BS | |
|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 99GVT034-MB1 | | 99GVT036-MB1 | | 99GVT036-MB1 | |
| | Matrix: | WATER | | WATER | | WATER | |
| | D.F.: | 1 | | 1 | | 1 | |
| | Units: | UG/L | | UG/L | | UG/L | |
| Surrogate Recovery | 1,2-Dichloroethane-d4 | 105 | % | 99 | % | 100 | % |
| | Toluene-d8 | 101 | % | 92 | % | 95 | % |
| | 4-Bromofluorobenzene | 104 | % | 96 | % | 100 | % |
| Chloromethane | | 102 | % | 0.5 | U | 100 | % |
| Vinyl chloride | | 106 | % | 0.5 | U | 97 | % |
| Bromomethane | | 106 | % | 0.5 | U | 106 | % |
| Chloroethane | | 104 | % | 0.5 | U | 100 | % |
| 1,1-Dichloroethene | | 112 | % | 0.5 | U | 99 | % |
| Acetone | | 64 | % | 2 | U | 60 | % |
| Carbon Disulfide | | 88 | % | 2 | U | 78 | % |
| Methylene Chloride | | 108 | % | 0.5 | U | 106 | % |
| 1,2-Dichloroethene (total) | | 112 | % | 0.5 | U | 108 | % |
| 1,1-Dichloroethane | | 118 | % | 0.5 | U | 115 | % |
| Vinyl acetate | | 88 | % | 2 | U | 86 | % |
| 2-Butanone | | 88 | % | 2 | U | 86 | % |
| Chloroform | | 114 | % | 0.5 | U | 114 | % |
| 1,1,1-Trichloroethane | | 120 | % | 0.5 | U | 114 | % |
| Carbon Tetrachloride | | 122 | % | 0.5 | U | 109 | % |
| Benzene | | 109 | % | 0.5 | U | 106 | % |
| 1,2-Dichloroethane | | 116 * | % | 0.5 | U | 115 * | % |
| Trichloroethene | | 116 | % | 0.5 | U | 109 | % |
| 1,2-Dichloropropane | | 116 * | % | 0.5 | U | 114 | % |
| Bromodichloromethane | | 114 | % | 0.5 | U | 113 | % |
| cis-1,3-Dichloropropene | | 99 | % | 0.5 | U | 99 | % |
| 4-Methyl-2-pentanone | | 94 | % | 2 | U | 92 | % |
| Toluene | | 110 | % | 0.5 | U | 106 | % |
| trans-1,3-Dichloropropene | | 114 | % | 0.5 | U | 117 | % |
| 1,1,2-Trichloroethane | | 110 | % | 0.5 | U | 111 | % |
| Tetrachloroethene | | 112 | % | 0.5 | U | 104 | % |

*= Outside of EPA CLP QC limits.

| Cust ID: | VBLKNA BS | | VBLKOV | | VBLKOV BS | |
|---|---|---|---|---|---|---|
| RFW#: | 99GVT034-MB1 | | 99GVT036-MB1 | | 99GVT036-MB1 | |
| 2-Hexanone | 94 | % | 2 | U | 91 | % |
| Dibromochloromethane | 110 | % | 0.5 | U | 111 | % |
| Chlorobenzene | 114 | % | 0.5 | U | 111 | % |
| Ethylbenzene | 114 | % | 0.5 | U | 109 | % |
| Xylene (total) | 119 | % | 0.5 | U | 114 | % |
| Styrene | 115 * | % | 0.5 | U | 113 * | % |
| Bromoform | 113 | % | 0.5 | U | 114 | % |
| 1,1,2,2-Tetrachloroethane | 112 | % | 0.5 | U | 112 | % |

*= Outside of EPA CLP QC limits.

NW
2/24/99

EKCO/AHP/Weston
#02994-002-005

Proj. contact: Greg Flasinski
(610) 701-7293

99026226

* No Chain of Custody sent w/ samples

PM: Eric Lang

| Well # | matrix | Date | time | Vols |
|---|---|---|---|---|
| L-4 | W | 2/15/99 | 1640 | ✓ |
| R-2 | | | 1500 | ✓ |
| R-3 | | | 1800 | ✓ |
| R-4 MS/MSD | | | 1700 | ✓ |
| L-5 | | 2/16/99 | 945 | ✓ |
| R-5 | | | 845 | ✓ |
| R-5 Dup | | | 845 | ✓ |
| Trip Blank | | | | ✓ |
| FB-02/16/99 | | | 800 | ✓ |

(0.8, 1.5, 1.5)

Relinquished by: Greg Flasinski 2/16/99 11:00

Rec'd [illegible] 2/17/99 1120

T.B. Prep date 2/3/99

Committed To *Your* Success

RECEIVED

SEP 27 1999

**Severn Trent Laboratories**
2417 Bond Street
University Park, IL 60466

Tel: (708) 534-5200
Fax: (708) 534-5211
www.stl-inc.com

September 21, 1999

Mr. Tom Cornuet
Roy F. Weston, Inc.
1400 Weston Way
P.O. Box 2653
West Chester, PA 19380-1499

RE: Ekco Houseware
Lot 9908G711

Dear Mr. Cornuet:

The enclosed analytical report is for the project and lot number listed above. If you have any questions, please contact me at 708-534-5200.

Sincerely,

Severn Trent Laboratories

Eric A. Lang
Project Manager

sj

Enclosures

Approved By:

Michael J. Healy
General Manager

The results presented in this report relate only to the analytical testing and conditions of sample at receipt. This report pertains to only those samples actually tested. All 28 pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

Severn Trent Laboratories Chicago
8260 ANALYTICAL DATA PACKAGE FOR
RFW-Ekco Houseware

LABORATORY CHRONICLE

LOT # :9908G711

| CLIENT ID | Sample # | MTX | PREP # | COLLECTN | DATE REC | EXT/PREP | ANALYSIS |
|---|---|---|---|---|---|---|---|
| R-2 | 001 | W | 99GVC294 | 08/24/99 | 08/26/99 | N/A | 08/31/99 |
| R-2 | 001 D1 | W | 99GVC295 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| R-4 | 002 | W | 99GVC294 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| R-5 | 003 | W | 99GVC294 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| R-5 | 003 MS | W | 99GVC294 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| R-5 | 003 MSD | W | 99GVC295 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| R-3 | 004 | W | 99GVC294 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| R-3 | 004 D1 | W | 99GVF269 | 08/24/99 | 08/26/99 | N/A | 09/02/99 |
| R-3 DUP | 005 | W | 99GVC294 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| R-3 DUP | 005 D1 | W | 99GVF269 | 08/24/99 | 08/26/99 | N/A | 09/02/99 |
| FB-R-3 | 006 | W | 99GVC295 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |
| TB081899 | 007 | W | 99GVC295 | 08/24/99 | 08/26/99 | N/A | 09/01/99 |

LAB QC:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| VBLKHE | MB1 | W | 99GVC294 | N/A | N/A | N/A | 08/31/99 |
| VBLKHE | MB1 BS | W | 99GVC294 | N/A | N/A | N/A | 08/31/99 |
| VBLKFL | MB1 | W | 99GVC295 | N/A | N/A | N/A | 09/01/99 |
| VBLKFL | MB1 BS | W | 99GVC295 | N/A | N/A | N/A | 09/01/99 |
| VBLKXS | MB1 | W | 99GVF269 | N/A | N/A | N/A | 09/02/99 |
| VBLKXS | MB1 BS | W | 99GVF269 | N/A | N/A | N/A | 09/02/99 |

SIGNATURE Gregory L. Lovel DATE 9/21/99

NY CERTIFICATION # 11006

**Severn Trent Laboratories Chicago**
**GC/MS Case Narrative**

RFW - Ekco Houseware
STL# 9908G711
VOA DATA:

1. All volatile analyses were performed within the recommended hold times.

2. All Method Blank target compounds were below reporting limits.

3. All LCS (Laboratory Control Sample) samples had all controlled spike recoveries within the in-house generated QC limits.

4. Matrix Spike/Matrix Spike Duplicate analyses were performed on the sample 9908G711-003. All of the controlled spike recoveries and RPD values were within the in-house generated QC limits in the samples 9908G711-003 MS/MSD.

5. The sample 9908G711-005 had one surrogate recovery below the QC limits. The secondary dilution samples 9908G711-005 DL had all surrogate recoveries within limits and is considered the surrogate check for the original samples. All of the other volatile samples had surrogate recoveries within the in-house generated QC limits.

6. All samples were analyzed following SW846 Method 8260B and 8000B. All calibration criteria are met per method or SOP (for minimum R values for certain compounds). The low point in the initial calibrations verifies the base reporting limits. The target compounds were quantitated using the initial calibration.

7. All internal standard areas and retention times were within SOP acceptance limits as compared to the corresponding continuing calibration standard.

8. The water samples were initially analyzed without dilution using a 25.0 mL purge volume. Secondary dilutions to accurately quantitate target compounds were performed on the samples 9908G711-001 (1/5), 004 (1/5) and 005 (1/10). The results and reporting limits were adjusted to account for all of the dilutions performed on the samples.

Gregory L. Goodwin
GC/MS Section Manager.

9/20/99
Date

## Severn Trent Laboratories Chicago

# GLOSSARY OF DATA QUALIFIERS AND ABBREVIATIONS

**Data Qualifiers**

| | |
|---|---|
| B | Compound was found in the blank and the sample |
| D | Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D |
| E | Concentration exceeds the instrument calibration range and was subsequently diluted |
| I | Appears on the "results spreadsheet" to indicate an interference |
| J | Result is an estimated value below the reporting limit or a tentatively identified compound (TIC) |
| M | Summary Compound |
| (M) | Manually integrated compound |
| N | Positive ID of a TIC that is not quantitated against a standard and must be accompanied by a CAS No. |
| T | Compound was found in the TCLP extraction blank and the sample |
| u | Analyte was not detected at or above the reporting limit |
| X | Result obtained indirectly through calculation based on results from other analyses |
| Y | The chromatographic response resembles a typical fuel pattern |
| Z | The chromatographic response does not resemble a typical fuel pattern |

**Abbreviations**

| | |
|---|---|
| Batch | Designation given to identify a specific extraction, digestion or preparation set (equivalent to prep batch) |
| BS | Blank spike analysis was conducted on reagent grade water or a matrix free from the analyte of interest |
| BSD | Blank spike duplicate |
| BRL | Below reporting limit |
| CAP | Capillary Column |
| CD | Calculation factor used by the Laboratory's Information Management System (LIMS) |
| Contract | Contract laboratory identification code |
| DF | Dilution factor |
| DL | Appears in the sample ID to indicate a secondary dilution was performed |
| LCS/LC | Denotes laboratory control standard |
| LAB ID | The full 12 character laboratory identification number (equivalent to RFW#) |
| MB | Method blank or (PB) preparation blank |
| MS | Matrix spike |
| MSD | Matrix spike duplicate |
| NA | Not applicable |
| NC | Non-calculable precision due to insufficient concentration of analyte present in the sample |
| NR | Not required |
| NS | Not spiked |
| PACK | Packed Column |
| RE | Appears in the sample ID to indicate a re-analysis |
| REP | Replicate analysis |
| Reprep | Sample was reprepared and then reanalyzed |
| RFW# | The full 12 character laboratory identification number (equivalent to LAB ID) |
| RFW Lot | The first 8 characters of the RFW# |
| RPD | Relative percent difference of duplicate (unrounded) analyses |
| RRF | Relative response factor |
| RT | Retention time |
| RTW | Retention time window |
| SP | Blank spike, blank spike duplicate, matrix spike or matrix spike duplicate |
| WO# | Work order no. code used to define a specific client, job, phase and task |

**NOTES:**

- One or a combination of these data qualifiers and abbreviations may appear in the analytical report.
- Soil, sediment and sludge results are reported on a dry weight basis except when analyzed for landfill disposal or incineration parameters. All other results on a solid matrix are reported on an "as received" basis unless noted differently.
- Reporting limits are adjusted for preparation sample size, sample dilutions and sample moisture content if analyzed on a dry weight basis.

