Department of Environmental Conservation
Division of Environmental Remediation
Room 248

Trends of Groundwater Samples Monitored from Primoshield, Inc., Project # 633027

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TABLE OF CONTENTS

Introduction:

Primoshield, Inc was a metal electroplating facility that was located in Oneida County, New York and was abandoned in 1985.
In 1989, an investigation revealed that the groundwater onsite was contaminated with spent chlorinated solvents in excess of the 6NYCRR Part 703 groundwater standards. Due to the contamination of the groundwater at the site, groundwater remediation is in operation. The confirmed hazardous wastes that contaminated the site are:

- 1,1,1-Trichloroethane
- Trichloroethylene

To mitigate these problems, the site was put on the Registry of Hazardous Waste Sites and remedial actions were undertaken, including long-term monitoring of biota, surface water, and groundwater.

Long-term Groundwater sampling occurs annually, and tests for the presence of VOCs by EPA method 624. Three rounds of groundwater sampling since 1999 show total levels of VOCs to be below the detection limit of the instruments.

Problem Statement:

Are the hazardous compounds of concern diminishing in the monitoring wells? Compile the laboratory reports results and create graphs of the compounds. Analyze the data and determine if the hazardous compounds of concern are diminishing, if they are rising or if there are other concerns that the site has to address.

Assumptions:

- The hazardous compounds of concern are: 1,1-Dichloroethane, 1,2-Dichloroethane, Trichloroethane, 1,1,2-Trichloroethane, Benzene, Toluene, Chromium, Copper, Nickel, Silver, and Zinc. Only these historically detected contaminants are included in this study.

- Any metals detected that are not listed as contaminants of concern at this site, but appear in the wells in excess of the New York State Groundwater Standards, are assumed to be naturally occurring at those levels on site.

- Assume that the detection limit of the instruments used for VOA is 10ug/L, as dictated by EPA Method 624 prescribed for this analysis. Note that New York

State Groundwater Standards for all VOC contaminants tested by the aforementioned method are less than 10ug/L.

- Contaminents of concern that have been consistently below the New York State Part 703 Groundwater Standards are not plotted, as the remedial goals for these contaminents have been met, and thus the compounds no longer present a reason for concern. Compounds that fit this description, will be listed in this section of the report. (As of 1/17/03, there are no compounds that have been consistenly below the New York State Part 703 Groundwater Standards.)

Procedure:

The graphs were created from lab reports provided by ChemTech Consulting Group, Columbia Analytical Service and the DEC lab. The data was divided up by contaminent type, and the conpound concentrations were entered by well number into spreadsheets. This information was then graphed. Results from the sampling events were compared to the New York State Part 703 Groundwater Standards.

Results:

The spreadsheets show that there are some contaminents of concern that are present in the monitoring wells in levels that exceed the DEC standards. Contaminants of concern that were present in one or more of the monitoring wells in the last round of sampling (8/1/02) and are in excess of DEC Groundwater Standards are:
Zinc (concentration= 637 ug/L vs. GW Standard= 66 ug/L) (See Figure 3.),Chromium (concentration= 409 ug/L vs. GW Standard=100 ug/L) (See Figure 4.), Nickel (concentration= 429 ug/L vs. GW Standard= 200 ug/L) (See Figure 5.), and TCE (concentrations= 16 ug/L, 6.1 ug/L, and 17 ug/L vs. GW Standard= 5 ug/L) (See Figures 7, 11, and 13.).

Furthermore, not all contaminants of concern show a decreasing trend in concentration levels over time. 1, 1, 1Trichloroethane shows a slight increasing trend over time in MW 103 (See Figure 7.) ; TCE concentration has increased over time in MW 107S (See Figure 13.); chromium, zinc, and nickel levels are increasing in MW 101D (See Figures 3, 4, and 5.), and zinc shows an increasing trend over time in MW 106D (See Figure 3.).

Conclusions:

Due to the fact that the detection limit of the instruments used for VOC testing is greater than the New York State Groundwater Standards for all VOC contaminants

tested, the sampling results obtained for this site are inconclusive. Although many of the contaminants tested for were undetected by labs, it is still possible for these contaminants to exceed DEC Groundwater Standards. It is recommended that sampling be continued and that any samples sent to the labs for VOC analysis be tested using EPA Method 524 (which has a detection limit of 0.5 ug/L), instead of EPA Method 624 (which has a detection limit of 10 ug/L).

Furthermore, additional rounds of sampling and investigation are advised due to the fact that TCE and 1,1,1-Trichloroethane, nickel, zinc, and chromium are showing an increasing trend above the groundwater standards in some wells. (See figures 3, 4, 5, 7, 11, and 13.)

Appendix A:
A1- Well Location Map
A2- Boring Logs

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A2- Boring Logs

Appendix B:
Health and Safety Plan