# Severn Trent Laboratories Chicago

# GC/MS METHOD REFERENCE

**The following methods are used as reference for the analysis of samples contained within this RFW Lot :**

**GC/MS VOLATILES**

- ____ SW-846 8260A
- ✓ SW-846 8260B
- ____ EPA 524.2
- ____ 40 CFR Part 136, Method 624
- ____ CLP OLM03.1/3.2
- ____ OLC02.0/2.1

**GC/MS SEMIVOLATILES**

- ____ SW-846 8270A
- ____ SW-846 8270B
- ____ SW-846 8270C
- ____ 40 CFR Part 136, Method 625
- ____ CLP OLM03.1/3.2
- ____ OLC02.0/2.1

CHI-22-05-001/E-1/99

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-2
Project # 02994-002-003-0000
Lab ID: 9908G711-001
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | 3 | 0.5 | |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 22 | 0.5 | |
| 1,1-Dichloroethane | E | 0.5 | |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | 0.5 | 0.5 | |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |
| Trichloroethene | 28 | 0.5 | |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-2
Project # 02994-002-003-0000
Lab ID: 9908G711-001
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-2
Project # 02994-002-003-0000
Lab ID: 9908G711-001 DL
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,1-Dichloroethane | 48 | 2 | D |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-4
Project # 02994-002-003-0000
Lab ID: 9908G711-002
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | BRL | 0.5 | U |
| 1,1-Dichloroethane | 5 | 0.5 | |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |
| Trichloroethene | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-4
Project # 02994-002-003-0000
Lab ID: 9908G711-002
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-5
Project # 02994-002-003-0000
Lab ID: 9908G711-003
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | 10 | 0.5 | |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 26 | 0.5 | |
| 1,1-Dichloroethane | 3 | 0.5 | |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |
| Trichloroethene | 6 | 0.5 | |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-5
Project # 02994-002-003-0000
Lab ID: 9908G711-003
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-3
Project # 02994-002-003-0000
Lab ID: 9908G711-004
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | 11 | 0.5 | |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 4 | 0.5 | |
| 1,1-Dichloroethane | E | 0.5 | |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | E | 0.5 | |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |
| Trichloroethene | E | 0.5 | |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-3
Project # 02994-002-003-0000
Lab ID: 9908G711-004
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-3
Project # 02994-002-003-0000
Lab ID: 9908G711-004 DL
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,1-Dichloroethane | 74 | 2 | D |
| 1,1,1-Trichloroethane | 23 | 2 | D |
| Trichloroethene | 60 | 2 | D |

To: **RFW-Ekco Houseware**
**Roy F. Weston, Incorporated**
**One Weston Way, Building 5-2**
**West Chester, PA 19380**

Attn: **Mr. Tom Cornuet**

Date: Tuesday September 21st, 1999

RE: **R-3 DUP**
Project # 02994-002-003-0000
Lab ID: **9908G711-005**
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | 9 | 0.5 | |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | 3 | 0.5 | |
| 1,1-Dichloroethane | E | 0.5 | |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | 34 | 0.5 | |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |
| Trichloroethene | E | 0.5 | |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-3 DUP
Project # 02994-002-003-0000
Lab ID: 9908G711-005
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: R-3 DUP
Project # 02994-002-003-0000
Lab ID: 9908G711-005 DL
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,1-Dichloroethane | 74 | 5 | D |
| Trichloroethene | 58 | 5 | D |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: FB-R-3
Project # 02994-002-003-0000
Lab ID: 9908G711-006
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | BRL | 0.5 | U |
| 1,1-Dichloroethane | BRL | 0.5 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |
| Trichloroethene | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: FB-R-3
Project # 02994-002-003-0000
Lab ID: 9908G711-006
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: TB081899
Project # 02994-002-003-0000
Lab ID: 9908G711-007
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| Chloromethane | BRL | 0.5 | U |
| Vinyl chloride | BRL | 0.5 | U |
| Bromomethane | BRL | 0.5 | U |
| Chloroethane | BRL | 0.5 | U |
| 1,1-Dichloroethene | BRL | 0.5 | U |
| Acetone | BRL | 2 | U |
| Carbon Disulfide | BRL | 2 | U |
| Methylene Chloride | BRL | 0.5 | U |
| 1,2-Dichloroethene (total) | BRL | 0.5 | U |
| 1,1-Dichloroethane | BRL | 0.5 | U |
| 2-Butanone | BRL | 2 | U |
| Chloroform | BRL | 0.5 | U |
| 1,1,1-Trichloroethane | BRL | 0.5 | U |
| Carbon Tetrachloride | BRL | 0.5 | U |
| Benzene | BRL | 0.5 | U |
| 1,2-Dichloroethane | BRL | 0.5 | U |
| Trichloroethene | BRL | 0.5 | U |

To: RFW-Ekco Houseware
Roy F. Weston, Incorporated
One Weston Way, Building 5-2
West Chester, PA 19380

Attn: Mr. Tom Cornuet

Date: Tuesday September 21st, 1999

RE: TB081899
Project # 02994-002-003-0000
Lab ID: 9908G711-007
Sample Date: 08/24/99
Date Received: 08/26/99
Units: ug/L

## METHOD 8260 VOLATILES

| Volatile Compound | Result | Reporting Limit | Flag |
|---|---|---|---|
| 1,2-Dichloropropane | BRL | 0.5 | U |
| Bromodichloromethane | BRL | 0.5 | U |
| cis-1,3-Dichloropropene | BRL | 0.5 | U |
| 4-Methyl-2-pentanone | BRL | 2 | U |
| Toluene | BRL | 0.5 | U |
| trans-1,3-Dichloropropene | BRL | 0.5 | U |
| 1,1,2-Trichloroethane | BRL | 0.5 | U |
| Tetrachloroethene | BRL | 0.5 | U |
| 2-Hexanone | BRL | 2 | U |
| Dibromochloromethane | BRL | 0.5 | U |
| Chlorobenzene | BRL | 0.5 | U |
| Ethylbenzene | BRL | 0.5 | U |
| Xylene (total) | BRL | 0.5 | U |
| Styrene | BRL | 0.5 | U |
| Bromoform | BRL | 0.5 | U |
| 1,1,2,2-Tetrachloroethane | BRL | 0.5 | U |

STL Chicago
METHOD 8260 VOLATILES

RFW Batch Number: 9908G711 Client: RFW-Ekco Houseware Work Order: 02994-002-003-0 Report Date: 09/20/99 11:44 Page: 1a

| | Cust ID: | R-2 | R-2 | R-4 | R-5 | R-5 | R-5 |
|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 001 | 001 DL | 002 | 003 | 003 MS | 003 MSD |
| | Matrix: | WATER | WATER | WATER | WATER | WATER | WATER |
| | D.F.: | 1 | 5 | 1 | 1 | 1 | 1 |
| | Units: | UG/L | UG/L | UG/L | UG/L | UG/L | UG/L |
| Surrogate Recovery | 1,2-Dichloroethane-d4 | 107 % | 105 % | 102 % | 106 % | 108 % | 106 % |
| | Toluene-d8 | 102 % | 96 % | 100 % | 102 % | 95 % | 94 % |
| | 4-Bromofluorobenzene | 100 % | 96 % | 98 % | 100 % | 93 % | 95 % |
| Chloromethane | | 0.5 U | NA | 0.5 U | 0.5 U | 89 % | 109 % |
| Vinyl chloride | | 0.5 U | NA | 0.5 U | 10 | 113 % | 134 * % |
| Bromomethane | | 0.5 U | NA | 0.5 U | 0.5 U | 91 % | 101 % |
| Chloroethane | | 0.5 U | NA | 0.5 U | 0.5 U | 103 % | 116 % |
| 1,1-Dichloroethene | | 3 | NA | 0.5 U | 0.5 U | 105 % | 110 % |
| Acetone | | 2 U | NA | 2 U | 2 U | 115 % | 105 % |
| Carbon Disulfide | | 2 U | NA | 2 U | 2 U | 94 % | 96 % |
| Methylene Chloride | | 0.5 U | NA | 0.5 U | 0.5 U | 93 % | 97 % |
| 1,2-Dichloroethene (total) | | 22 | NA | 0.5 U | 26 | 135 * % | 130 * % |
| 1,1-Dichloroethane | | E | 48 | 5 | 3 | 123 * % | 124 * % |
| 2-Butanone | | 2 U | NA | 2 U | 2 U | 104 % | 98 % |
| Chloroform | | 0.5 U | NA | 0.5 U | 0.5 U | 105 % | 109 % |
| 1,1,1-Trichloroethane | | 0.5 | NA | 0.5 U | 0.5 U | 120 % | 126 * % |
| Carbon Tetrachloride | | 0.5 U | NA | 0.5 U | 0.5 U | 114 % | 127 * % |
| Benzene | | 0.5 U | NA | 0.5 U | 0.5 U | 83 % | 87 % |
| 1,2-Dichloroethane | | 0.5 U | NA | 0.5 U | 0.5 U | 111 % | 119 * % |
| Trichloroethene | | 28 | NA | 0.5 U | 6 | 113 % | 119 * % |
| 1,2-Dichloropropane | | 0.5 U | NA | 0.5 U | 0.5 U | 98 % | 103 % |
| Bromodichloromethane | | 0.5 U | NA | 0.5 U | 0.5 U | 94 % | 99 % |
| cis-1,3-Dichloropropene | | 0.5 U | NA | 0.5 U | 0.5 U | 88 % | 94 % |
| 4-Methyl-2-pentanone | | 2 U | NA | 2 U | 2 U | 101 % | 101 % |
| Toluene | | 0.5 U | NA | 0.5 U | 0.5 U | 87 % | 93 % |
| trans-1,3-Dichloropropene | | 0.5 U | NA | 0.5 U | 0.5 U | 100 % | 108 % |
| 1,1,2-Trichloroethane | | 0.5 U | NA | 0.5 U | 0.5 U | 109 % | 114 % |
| Tetrachloroethene | | 0.5 U | NA | 0.5 U | 0.5 U | 84 % | 93 % |
| 2-Hexanone | | 2 U | NA | 2 U | 2 U | 92 % | 98 % |

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9908G711 Client: RFW-Ekco Houseware Work Order: 02994-002-003-0 Page: 1b

| Cust ID: | R-2 | R-2 | R-4 | R-5 | R-5 | R-5 |
|---|---|---|---|---|---|---|
| RFW#: | 001 | 001 DL | 002 | 003 | 003 MS | 003 MSD |
| Dibromochloromethane | 0.5 U | NA | 0.5 U | 0.5 U | 103 % | 110 % |
| Chlorobenzene | 0.5 U | NA | 0.5 U | 0.5 U | 102 % | 107 % |
| Ethylbenzene | 0.5 U | NA | 0.5 U | 0.5 U | 97 % | 103 % |
| Xylene (total) | 0.5 U | NA | 0.5 U | 0.5 U | 91 % | 97 % |
| Styrene | 0.5 U | NA | 0.5 U | 0.5 U | 94 % | 102 % |
| Bromoform | 0.5 U | NA | 0.5 U | 0.5 U | 93 % | 99 % |
| 1,1,2,2-Tetrachloroethane | 0.5 U | NA | 0.5 U | 0.5 U | 105 % | 110 % |

*= Outside of EPA CLP QC limits.

9-20 SFIQB

STL Chicago
METHOD 8260 VOLATILES

Report Date: 09/20/99 11:44

RFW Batch Number: 9908G711 Client: RFW-Ekco Houseware Work Order: 02994-002-003-0 Page: 2a

24

| | Cust ID: | R-3 | | R-3 | | R-3 DUP | | R-3 DUP | | FB-R-3 | | TB081899 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 004 | | 004 DL | | 005 | | 005 DL | | 006 | | 007 | |
| | Matrix: | WATER | | WATER | | WATER | | WATER | | WATER | | WATER | |
| | D.F.: | 1 | | 5 | | 1 | | 10 | | 1 | | 1 | |
| | Units: | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | |
| Surrogate Recovery | 1,2-Dichloroethane-d4 | 119 | % | 102 | % | 94 | % | 99 | % | 95 | % | 90 | % |
| | Toluene-d8 | 109 | % | 101 | % | 80 * | % | 105 | % | 93 | % | 91 | % |
| | 4-Bromofluorobenzene | 105 | % | 107 | % | 82 | % | 108 | % | 93 | % | 91 | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Chloromethane | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| Vinyl chloride | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| Bromomethane | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| Chloroethane | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| 1,1-Dichloroethene | | 11 | | NA | | 9 | | NA | | 0.5 | U | 0.5 | U |
| Acetone | | 2 | U | NA | | 2 | U | NA | | 2 | U | 2 | U |
| Carbon Disulfide | | 2 | U | NA | | 2 | U | NA | | 2 | U | 2 | U |
| Methylene Chloride | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| 1,2-Dichloroethene (total) | | 4 | | NA | | 3 | | NA | | 0.5 | U | 0.5 | U |
| 1,1-Dichloroethane | | | E | 74 | | | E | 74 | | 0.5 | U | 0.5 | U |
| 2-Butanone | | 2 | U | NA | | 2 | U | NA | | 2 | U | 2 | U |
| Chloroform | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| 1,1,1-Trichloroethane | | | E | 23 | | 34 | | NA | | 0.5 | U | 0.5 | U |
| Carbon Tetrachloride | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| Benzene | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| 1,2-Dichloroethane | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| Trichloroethene | | | E | 60 | | | E | 58 | | 0.5 | U | 0.5 | U |
| 1,2-Dichloropropane | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| Bromodichloromethane | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| cis-1,3-Dichloropropene | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| 4-Methyl-2-pentanone | | 2 | U | NA | | 2 | U | NA | | 2 | U | 2 | U |
| Toluene | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| trans-1,3-Dichloropropene | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| 1,1,2-Trichloroethane | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| Tetrachloroethene | | 0.5 | U | NA | | 0.5 | U | NA | | 0.5 | U | 0.5 | U |
| 2-Hexanone | | 2 | U | NA | | 2 | U | NA | | 2 | U | 2 | U |

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9908G711 Client: RFW-Ekco Houseware Work Order: 02994-002-003-0 Page: 2b

| Cust ID: | R-3 | R-3 | R-3 DUP | R-3 DUP | FB-R-3 | TB081899 |
|---|---|---|---|---|---|---|
| RFW#: | 004 | 004 DL | 005 | 005 DL | 006 | 007 |
| Dibromochloromethane | 0.5 U | NA | 0.5 U | NA | 0.5 U | 0.5 U |
| Chlorobenzene | 0.5 U | NA | 0.5 U | NA | 0.5 U | 0.5 U |
| Ethylbenzene | 0.5 U | NA | 0.5 U | NA | 0.5 U | 0.5 U |
| Xylene (total) | 0.5 U | NA | 0.5 U | NA | 0.5 U | 0.5 U |
| Styrene | 0.5 U | NA | 0.5 U | NA | 0.5 U | 0.5 U |
| Bromoform | 0.5 U | NA | 0.5 U | NA | 0.5 U | 0.5 U |
| 1,1,2,2-Tetrachloroethane | 0.5 U | NA | 0.5 U | NA | 0.5 U | 0.5 U |

*= Outside of EPA CLP QC limits.

STL Chicago
METHOD 8260 VOLATILES

RFW Batch Number: 9908G711 Client: RFW-Ekco Houseware Work Order: 02994-002-003-0

Report Date: 09/20/99 11:44
Page: 3a

| | Cust ID: | VBLKHE | | VBLKHE BS | | VBLKFL | | VBLKFL BS | | VBLKXS | | VBLKXS BS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Information | RFW#: | 99GVC294-MB1 | | 99GVC294-MB1 | | 99GVC295-MB1 | | 99GVC295-MB1 | | 99GVF269-MB1 | | 99GVF269-MB1 | |
| | Matrix: | WATER | | WATER | | WATER | | WATER | | WATER | | WATER | |
| | D.F.: | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| | Units: | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | | UG/L | |
| Surrogate Recovery | 1,2-Dichloroethane-d4 | 103 | % | 100 | % | 96 | % | 97 | % | 89 | % | 89 | % |
| | Toluene-d8 | 100 | % | 95 | % | 96 | % | 86 | % | 106 | % | 96 | % |
| | 4-Bromofluorobenzene | 98 | % | 94 | % | 94 | % | 84 | % | 108 | % | 98 | % |
| | | | fl | | fl | | fl | | fl | | fl | | fl |
| Chloromethane | | 0.5 | U | 89 | % | 0.5 | U | 112 | % | 0.5 | U | 88 | % |
| Vinyl chloride | | 0.5 | U | 92 | % | 0.5 | U | 117 | % | 0.5 | U | 100 | % |
| Bromomethane | | 0.5 | U | 92 | % | 0.5 | U | 107 | % | 0.5 | U | 102 | % |
| Chloroethane | | 0.5 | U | 104 | % | 0.5 | U | 122 | % | 0.5 | U | 101 | % |
| 1,1-Dichloroethene | | 0.5 | U | 114 | % | 0.5 | U | 112 | % | 0.5 | U | 84 | % |
| Acetone | | 2 | U | 123 | % | 2 | U | 125 | % | 2 | U | 37 | % |
| Carbon Disulfide | | 2 | U | 102 | % | 2 | U | 98 | % | 2 | U | 84 | % |
| Methylene Chloride | | 0.5 | U | 103 | % | 0.5 | U | 97 | % | 0.5 | U | 92 | % |
| 1,2-Dichloroethene (total) | | 0.5 | U | 119 | % | 0.5 | U | 113 | % | 0.5 | U | 91 | % |
| 1,1-Dichloroethane | | 0.5 | U | 131 * | % | 0.5 | U | 124 * | % | 0.5 | U | 96 | % |
| 2-Butanone | | 2 | U | 97 | % | 2 | U | 87 | % | 2 | U | 81 | % |
| Chloroform | | 0.5 | U | 115 | % | 0.5 | U | 110 | % | 0.5 | U | 90 | % |
| 1,1,1-Trichloroethane | | 0.5 | U | 129 * | % | 0.5 | U | 124 | % | 0.5 | U | 83 | % |
| Carbon Tetrachloride | | 0.5 | U | 122 | % | 0.5 | U | 123 | % | 0.5 | U | 101 | % |
| Benzene | | 0.5 | U | 90 | % | 0.5 | U | 87 | % | 0.5 | U | 99 | % |
| 1,2-Dichloroethane | | 0.5 | U | 116 * | % | 0.5 | U | 114 | % | 0.5 | U | 90 | % |
| Trichloroethene | | 0.5 | U | 106 | % | 0.5 | U | 104 | % | 0.5 | U | 103 | % |
| 1,2-Dichloropropane | | 0.5 | U | 105 | % | 0.5 | U | 101 | % | 0.5 | U | 102 | % |
| Bromodichloromethane | | 0.5 | U | 99 | % | 0.5 | U | 96 | % | 0.5 | U | 102 | % |
| cis-1,3-Dichloropropene | | 0.5 | U | 94 | % | 0.5 | U | 91 | % | 0.5 | U | 99 | % |
| 4-Methyl-2-pentanone | | 2 | U | 112 | % | 2 | U | 100 | % | 2 | U | 94 | % |
| Toluene | | 0.5 | U | 95 | % | 0.5 | U | 92 | % | 0.5 | U | 96 | % |
| trans-1,3-Dichloropropene | | 0.5 | U | 105 | % | 0.5 | U | 102 | % | 0.5 | U | 108 | % |
| 1,1,2-Trichloroethane | | 0.5 | U | 114 | % | 0.5 | U | 111 | % | 0.5 | U | 96 | % |
| Tetrachloroethene | | 0.5 | U | 91 | % | 0.5 | U | 91 | % | 0.5 | U | 106 | % |
| 2-Hexanone | | 2 | U | 105 | % | 2 | U | 90 | % | 2 | U | 86 | % |

*= Outside of EPA CLP QC limits.

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RFW Batch Number: 9908G711 Client: RFW-Ekco Houseware Work Order: 02994-002-003-0 Page: 3b

| Cust ID: | VBLKHE | | VBLKHE BS | | VBLKFL | | VBLKFL BS | | VBLKXS | | VBLKXS BS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RFW#: | 99GVC294-MB1 | | 99GVC294-MB1 | | 99GVC295-MB1 | | 99GVC295-MB1 | | 99GVF269-MB1 | | 99GVF269-MB1 | |
| Dibromochloromethane | 0.5 | U | 107 | % | 0.5 | U | 106 | % | 0.5 | U | 112 | % |
| Chlorobenzene | 0.5 | U | 109 | % | 0.5 | U | 107 | % | 0.5 | U | 98 | % |
| Ethylbenzene | 0.5 | U | 104 | % | 0.5 | U | 103 | % | 0.5 | U | 96 | % |
| Xylene (total) | 0.5 | U | 99 | % | 0.5 | U | 97 | % | 0.5 | U | 102 | % |
| Styrene | 0.5 | U | 103 | % | 0.5 | U | 101 | % | 0.5 | U | 96 | % |
| Bromoform | 0.5 | U | 95 | % | 0.5 | U | 95 | % | 0.5 | U | 136 * | % |
| 1,1,2,2-Tetrachloroethane | 0.5 | U | 105 | % | 0.5 | U | 108 | % | 0.5 | U | 93 | % |

*= Outside of EPA CLP QC limits.

STL
Committed To Your Success

**Chicago Laboratory** Custom/Std
2417 Bond Street
University Park, IL 60466
Phone: 708-534-5200
Fax: 708-534-5211

**Report To:**
Contact: Tom Cornuet
Company: RFW-Ekco Housewares
Address:
Phone:
Fax:
E-Mail:

**Bill To:**
Contact:
Company:
Address:
Phone:
Fax:
PO#: Quote:

*Shaded Areas For Internal Use Only* ___ of ___

**Lab Lot #** 9908G711

| | |
|---|---|
| Package Sealed (Yes) No | Samples Sealed Yes (No) |
| Received on Ice (Yes) No | Samples Intact (Yes) No |
| Temperature °C of Cooler 5.0 | |
| Within Hold Time (Yes) No | Preserv. Indicated (Yes) No NA |
| pH Check ok Yes No (NA) | Res. $Cl_2$ Check ok Yes No (NA) |
| Sample Labels and COC Agree (Yes) No | COC not present |

Sampler Name: Greg Flasinski
Signature: [signature]
Project Name: EKCO HOUSEWARES
Project Number:
Project Location: Massillon Ohio
Date Required Hard Copy: 9/16/99
Fax: / /
Lab PM: Jerry Lang

| Refrg # | 5 |
|---|---|
| #/ Cont. | 3 |
| Volume | 40ml |
| Preserv | HCl |

| Laboratory ID | MS-MSD | Client Sample ID | Sampling Date | Sampling Time | Matrix | Comp/Grab | 8260 VOC | Additional Analyses / Remarks |
|---|---|---|---|---|---|---|---|---|
| 001 | | R-3 | 8/24/99 | 1545 | W | | | |
| 002 | | R-4 | | 1700 | | | | |
| 003 | | R-5 MS/MSD | | 1745 | | | | rec'd 3x vol |
| 004 | | R-3 | | 1845 | | | | |
| 005 | | R-3 Dup | | 1845 | | | | |
| 006 | | FB-R-3 | | 1840 | | | | |
| 007 | | (Trip Blank) TB081899 | | | | | | |

| RELINQUISHED BY | COMPANY | DATE | TIME | RECEIVED BY | COMPANY | DATE | TIME |
|---|---|---|---|---|---|---|---|
| [signature] | Western | 8/28/99 | 1100 | [signature] | STL | 8/26/99 | 1225 |
| RELINQUISHED BY | COMPANY | DATE | TIME | RECEIVED BY | COMPANY | DATE | TIME |

**Matrix Key**
WW = Wastewater
W = Water
S = Soil
SL = Sludge
MS = Miscellaneous
OL = Oil
A = Air
SE = Sediment
SO = Solid
DS = Drum Solid
DL = Drum Liquid
L = Leachate
WI = Wipe
O =

**Container Key**
1. Plastic
2. VOA Vial
3. Sterile Plastic
4. Amber Glass
5. Widemouth Glass
6. Other

**Preservative Key**
1. HCl, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn Acetate, Cool to 4°
6. Cool to 4°
7. None

COMMENTS:

Date Received 8/26/99
Courier: FX
Hand Delivered ☐
Bill of Lading: [illegible]

STL Chicago Chain of Custody: CHI-22-09-231/A-5/9

EKCO®
HOUSEWARES, INC.

RECEIVED
FEB 17 1999

February 12, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #157**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Pat McDonald
American Home Products
Parsippany, New Jersey

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
**9901-00373**

Michael Salem
Laboratory Manager

February 1, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

*Formerly: Electro-Analytical Group*

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9901-00373 | **Matrix:** | Water | **Date Sampled:** | 01/28/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 006638 | **Date Received:** | 01/29/1999 |
| **EAG ID:** | 9901-00373-002 | | | **Date Prepped:** | 01/29/1999 |
| | | | | **Date Analyzed:** | 01/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9901-00373 | **Matrix:** | Water | **Date Sampled:** | 01/28/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 006638 | **Date Received:** | 01/29/1999 |
| **EAG ID:** | 9901-00373-002 | | | **Date Prepped:** | 01/29/1999 |
| | | | | **Date Analyzed:** | 01/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 98.6 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 99.9 | (76 - 114) |
| Toluene-d8 | 108 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9901-00373 | **Matrix:** | Water | **Date Sampled:** | 01/28/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 006638 | **Date Received:** | 01/29/1999 |
| **EAG ID:** | 9901-00373-003 | | | **Date Prepped:** | 01/29/1999 |
| | | | | **Date Analyzed:** | 01/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 69 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 14 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 180 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 590 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9901-00373 | **Matrix:** | Water | **Date Sampled:** | 01/28/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 006638 | **Date Received:** | 01/29/1999 |
| **EAG ID:** | 9901-00373-003 | | | **Date Prepped:** | 01/29/1999 |
| | | | | **Date Analyzed:** | 01/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 180 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.6 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 101 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 97.6 | (76 - 114) |
| Toluene-d8 | 105 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9901-00373 | **Matrix:** | Water | **Date Sampled:** | 01/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 006638 | **Date Received:** | 01/29/1999 |
| **EAG ID:** | 9901-00373-004 | | | **Date Prepped:** | 01/29/1999 |
| | | | | **Date Analyzed:** | 01/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 42 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 5.2 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 6.3 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 17 | 5.0 | ug/liter |

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| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9901-00373 | **Matrix:** | Water | **Date Sampled:** | 01/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 006638 | **Date Received:** | 01/29/1999 |
| **EAG ID:** | 9901-00373-004 | | | **Date Prepped:** | 01/29/1999 |
| | | | | **Date Analyzed:** | 01/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 37 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 102 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 98.5 | (76 - 114) |
| Toluene-d8 | 104 | (88 - 110) |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 51069000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | 35 ug/L |
| 8-6-97 | 123' | 210 GPM | 8161000 | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7999000 | 61 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not Operational | SR | | |
| 7-23-98 | Not Operational | SR | | |
| 8/27/98 | Not Operational | SR | | |
| 9/22/98 | Not Operational | SR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not Operational | SR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | 992 ug/L |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | SR | | |
| 2-12-98 | 97' | 280 GPM | 12,992,500 | 1268 ug/L |
| 3-19-98 | Not operational | SR | | |
| 4-29-98 | Not Operational | SR | | |
| 5-21-98 | Not Operational | SR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |

EKCO®
HOUSEWARES, INC.

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March 12, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #158**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Pat McDonald
American Home Products
Parsippany, New Jersey

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
**9902-00377**

Michael Salem
Laboratory Manager

March 2, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

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## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 2/26/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 990200377 - 001 | MR01 Outfall #001 | 990200377 - 002 | MR02 Effluent Airst. |
| 990200377 - 003 | MR03 W 10" Well | 990200377 - 004 | MR04 South Well |

## Quality Control Narrative

A "J" qualifier indicates estimated results, the value reported is below the standard laboratory reporting limit.

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-001 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | 1.7 J | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 3.1 J | 5.0 | ug/liter |

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-001 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 3.2 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 107 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 102 | (76 - 114) |
| Toluene-d8 | 109 | (88 - 110) |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-002 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-002 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 107 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 102 | (76 - 114) |
| Toluene-d8 | 107 | (88 - 110) |

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| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-003 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 93 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 14 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 260 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 770 | 5.0 | ug/liter |

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| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-003 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 260 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.8 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 101 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 102 | (76 - 114) |
| Toluene-d8 | 106 | (88 - 110) |

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|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-004 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | 44 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 5.2 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 6.4 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 17 | 5.0 | ug/liter |

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|---|---|---|---|---|---|
| **Workorder:** | 9902-00377 | **Matrix:** | Water | **Date Sampled:** | 02/25/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 007365 | **Date Received:** | 02/26/1999 |
| **EAG ID:** | 9902-00377-004 | | | **Date Prepped:** | 03/01/1999 |
| | | | | **Date Analyzed:** | 03/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 39 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 102 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 105 | (76 - 114) |
| Toluene-d8 | 100 | (88 - 110) |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 510699000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | [illegible] ug/L |
| 8-6-97 | 123' | 210 GPM | 8161000 | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7999000 | 161 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13479000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not Operational | SR | | |
| 7-23-98 | Not Operational | SR | | |
| 8/27/98 | Not Operational | SR | | |
| 9/22/98 | Not Operational | SR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not Operational | SR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | 992 ug/L |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not Operational | SR | | |
| 2-12-98 | 97' | 280 GPM | 12,982,500 | 1268 ug/L |
| 3-19-98 | Not Operational | SR | | |
| 4-29-98 | Not Operational | SR | | |
| 5-21-98 | Not Operational | SR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | 545GPM | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .15LBS. |
| 10-8-97 | 550 GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280 GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65LBS. |
| 11/30/98 | 295 GPM | 936 | 3.30LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580 GPM | N.D | 32907200 |
| 6-13-97 | 565 GPM | N.D. | 25509700 |
| 7-10-97 | 555 GPM | N.D. | 21848600 |
| 8-6-97 | 545 GPM | 7 ug/L | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7999000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510 GPM | N.D | 9524800 |
| 1-29-98 | 220 GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280 GPM | N.D. | 10,023,300 |
| 9/22/98 | 295GPM | N.D. | 6459500 |
| 10/27/98 | 470 GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475GPM | N.D. | 12228200 |
| 1/28/99 | 480 GPM | N.D. | 28904300 |
| 2/25/99 | 485GPM | N.D | 19259200 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | 4 ug/L |
| 8-6-97 | 15 ug/L |
| 9-12-97 | 28 ug/L |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.A |
| 1-15-98 | ND |
| 2-12-98 | N.A. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |

EKCO®
HOUSEWARES, INC.

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APR 21 1999

April 13, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #159**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Lawrence Boze ✓
Roy F. Weston, Inc.
West Chester, Pennsylvania

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Pat McDonald
American Home Products
Parsippany, New Jersey

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
**9903-00410**

Michael Salem
Laboratory Manager

March 29, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

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## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 3/26/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 990300410 - 001 | MR01 Outfall #001 | 990300410 - 002 | MR02 Effluent Airst. |
| 990300410 - 003 | MR03 W 10" Well | 990300410 - 004 | MR04 South Well |

## Quality Control Narrative

A "J" qualifier indicates estimated results, the value reported is below the standard laboratory reporting limit.

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

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|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-001 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 2.0 J | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 2.0 J | 5.0 | ug/liter |

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| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-001 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 2.8 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 97.7 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 99.0 | (76 - 114) |
| Toluene-d8 | 106 | (88 - 110) |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-002 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-002 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 103 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 103 | (76 - 114) |
| Toluene-d8 | 109 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-003 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 99 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 16 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 250 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 750 | 5.0 | ug/liter |

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-003 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 300 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.9 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 106 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 99.9 | (76 - 114) |
| Toluene-d8 | 108 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-004 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 4.5 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 6.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 14 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9903-00410 | **Matrix:** | Water | **Date Sampled:** | 03/25/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 008048 | **Date Received:** | 03/26/1999 |
| **EAG ID:** | 9903-00410-004 | | | **Date Prepped:** | 03/26/1999 |
| | | | | **Date Analyzed:** | 03/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 33 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 101 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 101 | (76 - 114) |
| Toluene-d8 | 106 | (88 - 110) |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 5706990000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | 75 ug/L |
| 8-6-97 | 123' | 210 GPM | 8161000 | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7999000 | 601 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not operational | | JR | |
| 7-23-98 | Not operational | | JR | |
| 8/27/98 | Not operational | | JR | |
| 9/22/98 | Not operational | | JR | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not operational | | JR | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | 992 ug/L |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | | JR | |
| 2-12-98 | 97' | 280 GPM | 12,982,500 | 1268 ug/L |
| 3-19-98 | Not operational | | JR | |
| 4-29-98 | Not operational | | JR | |
| 5-21-98 | Not operational | | JR | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | 545GPM | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .15LBS. |
| 10-8-97 | 550GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3LBS. |
| 2-12-98 | 505GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65LBS. |
| 11/30/98 | 295GPM | 936 | 3.30LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580GPM | N.D | 32907200 |
| 6-13-97 | 565GPM | N.D. | 25509700 |
| 7-10-97 | 555GPM | N.D. | 21848600 |
| 8-6-97 | 545 GPM | 7 ug/L | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7997000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510GPM | N.D | 9524800 |
| 1-29-98 | 220GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280GPM | N.D. | 10,023,300 |
| 9/22/98 | 295GPM | N.D. | 6459500 |
| 10/27/98 | 470GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475GPM | N.D. | 12228200 |
| 1/28/99 | 480GPM | N.D. | 28904300 |
| 2/25/99 | 485GPM | N.D | 19259200 |
| 3/25/99 | 485GPM | N.D. | 19565600 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | 4 ug/L |
| 8-6-97 | 15 ug/L |
| 9-12-97 | 28 ug/L |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.A |
| 1-15-98 | ND |
| 2-12-98 | N.A. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |

EKCO®
HOUSEWARES, INC.

May 13, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #160**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Pat McDonald
American Home Products
Parsippany, New Jersey

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
**9904-00401**

Michael Salem
Laboratory Manager

April 30, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

EA GROUP
Laboratories

## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 4/29/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 990400401 - 001 | MR01 Outfall #001 | 990400401 - 002 | MR02 Effluent Airst. |
| 990400401 - 003 | MR03 W 10" Well | 990400401 - 004 | MR04 South Well |

## Quality Control Narrative

A "J" qualifier indicates estimated results, the value reported is below the standard laboratory reporting limit.

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-001 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 1.7 J | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 9.4 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 4.7 J | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-001 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 5.7 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 109 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 100 | (76 - 114) |
| Toluene-d8 | 110 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-002 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 4.5 J | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 1.4 J | 5.0 | ug/liter |

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-002 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 1.2 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 106 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 97.8 | (76 - 114) |
| Toluene-d8 | 107 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-003 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 74 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 16 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 170 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 540 | 5.0 | ug/liter |

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-003 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 190 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 2.1 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 103 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 100 | (76 - 114) |
| Toluene-d8 | 110 | (88 - 110) |

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EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-004 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 46 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 3.8 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 19 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 2.5 J | 5.0 | ug/liter |

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9904-00401 | **Matrix:** | Water | **Date Sampled:** | 04/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 008802 | **Date Received:** | 04/29/1999 |
| **EAG ID:** | 9904-00401-004 | | | **Date Prepped:** | 04/29/1999 |
| | | | | **Date Analyzed:** | 04/29/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 11 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 109 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 99.3 | (76 - 114) |
| Toluene-d8 | 109 | (88 - 110) |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 5106990000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8234000 | 35 ug/L |
| 8-6-97 | 123' | 210 GPM | 8161000 | 92 ug/L |
| 9-12-97 | 122' | 310 GPM | 7999000 | 61 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not operational | JR | | |
| 7-23-98 | Not operational | JR | | |
| 8/27/98 | Not operational | JR | | |
| 9/22/98 | Not operational | JR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not operational | JR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | 992 ug/L |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | JR | | |
| 2-12-98 | 97' | 280 GPM | 12,982,500 | 1268 ug/L |
| 3-19-98 | Not operational | JR | | |
| 4-29-98 | Not operational | JR | | |
| 5-21-98 | Not operational | JR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 210 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.21BS. |
| 8-6-97 | 545GPM | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .15LBS. |
| 10-8-97 | 550 GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65LBS. |
| 11/30/98 | 295GPM | 936 | 3.30LBS. |
| 12/17/98 | 475GPM | 628 | 6.29LBS. |
| 1/28/99 | 480GPM | 648 | 6.59LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |
| 4/28/99 | 505GPM | 632 | 6.39LBS. |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545GPM | N.D | 8674000 |
| 5-13-97 | 580GPM | N.D | 32907200 |
| 6-13-97 | 565GPM | N.D. | 25509700 |
| 7-10-97 | 555GPM | N.D. | 21348600 |
| 8-6-97 | 545GPM | 7ug/L | 2122.4700 |
| 9-12-97 | 210 GPM | N.D | 7997000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510GPM | N.D | 9524800 |
| 1-29-98 | 220GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280GPM | N.D. | 10,023,300 |
| 9/22/98 | 295GPM | N.D. | 6459500 |
| 10/27/98 | 470GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5ug/L | 13446000 |
| 12/17/98 | 475GPM | N.D. | 12228200 |
| 1/28/99 | 480GPM | N.D. | 28904300 |
| 2/25/99 | 485GPM | N.D | 19259200 |
| 3/25/99 | 485GPM | N.D. | 19565600 |
| 4/28/99 | 505GPM | 7ug/L | 24014100 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27ug/L |
| 5-13-97 | 6ug/L |
| 6-13-97 | 26ug/L |
| 7-10-97 | 4ug/L |
| 8-6-97 | 15ug/L |
| 9-12-97 | 28ug/L |
| 10-8-97 | 5ug/L |
| 11-20-97 | 4ug/L |
| 12-16-97 | N.A |
| 1-15-98 | ND |
| 2-12-98 | N.A. |
| 3-19-98 | 4ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10ug/L |
| 7/23/98 | 23ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7ug/L |
| 10/27/98 | 6ug/L |
| 11/30/98 | 7ug/L |
| 12/17/98 | 9ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8ug/L |
| 3/25/99 | 7ug/L |
| 4/28/99 | 21ug/L |

EKCO®
HOUSEWARES, INC.

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18

June 15, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #161**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Pat McDonald
American Home Products
Parsippany, New Jersey

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
**9905-00359**

For Michael Salem
Laboratory Manager

June 7, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

EA GROUP
Laboratories

## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 5/28/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 990500359 - 001 | MR01 Outfall #001 | 990500359 - 002 | MR02 Effluent Airst. |
| 990500359 - 003 | MR03 W 10" Well | 990500359 - 004 | MR04 South Well |

## Quality Control Narrative

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-001 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 111 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 110 | (80 - 120) |
| Toluene-d8 | 108 | (88 - 110) |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-001 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 1.9 J | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 9.1 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 3.7 J | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 3.8 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-002 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter. |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 1.8 J | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 8.4 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | 2.1 J | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 2.4 J | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 2.1 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-002 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 108 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 108 | (80 - 120) | |
| Toluene-d8 | 108 | (88 - 110) | |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-003 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 72 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 15 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 170 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | 16 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 550 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 180 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

1003

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-003 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| | **Percent Recovery** | **Recovery Limits** | |
| **Surrogate** | | | |
| 4-Bromofluorobenzene | 110 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 109 | (80 - 120) | |
| Toluene-d8 | 106 | (88 - 110) | |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-004 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 40 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 3.0 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 42 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 1.5 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

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Laboratories

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|---|---|---|---|---|---|
| **Workorder:** | 9905-00359 | **Matrix:** | Water | **Date Sampled:** | 05/27/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 009557 | **Date Received:** | 05/28/1999 |
| **EAG ID:** | 9905-00359-004 | | | **Date Prepped:** | 06/02/1999 |
| | | | | **Date Analyzed:** | 06/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 100 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 97.9 | (80 - 120) | |
| Toluene-d8 | 99.0 | (88 - 110) | |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 51069000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | 35 ug/L |
| 8-6-97 | 123' | 210 GPM | [illegible] | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7992000 | 60 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not Operational | JR | | |
| 7-23-98 | Not Operational | JR | | |
| 8/27/98 | Not Operational | JR | | |
| 9/22/98 | Not Operational | JR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not Operational | JR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200 GPM | 8352000 | 87 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 721 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | [illegible] |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | JR | | |
| 2-12-98 | 97' | 280 GPM | 12,982,500 | 1268 ug/L |
| 3-19-98 | Not Operational | JR | | |
| 4-29-98 | Not Operational | JR | | |
| 5-21-98 | Not Operational | JR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260 GPM | 10948600 | 1003 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | 545GPM | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 161 | 1.5 LBS. |
| 10-8-97 | 550 GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65 LBS. |
| 11/30/98 | 295GPM | 936 | 3.30 LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |
| 4/28/99 | 505GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460GPM | 605 | 5.92 lbs. |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545GPM | N.D | 8674000 |
| 5-13-97 | 580GPM | N.D | 32907200 |
| 6-13-97 | 565GPM | N.D. | 25509700 |
| 7-10-97 | 555GPM | N.D. | 21848600 |
| 8-6-97 | 545 GPM | 7 ug/L | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7997000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 21 ug/L | 34084000 |
| 12-16-97 | 510GPM | N.D | 9524800 |
| 1-29-98 | 220GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280GPM | N.D. | 10,023,300 |
| 9/22/98 | 295GPM | N.D. | 6459500 |
| 10/27/98 | 470GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475GPM | N.D. | 12228200 |
| 1/28/99 | 480GPM | N.D. | 28904300 |
| 2/25/99 | 485GPM | N.D | 19259200 |
| 3/25/99 | 485GPM | N.D. | 19565600 |
| 4/28/99 | 505GPM | 7 ug/L | 24014100 |
| 5/27/99 | 460GPM | 17 ug/L | 19300600 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | 4 ug/L |
| 8-6-97 | 15 ug/L |
| 9-12-97 | 29 ug/L |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.D. |
| 1-15-98 | ND |
| 2-12-98 | N.D. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |

# EKCO®

MANUFACTURING OF OHIO, INC.

July 15, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #162**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Pat McDonald
American Home Products
Parsippany, New Jersey

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
**9907-00008**

Michael Salem
Laboratory Manager

July 2, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

EA GROUP
Laboratories

## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 7/ 1/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 990700008 - 001 | MR01 Outfall #001 | 990700008 - 002 | MR02 Effluent Airst. |
| 990700008 - 003 | MR03 W 10" Well | 990700008 - 004 | MR04 South Well |

## Quality Control Narrative

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-001 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 2.8 J | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 2.1 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-001 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 102 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 102 | (80 - 120) | |
| Toluene-d8 | 102 | (88 - 110) | |

J indicates estimated results. the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-002 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| ,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-002 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 100 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 104 | (80 - 120) | |
| Toluene-d8 | 105 | (88 - 110) | |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-003 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds: SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 75 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 15 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | 160 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 660 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 170 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.6 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-003 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 98.2 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 103 | (80 - 120) | |
| Toluene-d8 | 100 | (88 - 110) | |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-004 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds: SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 38 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 2.3 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 43 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 1.8 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00008 | **Matrix:** | Water | **Date Sampled:** | 06/30/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 010191 | **Date Received:** | 07/01/1999 |
| **EAG ID:** | 9907-00008-004 | | | **Date Prepped:** | 07/01/1999 |
| | | | | **Date Analyzed:** | 07/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | Percent Recovery | Recovery Limits | |
| 4-Bromofluorobenzene | 98.8 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 101 | (80 - 120) | |
| Toluene-d8 | 101 | (88 - 110) | |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 5106,99000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 127' | 215 GPM | [illegible] | [illegible] ug/L |
| 8-6-97 | [illegible] | [illegible] | [illegible] | [illegible] |
| 9-12-97 | 122' | 210 GPM | [illegible] | [illegible] ug/L |
| 10-8-97 | 123' | 210GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not operational | JR | | |
| 7-23-98 | Not operational | JR | | |
| 8/27/98 | Not operational | JR | | |
| 9/22/98 | Not operational | JR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not operational | JR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200 GPM | 8352000 | 87 ug/L |
| 6/30/99 | 124' | 195 GPM | 9266400 | 85 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | [illegible] | 13565200 | 721 ug/L |
| 8-6-97 | 95' | 325 GPM | 15223700 | [illegible] |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | JR | | |
| 2-12-98 | 97' | 280 GPM | 12,992,500 | 1268 ug/L |
| 3-19-98 | Not operational | JR | | |
| 4-29-98 | Not operational | JR | | |
| 5-21-98 | Not operational | JR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260 GPM | 10948600 | 1003 ug/L |
| 6/30/99 | 94' | 260 GPM | 11876000 | 1082 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545 GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580 GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565 GPM | 1001 | 11.4 LBS. |
| 7-10-97 | 555 GPM | 459 | 5.2 LBS. |
| 8-6-97 | [illegible] GPM | 645 | [illegible] LBS. |
| 9-12-97 | 210 GPM | 61 | .151 LBS. |
| 10-8-97 | 550 GPM | 592 | 7.1 LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205 GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285 GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280 GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295 GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470 GPM | 645 | 6.65 LBS. |
| 11/30/98 | 295 GPM | 936 | 3.30 LBS. |
| 12/17/98 | 475 GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS |
| 2/25/99 | 485 GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485 GPM | 856 | 8.56 LBS |
| 4/28/99 | 505 GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460 GPM | 605 | 5.92 lbs. |
| 6/30/99 | 455 GPM | 655 | 6.36 lbs |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580 GPM | N.D | 32907200 |
| 6-13-97 | 565 GPM | N.D. | 25509700 |
| 7-10-97 | 555 GPM | N.D. | 21349600 |
| 8-6-97 | 545 GPM | [illegible] | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7991000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34081000 |
| 12-16-97 | 510 GPM | N.D | 9524800 |
| 1-29-98 | 220 GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280 GPM | N.D. | 10,023,300 |
| 9/22/98 | 295 GPM | N.D. | 6459500 |
| 10/27/98 | 470 GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475 GPM | N.D. | 12228200 |
| 1/28/99 | 480 GPM | N.D. | 28904300 |
| 2/25/99 | 485 GPM | N.D | 19259200 |
| 3/25/99 | 485 GPM | N.D. | 19565600 |
| 4/28/99 | 505 GPM | 7 ug/L | 24014100 |
| 5/27/99 | 460 GPM | 17 ug/L | 19300600 |
| 6/30/99 | 455 GPM | N.D. | 21272400 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | [illegible] ug/L |
| 8-6-97 | [illegible] |
| 9-12-97 | [illegible] |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.D |
| 1-15-98 | ND |
| 2-12-98 | N.D |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |
| 6/30/99 | 5 ug/L |

EKCO®

MANUFACTURING OF OHIO, INC.

August 12, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

**EKCO HOUSEWARES, INC.**

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #163**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Matthew Basso
American Home Products
Parsippany, New Jersey

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
9907-00371

Mark J. Loeb
Laboratory Manager

August 4, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

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## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 7/29/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 990700371 - 001 | MR01 Outfall #001 | 990700371 - 002 | MR02 Effluent Airst. |
| 990700371 - 003 | MR03 W 10" Well | 990700371 - 004 | MR04 South Well |

## Quality Control Narrative

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

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| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-001 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 2.0 J | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 3.5 J | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 3.9 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-001 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 95.0 | (86 - 115) |
| 1.2-Dichloroethane-d4 | 105 | (80 - 120) |
| Toluene-d8 | 104 | (88 - 110) |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-002 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 1.9 J | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-002 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 96.0 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 107 | (80 - 120) | |
| Toluene-d8 | 104 | (88 - 110) | |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-003 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds: SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 74 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 15 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 190 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 630 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 170 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.5 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-003 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 98.0 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 106 | (80 - 120) |
| Toluene-d8 | 104 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-004 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 35 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 1.8 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 51 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 1.6 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9907-00371 | **Matrix:** | Water | **Date Sampled:** | 07/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 010853 | **Date Received:** | 07/29/1999 |
| **EAG ID:** | 9907-00371-004 | | | **Date Prepped:** | 08/01/1999 |
| | | | | **Date Analyzed:** | 08/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 97.5 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 106 | (80 - 120) | |
| Toluene-d8 | 105 | (88 - 110) | |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545 GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580 GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565 GPM | 1001 | 11.4 LBS. |
| 7-10-97 | 555 GPM | 459 | 5.2 LBS. |
| 8-6-97 | [illegible] GPM | 645 | 7.2 LBS. |
| 9-12-97 | 210 GPM | 61 | .151 LBS. |
| 10-8-97 | 550 GPM | 592 | 7.1 LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205 GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285 GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280 GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295 GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470 GPM | 645 | 6.65 LBS. |
| 11/30/98 | 295 GPM | 936 | 3.30 LBS. |
| 12/17/98 | 475 GPM | 628 | 6.29 LBS |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS |
| 2/25/99 | 485 GPM | 868 | 8.76 LBS |
| 3/25/99 | 485 GPM | 856 | 8.56 LBS |
| 4/28/99 | 505 GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460 GPM | 605 | 5.92 lbs. |
| 6/30/99 | 455 GPM | 655 | 6.36 lbs. |
| 7/28/99 | 460 GPM | 660 | 6.42 lbs. |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580 GPM | N.D | 32907200 |
| 6-13-97 | 565 GPM | N.D. | 25509700 |
| 7-10-97 | 555 GPM | N.D. | 21848600 |
| 8-6-97 | 545 GPM | 7 ug/L | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7997000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510 GPM | N.D | 9524800 |
| 1-29-98 | 220 GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280 GPM | N.D. | 10,023,300 |
| 9/22/98 | 295 GPM | N.D. | 6459500 |
| 10/27/98 | 470 GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475 GPM | N.D. | 12228200 |
| 1/28/99 | 480 GPM | N.D. | 28904300 |
| 2/25/99 | 485 GPM | N.D | 19259200 |
| 3/25/99 | 485 GPM | N.D. | 19565600 |
| 4/28/99 | 505 GPM | 7 ug/L | 24014100 |
| 5/27/99 | 460 GPM | 17 ug/L | 19300600 |
| 6/30/99 | 455 GPM | N.D. | 21242400 |
| 7/28/99 | 460 GPM | 2 ug/L | 18523300 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | 4 ug/L |
| 8-6-97 | 15 ug/L |
| 9-12-97 | 29 ug/L |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.D. |
| 1-15-98 | N.D |
| 2-12-98 | N.D. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |
| 6/30/99 | 5 ug/L |
| 7/28/99 | 9 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220GPM | 510699000 | 215 ug/L |
| 5-13-97 | 127' | 220GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215GPM | 9636000 | 231 ug/L |
| 7-11-97 | 121' | 215GPM | 8284000 | 75 ug/L |
| 8-6-97 | 123' | 210GPM | [illegible] | 92 ug/L |
| 9-12-97 | 122' | 210GPM | 7999000 | 61 ug/L |
| 10-8-97 | 123' | 210GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not operational | DR | | |
| 7-23-98 | Not operational | DR | | |
| 8/27/98 | Not operational | DR | | |
| 9/22/98 | Not operational | DR | | |
| 10/27/98 | 118' | 210GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not operational | DR | | |
| 12-17-98 | 124' | 200GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200GPM | 8352000 | 87 ug/L |
| 6/30/99 | 124' | 195GPM | 9266400 | 85 ug/L |
| 7/28/99 | 51' | 195GPM | 7862400 | 89 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 12063700 | [illegible] |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | DR | | |
| 2-12-98 | 97' | 280GPM | 12,992,500 | 1268 ug/L |
| 3-19-98 | Not operational | DR | | |
| 4-29-98 | Not operational | DR | | |
| 5-21-98 | Not operational | DR | | |
| 6-25-98 | 87' | 350GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260GPM | 10948600 | 1003 ug/L |
| 6/30/99 | 94' | 260GPM | 11876000 | 1082 ug/L |
| 7/28/99 | 81' | 265GPM | 10660900 | 1080 ug/L |

# EKCO®

MANUFACTURING OF OHIO, INC.

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SEP 17 1999

September 14, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #164**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Matthew Basso
American Home Products
Parsippany, New Jersey

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
9908-00355

Mark J. Loeb
Laboratory Manager

September 1, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

EA GROUP
Laboratories

## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 8/26/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 990800355 - 001 | MR01 Outfall #001 | 990800355 - 002 | MR02 Effluent Airst. |
| 990800355 - 003 | MR03 W 10" Well | | |

## Quality Control Narrative

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9908-00355 | **Matrix:** | Water | **Date Sampled:** | 08/26/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 011339 | **Date Received:** | 08/26/1999 |
| **EAG ID:** | 9908-00355-001 | | | **Date Prepped:** | 08/26/1999 |
| | | | | **Date Analyzed:** | 08/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 12 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 3.8 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9908-00355 | **Matrix:** | Water | **Date Sampled:** | 08/26/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 011339 | **Date Received:** | 08/26/1999 |
| **EAG ID:** | 9908-00355-001 | | | **Date Prepped:** | 08/26/1999 |
| | | | | **Date Analyzed:** | 08/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| | Percent | Recovery | |
| Surrogate | Recovery | Limits | |
| 4-Bromofluorobenzene | 97.2 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 106 | (80 - 120) | |
| Toluene-d8 | 99.6 | (88 - 110) | |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9908-00355 | **Matrix:** | Water | **Date Sampled:** | 08/26/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 011339 | **Date Received:** | 08/26/1999 |
| **EAG ID:** | 9908-00355-002 | | | **Date Prepped:** | 08/26/1999 |
| | | | | **Date Analyzed:** | 08/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9908-00355 | **Matrix:** | Water | **Date Sampled:** | 08/26/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 011339 | **Date Received:** | 08/26/1999 |
| **EAG ID:** | 9908-00355-002 | | | **Date Prepped:** | 08/26/1999 |
| | | | | **Date Analyzed:** | 08/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 98.4 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 105 | (80 - 120) |
| Toluene-d8 | 100 | (88 - 110) |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9908-00355 | **Matrix:** | Water | **Date Sampled:** | 08/26/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 011339 | **Date Received:** | 08/26/1999 |
| **EAG ID:** | 9908-00355-003 | | | **Date Prepped:** | 08/26/1999 |
| | | | | **Date Analyzed:** | 08/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 84 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 19 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 220 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 660 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 220 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.9 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9908-00355 | **Matrix:** | Water | **Date Sampled:** | 08/26/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 011339 | **Date Received:** | 08/26/1999 |
| **EAG ID:** | 9908-00355-003 | | | **Date Prepped:** | 08/26/1999 |
| | | | | **Date Analyzed:** | 08/26/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| | Percent | Recovery | |
| Surrogate | Recovery | Limits | |
| 4-Bromofluorobenzene | 97.6 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 108 | (80 - 120) | |
| Toluene-d8 | 100 | (88 - 110) | |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | [illegible] | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .151 BS. |
| 10-8-97 | 550GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65 LBS. |
| 11/30/98 | 295GPM | 936 | 3.30 LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |
| 4/28/99 | 505GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460GPM | 605 | 5.92 lbs. |
| 6/30/99 | 455GPM | 655 | 6.36 lbs. |
| 7/28/99 | 460GPM | 660 | 6.42 lbs. |
| 8/26/99 | 275GPM | 1205 | 3.93 lbs. |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545GPM | N.D | 8674000 |
| 5-13-97 | 580GPM | N.D | 32907200 |
| 6-13-97 | 565GPM | N.D. | 25509700 |
| 7-10-97 | 555GPM | N.D. | 21348600 |
| 8-6-97 | 545GPM | [illegible] | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7997000 |
| 10-8-97 | 550GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510GPM | N.D | 9524800 |
| 1-29-98 | 220GPM | N.D. | 13429000 |
| 2-12-98 | 505GPM | N.D. | 17224500 |
| 3-19-98 | 215GPM | N.D. | 10453000 |
| 4-29-98 | 215GPM | N.D. | 12598000 |
| 5-21-98 | 205GPM | N.D. | 6525000 |
| 6-25-98 | 350GPM | N.D. | 17281800 |
| 7-23-98 | 285GPM | N.D. | 10452700 |
| 8/27/98 | 280GPM | N.D. | 10,023,300 |
| 9/22/98 | 295GPM | N.D. | 6459500 |
| 10/27/98 | 470GPM | N.D. | 21590200 |
| 11/30/98 | 295GPM | 5ug/L | 13446000 |
| 12/17/98 | 475GPM | N.D. | 12228200 |
| 1/28/99 | 480GPM | N.D. | 28904300 |
| 2/25/99 | 485GPM | N.D | 19259200 |
| 3/25/99 | 485GPM | N.D. | 19565600 |
| 4/28/99 | 505GPM | 7ug/L | 24014100 |
| 5/27/99 | 460GPM | 17 ug/L | 19300600 |
| 6/30/99 | 455GPM | N.D. | 21242400 |
| 7/28/99 | 460GPM | 2 ug/L | 18523300 |
| 8/26/99 | 275GPM | N.D | 8346100 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27ug/L |
| 5-13-97 | 6ug/L |
| 6-13-97 | 26ug/L |
| 7-10-97 | [illegible] |
| 8-6-97 | [illegible] |
| 9-12-97 | [illegible] |
| 10-8-97 | 5ug/L |
| 11-20-97 | 4ug/L |
| 12-16-97 | N.D. |
| 1-15-98 | ND |
| 2-12-98 | N.D. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |
| 6/30/99 | 5 ug/L |
| 7/28/99 | 9 ug/L |
| 8/26/99 | 16 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 51069900 0 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | 75 ug/L |
| 8-6-97 | 123' | [illegible] | [illegible] | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7992000 | 61 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not Operational | SR | | |
| 7-23-98 | Not Operational | SR | | |
| 8/27/98 | Not Operational | SR | | |
| 9/22/98 | Not Operational | SR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not Operational | SR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200 GPM | 8352000 | 87 ug/L |
| 6/30/99 | 124' | 195 GPM | 9266400 | 85 ug/L |
| 7/28/99 | 51' | 195 GPM | 7862400 | 89 ug/L |
| 8/26/99 | Not Operational | SR | | |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 721 ug/L |
| 8-6-97 | 95' | 335 GPM | 13263700 | [illegible] |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not Operational | SR | | |
| 2-12-98 | 97' | 280 GPM | 12,992,500 | 1268 ug/L |
| 3-19-98 | Not Operational | SR | | |
| 4-29-98 | Not Operational | SR | | |
| 5-21-98 | Not Operational | SR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260 GPM | 10948600 | 1003 ug/L |
| 6/30/99 | 94' | 260 GPM | 11876000 | 1082 ug/L |
| 7/28/99 | 81' | 265 GPM | 10660900 | 1080 ug/L |
| 8/26/99 | 86' | 275 GPM | 8346100 | 1205 ug/L |

# EKCO®

MANUFACTURING OF OHIO, INC.

October 15, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

**EKCO HOUSEWARES, INC.**

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #165**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Matthew Basso
American Home Products
Parsippany, New Jersey

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
9910-00018

Don R. Richner, CIH
Laboratory Manager

Anthony D. Solitro
Quality Assurance Manager

October 4, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00018 | **Matrix:** | Water | **Date Sampled:** | 09/30/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 011958 | **Date Received:** | 10/01/1999 |
| **EAG ID:** | 9910-00018-001 | | | **Date Prepped:** | 10/01/1999 |
| | | | | **Date Analyzed:** | 10/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1-Dichloroethene | 1.9 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 13 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 7.3 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| inyl chloride | <1.0 | 1.0 | ug/liter |
| ylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

**Project Summary**

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

**Sample Summary**

Sample Receive Date: 10/ 1/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 991000018 - 001 | MR01 Outfall #001 | 991000018 - 002 | MR02 Effluent Airst. |
| 991000018 - 003 | MR03 W 10" Well | ~~991000018 - 004~~ | ~~MR04 South Well~~ |

Not operational 8/26/99 – 9/30/99
Restarted on 9/30/99

**Quality Control Narrative**

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00018 | **Matrix:** | Water | **Date Sampled:** | 09/30/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 011958 | **Date Received:** | 10/01/1999 |
| **EAG ID:** | 9910-00018-001 | | | **Date Prepped:** | 10/01/1999 |
| | | | | **Date Analyzed:** | 10/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 93.1 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 98.4 | (80 - 120) |
| Toluene-d8 | 99.5 | (88 - 110) |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00018 | **Matrix:** | Water | **Date Sampled:** | 09/30/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 011958 | **Date Received:** | 10/01/1999 |
| **EAG ID:** | 9910-00018-002 | | | **Date Prepped:** | 10/01/1999 |
| | | | | **Date Analyzed:** | 10/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00018 | **Matrix:** | Water | **Date Sampled:** | 09/30/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 011958 | **Date Received:** | 10/01/1999 |
| **EAG ID:** | 9910-00018-002 | | | **Date Prepped:** | 10/01/1999 |
| | | | | **Date Analyzed:** | 10/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| | Percent | Recovery | |
| Surrogate | Recovery | Limits | |
| 4-Bromofluorobenzene | 92.6 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 99.2 | (80 - 120) | |
| Toluene-d8 | 101 | (88 - 110) | |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00018 | **Matrix:** | Water | **Date Sampled:** | 09/30/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 011958 | **Date Received:** | 10/01/1999 |
| **EAG ID:** | 9910-00018-003 | | | **Date Prepped:** | 10/01/1999 |
| | | | | **Date Analyzed:** | 10/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 60 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 11 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethene (total) | 140 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 420 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 120 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.3 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00018 | **Matrix:** | Water | **Date Sampled:** | 09/30/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 011958 | **Date Received:** | 10/01/1999 |
| **EAG ID:** | 9910-00018-003 | | | **Date Prepped:** | 10/01/1999 |
| | | | | **Date Analyzed:** | 10/01/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 92.4 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 103 | (80 - 120) | |
| Toluene-d8 | 99.9 | (88 - 110) | |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | [illegible] | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .15LBS. |
| 10-8-97 | 550 GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280 GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65 LBS. |
| 11/30/98 | 295 GPM | 936 | 3.30 LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |
| 4/28/99 | 505GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460GPM | 605 | 5.92 lbs. |
| 6/30/99 | 455GPM | 655 | 6.36 lbs. |
| 7/28/99 | 460GPM | 660 | 6.42 lbs. |
| 8/26/99 | 275GPM | 1205 | 3.43 lbs. |
| 9/30/99 | 250GPM | 752 | 2.19 lbs |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580 GPM | N.D | 32907200 |
| 6-13-97 | 565 GPM | N.D. | 25509700 |
| 7-10-97 | 555 GPM | N.D. | 21349600 |
| 8-6-97 | 545 GPM | 7 ug/L | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7997000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510 GPM | N.D | 9524800 |
| 1-29-98 | 220 GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280 GPM | N.D. | 10,023,300 |
| 9/22/98 | 295 GPM | N.D. | 6459500 |
| 10/27/98 | 470 GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475 GPM | N.D. | 12228200 |
| 1/28/99 | 480 GPM | N.D. | 28904300 |
| 2/25/99 | 485 GPM | N.D | 19259200 |
| 3/25/99 | 485 GPM | N.D. | 19565600 |
| 4/28/99 | 505 GPM | 7 ug/L | 24014100 |
| 5/27/99 | 460 GPM | 17 ug/L | 19300600 |
| 6/30/99 | 455 GPM | N.D. | 21242400 |
| 7/28/99 | 460 GPM | 2 ug/L | 18523300 |
| 8/26/99 | 275 GPM | N.D | 8346100 |
| 9/30/99 | 250 GPM | N.D. | 10818100 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | 4 ug/L |
| 8-6-97 | 5 ug/L |
| 9-12-97 | 39 ug/L |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.A |
| 1-15-98 | N.D |
| 2-12-98 | N.D. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |
| 6/30/99 | 5 ug/L |
| 7/28/99 | 9 ug/L |
| 8/26/99 | 16 ug/L |
| 9/30/99 | 22 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 5106 99000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | 75 ug/L |
| 8-6-97 | 123' | 210 GPM | [illegible] | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7999000 | 161 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not Operational | JR | | |
| 7-23-98 | Not Operational | JR | | |
| 8/27/98 | Not Operational | JR | | |
| 9/22/98 | Not Operational | JR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not Operational | JR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200 GPM | 8352000 | 87 ug/L |
| 6/30/99 | 124' | 195 GPM | 9266400 | 85 ug/L |
| 7/28/99 | 51' | 195 GPM | 7862400 | 89 ug/L |
| 8/26/99 | Not Operational | JR | | |
| 9/30/99 | Not Operational | JR | | |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 12063700 | [illegible] |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not Operational | JR | | |
| 2-12-98 | 97' | 280 GPM | 12982500 | 1268 ug/L |
| 3-19-98 | Not Operational | JR | | |
| 4-29-98 | Not Operational | JR | | |
| 5-21-98 | Not Operational | JR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260 GPM | 10948600 | 1003 ug/L |
| 6/30/99 | 94' | 260 GPM | 11876000 | 1082 ug/L |
| 7/28/99 | 81' | 265 GPM | 10660900 | 1080 ug/L |
| 8/26/99 | 86' | 275 GPM | 8346100 | 1205 ug/L |
| 9/30/99 | 90' | 250 GPM | 10818100 | 752 ug/L |

# EKCO®

MANUFACTURING OF OHIO, INC.

RECEIVED 18 1999

November 15, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Jeffrey L. Burman
Process Engineering Manager

Enclosures
JLB/baz

**Report #166**

cc: Paul Tag, Plant Manager
Ekco Housewares, Inc.
Massillon, Ohio

Lawrence Boze
Roy F. Weston, Inc.
West Chester, Pennsylvania

Daniel Schiltz
Ohio Air Pollution Division
Canton, Ohio

Robert D. Smith
U.S. Environmental Protection Agency
Chicago, Illinois

Matthew Basso
American Home Products
Parsippany, New Jersey

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
9910-00412

Donald R. Richner, CIH
Laboratory Manager

November 5, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

EA GROUP
Laboratories

**Project Summary**

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

**Sample Summary**

Sample Receive Date: 10/29/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 991000412 - 001 | MR01 Outfall #001 | 991000412 - 002 | MR02 Effluent Airst. |
| 991000412 - 003 | MR03 W 10" Well | 991000412 - 004 | MR04 South Well |

**Quality Control Narrative**

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00412 | **Matrix:** | Water | **Date Sampled:** | 10/28/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 012600 | **Date Received:** | 10/29/1999 |
| **EAG ID:** | 9910-00412-001 | | | **Date Prepped:** | 11/02/1999 |
| | | | | **Date Analyzed:** | 11/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 3.9 J | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 3.1 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00412 | **Matrix:** | Water | **Date Sampled:** | 10/28/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 012600 | **Date Received:** | 10/29/1999 |
| **EAG ID:** | 9910-00412-003 | | | **Date Prepped:** | 11/02/1999 |
| | | | | **Date Analyzed:** | 11/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 57 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 11 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | 120 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 460 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 110 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | 1.4 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00412 | **Matrix:** | Water | **Date Sampled:** | 10/28/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 012600 | **Date Received:** | 10/29/1999 |
| **EAG ID:** | 9910-00412-001 | | | **Date Prepped:** | 11/02/1999 |
| | | | | **Date Analyzed:** | 11/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 95.6 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 101 | (80 - 120) | |
| Toluene-d8 | 97.7 | (88 - 110) | |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00412 | **Matrix:** | Water | **Date Sampled:** | 10/28/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 012600 | **Date Received:** | 10/29/1999 |
| **EAG ID:** | 9910-00412-002 | | | **Date Prepped:** | 11/02/1999 |
| | | | | **Date Analyzed:** | 11/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | | |
|---|---|---|---|---|---|---|
| rder: | 9910-00412 | Matrix: | Water | Date Sampled: | 10/28/1999 | /28/1999 |
| ID: | MR02 Effluent Airst. | QC Batch: | 012600 | Date Received: | 10/29/1999 | /29/1999 |
| D: | 9910-00412-002 | | | Date Prepped: | 11/02/1999 | /02/1999 |
| | | | | Date Analyzed: | 11/02/1999 | /02/1999 |

| | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| | Percent Recovery | Recovery Limits | |
| uorobenzene | 94.7 | (86 - 115) | |
| roethane-d4 | 98.9 | (80 - 120) | |
| 3 | 97.4 | (88 - 110) | |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00412 | **Matrix:** | Water | **Date Sampled:** | 10/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 012600 | **Date Received:** | 10/29/1999 |
| **EAG ID:** | 9910-00412-004 | | | **Date Prepped:** | 11/02/1999 |
| | | | | **Date Analyzed:** | 11/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 36 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 4.2 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | 5.9 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 12 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 28 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9910-00412 | **Matrix:** | Water | **Date Sampled:** | 10/28/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 012600 | **Date Received:** | 10/29/1999 |
| **EAG ID:** | 9910-00412-004 | | | **Date Prepped:** | 11/02/1999 |
| | | | | **Date Analyzed:** | 11/02/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 91.9 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 100 | (80 - 120) |
| Toluene-d8 | 96.5 | (88 - 110) |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | 545GPM | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .15LBS. |
| 10-8-97 | 550GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65LBS. |
| 11/30/98 | 295GPM | 936 | 3.30LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |
| 4/28/99 | 505GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460 GPM | 605 | 5.92 lbs. |
| 6/30/99 | 455GPM | 655 | 6.36 lbs |
| 7/28/99 | 460GPM | 660 | 6.42 lbs. |
| 8/26/99 | 275GPM | 1205 | 3.93 lbs. |
| 9/30/99 | 250GPM | 752 | 2.19 lbs |
| 10/28/99 | 430GPM | 462 | 4.33 lbs. |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580GPM | N.D | 32907200 |
| 6-13-97 | 565GPM | N.D. | 25509700 |
| 7-10-97 | 555GPM | N.D. | 21848600 |
| 8-6-97 | 545 GPM | 7 ug/L | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7999000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34081000 |
| 12-16-97 | 510GPM | N.D | 9524800 |
| 1-29-98 | 220GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280GPM | N.D. | 10,023,300 |
| 9/22/98 | 295GPM | N.D. | 6459500 |
| 10/27/98 | 470GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475GPM | N.D. | 12228200 |
| 1/28/99 | 480GPM | N.D. | 28904300 |
| 2/25/99 | 485GPM | N.D | 19259200 |
| 3/25/99 | 485GPM | N.D. | 19565600 |
| 4/28/99 | 505GPM | 7 ug/L | 24014100 |
| 5/27/99 | 460GPM | 17 ug/L | 19300600 |
| 6/30/99 | 455 GPM | N.D. | 21242400 |
| 7/28/99 | 460GPM | 2 ug/L | 18523300 |
| 8/26/99 | 275GPM | N.D | 8346100 |
| 9/30/99 | 250GPM | N.D. | 10818100 |
| 10/28/99 | 430GPM | N.D | 17031100 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27ug/L |
| 5-13-97 | 6ug/L |
| 6-13-97 | 26ug/L |
| 7-10-97 | 4ug/L |
| 8-6-97 | 15ug/L |
| 9-12-97 | 28ug/L |
| 10-8-97 | 5ug/L |
| 11-20-97 | 4ug/L |
| 12-16-97 | N.D. |
| 1-15-98 | ND |
| 2-12-98 | N.D. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |
| 6/30/99 | 5 ug/L |
| 7/28/99 | 9 ug/L |
| 8/26/99 | 16 ug/L |
| 9/30/99 | 22 ug/L |
| 10/28/99 | 7 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 510699000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | [illegible] ug/L |
| 8-6-97 | 123' | [illegible] GPM | [illegible] | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7999000 | 601 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not operational | JR | | |
| 7-23-98 | Not operational | JR | | |
| 8/27/98 | Not operational | JR | | |
| 9/22/98 | Not operational | JR | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not operational | JR | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200 GPM | 8352000 | 87 ug/L |
| 6/30/99 | 124' | 195 GPM | 9266400 | 85 ug/L |
| 7/28/99 | 51' | 195 GPM | 7862400 | 89 ug/L |
| 8/26/99 | Not operational | JR | | |
| 9/30/99 | Not operational | JR | | |
| 10/28/99 | 126' | 190 GPM | 7660800 | 86 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20476200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | [illegible] ug/L |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | JR | | |
| 2-12-98 | 97' | 280 GPM | 12,992,500 | 1268 ug/L |
| 3-19-98 | Not operational | JR | | |
| 4-29-98 | Not operational | JR | | |
| 5-21-98 | Not operational | JR | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260 GPM | 10948600 | 1003 ug/L |
| 6/30/99 | 94' | 260 GPM | 11876000 | 1082 ug/L |
| 7/28/99 | 81' | 265 GPM | 10660900 | 1080 ug/L |
| 8/26/99 | 86' | 275 GPM | 8346100 | 1205 ug/L |
| 9/30/99 | 90' | 250 GPM | 10818100 | 752 ug/L |
| 10/28/99 | 92' | 240 GPM | 9370300 | 759 ug/L |

EKCO®
MANUFACTURING OF OHIO, INC.

RECEIVED
16

December 14, 1999

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Paul L. Tag
Plant Manager

Enclosures
JLB/baz

**Report #167**

cc: Paul Tag
Ekco Manufacturing of Ohio

Lawrence Boze
Roy F. Weston, Inc.

Daniel Schiltz
Ohio Air Pollution Div.

Nik Mukhopadhyay
CRA Services

Robert Smith
U. S. Environmental Protection Agency

Matthew Basso
American Home Products

Gene Gano
CCPC

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP

Laboratories

# Laboratory Analytical Report

**Ekco Housewares**

359 State Ave NW

Massillon, OH 44648

Attention:
John Russell

**Project Identification**

Sample Analysis

**Purchase Order:**
26920

**EA Group**
**Order Number**
9911-00323

Donald R. Richner

Donald R. Richner, CIH

Laboratory Manager

November 29, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

*Formerly Electro-Analytical Group*

EA GROUP

Laboratories

## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 11/24/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 991100323 - 001 | MR01 Outfall #001 | 991100323 - 002 | MR02 Effluent Airst. |
| 991100323 - 003 | MR03 W 10" Well | 991100323 - 004 | MR04 South Well |

## Quality Control Narrative

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-001 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 3.7 J | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 2.8 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-001 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|

| Surrogate | Percent Recovery | Recovery Limits |
|---|---|---|
| 4-Bromofluorobenzene | 91.9 | (86 - 115) |
| 1,2-Dichloroethane-d4 | 99.5 | (80 - 120) |
| Toluene-d8 | 94.9 | (88 - 110) |

J indicates estimated results, the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-002 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-002 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 93.9 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 99.1 | (80 - 120) | |
| Toluene-d8 | 96.7 | (88 - 110) | |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-003 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds: SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1-Dichloroethane | 51 | 5.0 | ug/liter |
| 2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 9.6 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | 120 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 460 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 120 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| inyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-003 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 92.1 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 98.8 | (80 - 120) | |
| Toluene-d8 | 101 | (88 - 110) | |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-004 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 41 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 4.8 J | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | 6.5 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 14 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 32 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9911-00323 | **Matrix:** | Water | **Date Sampled:** | 11/23/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 013137 | **Date Received:** | 11/24/1999 |
| **EAG ID:** | 9911-00323-004 | | | **Date Prepped:** | 11/24/1999 |
| | | | | **Date Analyzed:** | 11/24/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| | Percent | Recovery | |
| Surrogate | Recovery | Limits | |
| 4-Bromofluorobenzene | 95.2 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 99.2 | (80 - 120) | |
| Toluene-d8 | 97.6 | (88 - 110) | |

J indicates estimated results. the value reported is below the standard laboratory reporting limit.

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | 545GPM | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .15LBS. |
| 10-8-97 | 550GPM | 592 | 7.1LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280 GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65 LBS. |
| 11/30/98 | 295GPM | 936 | 3.30 LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |
| 4/28/99 | 505GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460 GPM | 605 | 5.92 lbs. |
| 6/30/99 | 455GPM | 655 | 6.36 lbs. |
| 7/28/99 | 460GPM | 660 | 6.42 lbs. |
| 8/26/99 | 275GPM | 1205 | 3.93 lbs. |
| 9/30/99 | 250GPM | 752 | 2.19 lbs |
| 10/28/99 | 430GPM | 462 | 4.33 lbs. |
| 11/23/99 | 435GPM | 461 | 4.43 lbs. |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580GPM | N.D | 32907200 |
| 6-13-97 | 565GPM | N.D. | 25509700 |
| 7-10-97 | 555GPM | N.D. | 21848600 |
| 8-6-97 | 545 GPM | 7.15 ug/L | 21224700 |
| 9-12-97 | 210 GPM | N.D | 7997000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510GPM | N.D | 9524800 |
| 1-29-98 | 220GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280GPM | N.D. | 10,023,300 |
| 9/22/98 | 295GPM | N.D. | 6459500 |
| 10/27/98 | 470GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475GPM | N.D. | 12228200 |
| 1/28/99 | 480GPM | N.D. | 28904300 |
| 2/25/99 | 485GPM | N.D | 19259200 |
| 3/25/99 | 485GPM | N.D. | 19565600 |
| 4/28/99 | 505GPM | 7 ug/L | 24014100 |
| 5/27/99 | 460GPM | 17 ug/L | 19300600 |
| 6/30/99 | 455GPM | N.D. | 21242400 |
| 7/28/99 | 460GPM | 2 ug/L | 18523300 |
| 8/26/99 | 275GPM | N.D | 8346100 |
| 9/30/99 | 250GPM | N.D. | 10818100 |
| 10/28/99 | 430GPM | N.D | 17031100 |
| 11/23/99 | 435GPM | N.D. | 16,148300 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | 4 ug/L |
| 8-6-97 | 15 ug/L |
| 9-12-97 | 28 ug/L |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.A |
| 1-15-98 | ND |
| 2-12-98 | N.A. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |
| 6/30/99 | 5 ug/L |
| 7/28/99 | 9 ug/L |
| 8/26/99 | 16 ug/L |
| 9/30/99 | 22 ug/L |
| 10/28/99 | 7 ug/L |
| 11/23/99 | 6 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 51069000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | 75 ug/L |
| 8-6-97 | 123' | 212 GPM | 8131220 | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7998000 | 601 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not Operational | | | |
| 7-23-98 | Not Operational | | | |
| 8/27/98 | Not Operational | | | |
| 9/22/98 | Not Operational | | | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not Operational | | | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200 GPM | 8352000 | 87 ug/L |
| 6/30/99 | 124' | 195 GPM | 9266400 | 85 ug/L |
| 7/28/99 | 51' | 195 GPM | 7862400 | 89 ug/L |
| 8/26/99 | Not Operational | | | |
| 9/30/99 | Not Operational | | | |
| 10/28/99 | 126' | 190 GPM | 7660800 | 86 ug/L |
| 11/23/99 | 123' | 195 GPM | 7300800 | 93 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | 9[illegible] ug/L |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not Operational | | | |
| 2-12-98 | 97' | 280 GPM | 12,982,500 | 1268 ug/L |
| 3-19-98 | Not Operational | | | |
| 4-29-98 | Not Operational | | | |
| 5-21-98 | Not Operational | | | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 210 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260 GPM | 10948600 | 1003 ug/L |
| 6/30/99 | 94' | 260 GPM | 11876000 | 1082 ug/L |
| 7/28/99 | 81' | 265 GPM | 10660900 | 1080 ug/L |
| 8/26/99 | 86' | 275 GPM | 8346100 | 1205 ug/L |
| 9/30/99 | 90' | 250 GPM | 10818100 | 752 ug/L |
| 10/28/99 | 92' | 240 GPM | 9370300 | 759 ug/L |
| 11/23/99 | 90' | 240 GPM | 8847500 | 761 ug/L |

# EKCO®

MANUFACTURING OF OHIO, INC.

JAN 14 2000

January 12, 2000

Mr. Dennis Lee
Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087

Dear Mr. Lee:

Enclosed please find Ekco Housewares, Inc. Groundwater Reclamation Project Report. This report is complete and includes actual analysis from EA Group Laboratories, Inc.

Sincerely,

EKCO HOUSEWARES, INC.

Paul L. Tag
Plant Manager

Enclosures
JLB/baz

**Report #168**

cc: Paul Tag
Ekco Manufacturing of Ohio

Lawrence Boze
Roy F. Weston, Inc.

Daniel Schiltz
Ohio Air Pollution Div.

Nik Mukhopadhyay
CRA Services

Robert Smith
U. S. Environmental Protection Agency

Matthew Basso
American Home Products

Gene Gano
CCPC

P.O. Box 560 • Massillon, Ohio 44648-0560 • 330/832-5026

EA GROUP
Laboratories

# Laboratory Analytical Report

**Ekco Housewares**
359 State Ave NW
Massillon, OH 44648

Attention:
John Russell

**Project Identification**
Sample Analysis

**Purchase Order:**

**EA Group**
**Order Number**
9912-00214

Donald R. Richner, CIH
Laboratory Manager

December 17, 1999

7118 Industrial Park Blvd. * Mentor, Ohio 44060-5314 * (440) 951-3514 * (800) 875-3514 * FAX (440) 951-3774

EA GROUP
Laboratories

## Project Summary

The following analytical report contains the results as requested for samples submitted to EA Group. The results included in this report have been reviewed for compliance with the analytical methods indicated in this report. All data have been found to be compliant with accepted laboratory protocol. Exceptions, if any, are noted below. Analytes appearing in bold type were analyzed at a subcontract facility.

## Sample Summary

Sample Receive Date: 12/14/99

| EAG Sample Identification | Client Sample Identification | EAG Sample Identification | Client Sample Identification |
|---|---|---|---|
| 991200214 - 001 | MR01 Outfall #001 | 991200214 - 002 | MR02 Effluent Airst. |
| 991200214 - 003 | MR03 W 10" Well | 991200214 - 004 | MR04 South Well |

## Quality Control Narrative

Reproduction of this report is prohibited except in its entirety. Unless noted, soil, sludge, and sediment results are reported on dry weight basis. The "Sample Reporting Limit" is based on the method used for analysis and does not refer to any regulatory limit.

EA GROUP
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| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-001 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds: SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | 2.1 J | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 2.4 J | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 3.2 J | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR01 Outfall #001 | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-001 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 94.4 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 101 | (80 - 120) | |
| Toluene-d8 | 93.9 | (88 - 110) | |

J indicates estimated results. the value reported is below the standard laboratory reporting limit.

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-002 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | <5.0 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | <5.0 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR02 Effluent Airst. | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-002 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 93.6 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 98.7 | (80 - 120) | |
| Toluene-d8 | 92.0 | (88 - 110) | |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-003 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 50 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 5.9 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | 32 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 21 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 31 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR03 W 10" Well | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-003 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 95.0 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 97.8 | (80 - 120) | |
| Toluene-d8 | 93.3 | (88 - 110) | |

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Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-004 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| Volatile Organic Compounds; SW846 8260 | | | |
| Acetone | <25 | 25 | ug/liter |
| Acrolein | <25 | 25 | ug/liter |
| Acrylonitrile | <25 | 25 | ug/liter |
| Benzene | <5.0 | 5.0 | ug/liter |
| Bromochloromethane | <5.0 | 5.0 | ug/liter |
| Bromodichloromethane | <5.0 | 5.0 | ug/liter |
| Bromoform | <5.0 | 5.0 | ug/liter |
| Bromomethane | <5.0 | 5.0 | ug/liter |
| Carbon disulfide | <5.0 | 5.0 | ug/liter |
| Carbon tetrachloride | <5.0 | 5.0 | ug/liter |
| Chlorobenzene | <5.0 | 5.0 | ug/liter |
| Chloroethane | <5.0 | 5.0 | ug/liter |
| Chloroform | <5.0 | 5.0 | ug/liter |
| Chloromethane | <5.0 | 5.0 | ug/liter |
| Dibromochloromethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethane | 45 | 5.0 | ug/liter |
| 1,2-Dichloroethane | <5.0 | 5.0 | ug/liter |
| 1,1-Dichloroethene | 5.2 | 5.0 | ug/liter |
| 1,2-Dichloropropane | <5.0 | 5.0 | ug/liter |
| cis-1,2-Dichloroethene | 7.5 | 5.0 | ug/liter |
| trans-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| trans-1,2-Dichloroethene | <5.0 | 5.0 | ug/liter |
| cis-1,3-Dichloropropene | <5.0 | 5.0 | ug/liter |
| Ethylbenzene | <5.0 | 5.0 | ug/liter |
| 2-Hexanone | <25 | 25 | ug/liter |
| n-Hexane | <5.0 | 5.0 | ug/liter |
| Methylene chloride | <5.0 | 5.0 | ug/liter |
| Methyl ethyl ketone(2-butanone) | <25 | 25 | ug/liter |
| Methyl methacrylate | <5.0 | 5.0 | ug/liter |
| 4-Methyl-2-pentanone | <25 | 25 | ug/liter |
| 2-Nitropropane | <5.0 | 5.0 | ug/liter |
| Pentachloroethane | <5.0 | 5.0 | ug/liter |
| Propionitrile | <5.0 | 5.0 | ug/liter |
| Styrene | <5.0 | 5.0 | ug/liter |
| 1,1,1,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| 1,1,2,2-Tetrachloroethane | <5.0 | 5.0 | ug/liter |
| Tetrachloroethene | <5.0 | 5.0 | ug/liter |
| Toluene | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trichlorobenzene | <5.0 | 5.0 | ug/liter |
| 1,1,1-Trichloroethane | 16 | 5.0 | ug/liter |
| 1,1,2-Trichloroethane | <5.0 | 5.0 | ug/liter |
| Trichloroethene | 36 | 5.0 | ug/liter |
| Trichlorofluoromethane | <5.0 | 5.0 | ug/liter |
| 1,2,3-Trichloropropane | <5.0 | 5.0 | ug/liter |
| Trichlorotrifluoroethane | <5.0 | 5.0 | ug/liter |
| 1,2,4-Trimethylbenzene | <5.0 | 5.0 | ug/liter |
| Vinyl acetate | <5.0 | 5.0 | ug/liter |
| Vinyl chloride | <1.0 | 1.0 | ug/liter |
| Xylenes (total) | <5.0 | 5.0 | ug/liter |

EA GROUP
Laboratories

| | | | | | |
|---|---|---|---|---|---|
| **Workorder:** | 9912-00214 | **Matrix:** | Water | **Date Sampled:** | 12/14/1999 |
| **Client ID:** | MR04 South Well | **QC Batch:** | 013576 | **Date Received:** | 12/14/1999 |
| **EAG ID:** | 9912-00214-004 | | | **Date Prepped:** | 12/15/1999 |
| | | | | **Date Analyzed:** | 12/15/1999 |

| Parameter | Result | Sample Reporting Limit | Units |
|---|---|---|---|
| **Surrogate** | **Percent Recovery** | **Recovery Limits** | |
| 4-Bromofluorobenzene | 95.6 | (86 - 115) | |
| 1,2-Dichloroethane-d4 | 97.8 | (80 - 120) | |
| Toluene-d8 | 92.6 | (88 - 110) | |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| Influent To Air Stripper Sample | Pumping Rate at Time of Sample | South Well W-10" Well Analysis (Weight Avg) | Total Weight of VOC's To Atmosphere |
|---|---|---|---|
| 4-3-97 | 545GPM | 1840 | 21.5 LBS |
| 5-13-97 | 580GPM | 611 | 7.1 LBS. |
| 6-13-97 | 565GPM | 1001 | 11.4LBS. |
| 7-10-97 | 555GPM | 459 | 5.2 LBS. |
| 8-6-97 | 545GPM | 645 | 7.0 LBS. |
| 9-12-97 | 210 GPM | 61 | .15 LBS. |
| 10-8-97 | 550 GPM | 592 | 7.1 LBS. |
| 11-20-97 | 550 GPM | 605 | 7.3 LBS. |
| 12-16-97 | 510 GPM | 600 | 6.4 LBS. |
| 1-29-98 | 220 GPM | 115 | 0.3 LBS. |
| 2-12-98 | 505 GPM | 745 | 8.3 LBS. |
| 3-19-98 | 215 GPM | 142 | 0.4 LBS. |
| 4-29-98 | 215 GPM | 207 | 0.5 LBS. |
| 5-21-98 | 205GPM | 164 | 0.4 LBS. |
| 6-25-98 | 350 GPM | 877 | 3.65 lbs. |
| 7/23/98 | 285GPM | 968 | 3.24 LBS. |
| 8/27/98 | 280GPM | 1118 | 3.76 LBS |
| 9/22/98 | 295GPM | 1179 | 4.16 LBS. |
| 10/27/98 | 470GPM | 645 | 6.65 LBS. |
| 11/30/98 | 295GPM | 936 | 3.30 LBS. |
| 12/17/98 | 475GPM | 628 | 6.29 LBS. |
| 1/28/99 | 480 GPM | 648 | 6.59 LBS. |
| 2/25/99 | 485GPM | 868 | 8.76 LBS. |
| 3/25/99 | 485GPM | 856 | 8.56 LBS |
| 4/28/99 | 505GPM | 632 | 6.39 LBS. |
| 5/27/99 | 460 GPM | 605 | 5.92 lbs. |
| 6/30/99 | 455GPM | 655 | 6.36 lbs. |
| 7/28/99 | 460GPM | 660 | 6.42 lbs. |
| 8/26/99 | 275GPM | 1205 | 3.93 lbs. |
| 9/30/99 | 250GPM | 752 | 2.19 lbs |
| 10/28/99 | 430GPM | 462 | 4.33 lbs. |
| 11/23/99 | 435GPM | 461 | 4.43 lbs |
| 12/14/99 | 435GPM | 127 | 1.26 lbs |

| Effluent From Air Stripper Samples | Pumping Rate at Time of Sample | Sample Analysis (ug/L) | Total Gal. of Water Treated to Date |
|---|---|---|---|
| 4-3-97 | 545 GPM | N.D | 8674000 |
| 5-13-97 | 580 GPM | N.D | 32907200 |
| 6-13-97 | 565 GPM | N.D. | 25509700 |
| 7-10-97 | 555 GPM | N.D. | 21848600 |
| 8-6-97 | 545 GPM | 7 ug/L | 2122.4700 |
| 9-12-97 | 210 GPM | N.D | 7999000 |
| 10-8-97 | 550 GPM | N.D | 23707000 |
| 11-20-97 | 550 GPM | 2 ug/L | 34084000 |
| 12-16-97 | 510 GPM | N.D | 9524800 |
| 1-29-98 | 220 GPM | N.D. | 13429000 |
| 2-12-98 | 505 GPM | N.D. | 17224500 |
| 3-19-98 | 215 GPM | N.D. | 10453000 |
| 4-29-98 | 215 GPM | N.D. | 12598000 |
| 5-21-98 | 205 GPM | N.D. | 6525000 |
| 6-25-98 | 350 GPM | N.D. | 17281800 |
| 7-23-98 | 285 GPM | N.D. | 10452700 |
| 8/27/98 | 280 GPM | N.D. | 10,023,300 |
| 9/22/98 | 295 GPM | N.D. | 6459500 |
| 10/27/98 | 470 GPM | N.D. | 21590200 |
| 11/30/98 | 295 GPM | 5 ug/L | 13446000 |
| 12/17/98 | 475 GPM | N.D. | 12228200 |
| 1/28/99 | 480 GPM | N.D. | 28904300 |
| 2/25/99 | 485 GPM | N.D | 19259200 |
| 3/25/99 | 485 GPM | N.D. | 19565600 |
| 4/28/99 | 505 GPM | 7 ug/L | 24014100 |
| 5/27/99 | 460 GPM | 17 ug/L | 19300600 |
| 6/30/99 | 455 GPM | N.D. | 21242400 |
| 7/28/99 | 460 GPM | 2 ug/L | 18523300 |
| 8/26/99 | 275 GPM | N.D | 8346100 |
| 9/30/99 | 250 GPM | N.D. | 10818100 |
| 10/28/99 | 430 GPM | N.D | 17031100 |
| 11/23/99 | 435 GPM | N.D. | 16148300 |
| 12/14/99 | 435 GPM | N.D. | 9577600 |

| Outfall #001 Discharge Sample | Sample Analysis (ug/L) |
|---|---|
| 4-3-97 | 27 ug/L |
| 5-13-97 | 6 ug/L |
| 6-13-97 | 26 ug/L |
| 7-10-97 | 4 ug/L |
| 8-6-97 | 15 ug/L |
| 9-12-97 | 28 ug/L |
| 10-8-97 | 5 ug/L |
| 11-20-97 | 4 ug/L |
| 12-16-97 | N.A |
| 1-15-98 | ND |
| 2-12-98 | N.A. |
| 3-19-98 | 4 ug/L |
| 4-29-98 | N.D. |
| 5-21-98 | ND |
| 6-25-98 | 10 ug/L |
| 7/23/98 | 23 ug/L |
| 8/27/98 | Flooded |
| 9/22/98 | 7 ug/L |
| 10/27/98 | 6 ug/L |
| 11/30/98 | 7 ug/L |
| 12/17/98 | 9 ug/L |
| 1/28/99 | Flooded |
| 2/25/99 | 8 ug/L |
| 3/25/99 | 7 ug/L |
| 4/28/99 | 21 ug/L |
| 5/27/99 | 19 ug/L |
| 6/30/99 | 5 ug/L |
| 7/28/99 | 9 ug/L |
| 8/26/99 | 16 ug/L |
| 9/30/99 | 22 ug/L |
| 10/28/99 | 7 ug/L |
| 11/23/99 | 6 ug/L |
| 12/14/99 | 8 ug/L |

# SAMPLE ANALYSIS LOG FOR EKCO HOUSEWARES, INC.-MASSILLON, OHIO

| South Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 127' | 220 GPM | 5106990000 | 215 ug/L |
| 5-13-97 | 127' | 220 GPM | 12481000 | 101 ug/L |
| 6-13-97 | 122' | 215 GPM | 9636000 | 231 ug/L |
| 7-10-97 | 121' | 215 GPM | 8284000 | [illegible] ug/L |
| 8-6-97 | 123' | 212 GPM | [illegible] | 92 ug/L |
| 9-12-97 | 122' | 210 GPM | 7999000 | 61 ug/L |
| 10-8-97 | 123' | 210 GPM | 7854000 | 314 ug/L |
| 11-20-97 | 122' | 210 GPM | 13,032,000 | 108 ug/L |
| 12-16-97 | 124' | 210 GPM | 7688000 | 105 ug/L |
| 1-29-98 | 104' | 220 GPM | 13429000 | 115 ug/L |
| 2-12-98 | 117 | 225 GPM | 4232000 | 94 ug/L |
| 3-19-98 | 102' | 215 GPM | 10453000 | 142 ug/L |
| 4-29-98 | 101' | 215 GPM | 12598000 | 207 ug/L |
| 5-21-98 | 117' | 205 GPM | 6525000 | 164 ug/L |
| 6-25-98 | Not operational | | JR | |
| 7-23-98 | Not operational | | JR | |
| 8/27/98 | Not operational | | JR | |
| 9/22/98 | Not operational | | JR | |
| 10/27/98 | 118' | 210 GPM | 8628000 | 91 ug/L |
| 11-30-98 | Not operational | | JR | |
| 12-17-98 | 124' | 200 GPM | 5274000 | 99 ug/L |
| 1/28/99 | 121' | 200 GPM | 12230000 | 107 ug/L |
| 2/25/99 | 123' | 200 GPM | 8062000 | 112 ug/L |
| 3/25/99 | 122' | 200 GPM | 8038000 | 57 ug/L |
| 4/28/99 | 120' | 200 GPM | 9504000 | 82 ug/L |
| 5/27/99 | 120' | 200 GPM | 8352000 | 87 ug/L |
| 6/30/99 | 124' | 195 GPM | 9266400 | 85 ug/L |
| 7/28/99 | 51' | 195 GPM | 7.862400 | 89 ug/L |
| 8/26/99 | Not | Operational | JR | |
| 9/30/99 | Not | Operational | JR | |
| 10/28/99 | 126' | 190 GPM | 7660800 | 86 ug/L |
| 11/23/99 | 123' | 195 GPM | 7300800 | 93 ug/L |
| 12/14/99 | 113' | 195 GPM | 4773600 | 110 ug/L |

| W-10" Well Samples | Water Level at Sample | Pumping Rate at Sample | Total Gal. of Water Treated | Sample Analysis (ug/L) |
|---|---|---|---|---|
| 4-3-97 | 96' | 325 GPM | 8003300 | 2940 ug/L |
| 5-13-97 | 96' | 360 GPM | 20426200 | 922 ug/L |
| 6-13-97 | 93' | 350 GPM | 15873700 | 1474 ug/L |
| 7-10-97 | 93' | 340 GPM | 13564600 | 701 ug/L |
| 8-6-97 | 95' | 335 GPM | 13063700 | [illegible] ug/L |
| 9-12-97 | WELL NOT OPERATIONAL | | | |
| 10-8-97 | 93' | 340 GPM | 15853000 | 763 ug/L |
| 11-20-97 | 96' | 340 GPM | 21,052,000 | 913 ug/L |
| 12-16-97 | 99' | 300 GPM | 1836800 | 946 ug/L |
| 1-29-98 | Not operational | | JR | |
| 2-12-98 | 97' | 280 GPM | 12,982,500 | 1268 ug/L |
| 3-19-98 | Not operational | | JR | |
| 4-29-98 | Not operational | | JR | |
| 5-21-98 | Not operational | | JR | |
| 6-25-98 | 87' | 350 GPM | 17,281,800 | 877 ug/L |
| 7-23-98 | 94' | 285 GPM | 10,452,700 | 968 ug/L |
| 8/27/98 | 92' | 280 GPM | 10,023,300 | 1118 ug/L |
| 9/22/98 | 92' | 295 GPM | 6459500 | 1179 ug/L |
| 10/27/98 | 98' | 260 GPM | 12962200 | 1092 ug/L |
| 11-30-98 | 96' | 295 GPM | 13446000 | 936 ug/L |
| 12-17-98 | 94' | 275 GPM | 6954200 | 1012 ug/L |
| 1/28/99 | 92' | 280 GPM | 16674300 | 1035 ug/L |
| 2/25/99 | 93' | 285 GPM | 11197200 | 1399 ug/L |
| 3/25/99 | 93' | 285 GPM | 11527600 | 1417 ug/L |
| 4/28/99 | 92' | 305 GPM | 14510100 | 992 ug/L |
| 5/27/99 | 91' | 260 GPM | 10948600 | 1003 ug/L |
| 6/30/99 | 94' | 260 GPM | 11876000 | 1082 ug/L |
| 7/28/99 | 81' | 265 GPM | 10660900 | 1080 ug/L |
| 8/26/99 | 86' | 275 GPM | 8346100 | 1205 ug/L |
| 9/30/99 | 90' | 250 GPM | 10818100 | 752 ug/L |
| 10/28/99 | 92' | 240 GPM | 9370300 | 759 ug/L |
| 11/23/99 | 90' | 240 GPM | 8847500 | 761 ug/L |
| * 12/14/99 | 87' | 240 GPM | 4804000 | 140 ug/L |

The Flow Summary Table shown below and the attached calculations verify that the basin outflow rates are less than the computer preconstruction peak runoff rates.

FLOW SUMMARY TABLE

| STORM EVENT | PRECONSTRUCTION FLOW RATE (cfs) | BASIN OUTFLOW RATE (cfs) |
|---|---|---|
| 2-year | 5.0 | 3.9 |
| 10-year | 11.0 | 9.9 |

**Calculations**

Please see attached.