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FIGURE 1: Groundwater Surface Map

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APPENDIX I: Well Sampling Logs and Laboratory Reports

1.0 INTRODUCTION

S&ME, Inc. (S&ME) was contracted by Lincoln County to provide groundwater, surface water and methane monitoring services at the Owl's Den Landfill located off of Owl's Den Road Lincolnton, North Carolina. This monitoring event was conducted on October 18 and 19, 2007.

This report presents the results of the second semi-annual sampling event for the year 2007 at the facility, which included the sampling of one background well (MW-1), eight compliance wells (MW-2, MW-3, MW-4, MW-5, MW-6, MW-6A, MW-7 and MW-7A), three surface water locations (SW-1, SW-2 and SW-3) and four private supply wells (PSW-1, PSW-3, PSW-6, and PSW-16). S&ME also collected methane readings at the facility's four methane monitoring wells (MMW-1, MMW-2, MMW-3 and MMW-4). Please note that surface water sampling location SW-1 was dry during the October 2007 monitoring event.

The next sampling event is scheduled for April 2007 and will include the locations listed above, except for the four private supply wells (PSW-1, PSW-3, PSW-6, and PSW-16) which are only sampled annually in the fall.

2.0 GROUNDWATER LEVELS AND FLOW DATA

The water table elevations and our interpretation of the groundwater surface expressed as a potentiometric map along with groundwater flow direction are shown on Figure 1. Based upon the groundwater elevations in the vicinity of the landfill, groundwater in this area is projected to flow north-northwest toward the drainage features bordering the site on the west, north and east of the property. Groundwater levels for the monitoring wells are presented in Table 1.

The hydraulic gradient (i) in the vicinity of each well was determined by calculating the vertical difference between the groundwater elevation at each well and one or more nearby contour lines from the Groundwater Surface map. This value was then divided by the distance measured from the well to the selected groundwater elevation contour line. Groundwater velocity was calculated by multiplying the gradient (i) by the hydraulic conductivity (k) and dividing by the estimated effective porosity (n) of the aquifer. Table 2 summarizes the groundwater flow rates for the monitoring wells.

3.0 ANALYTICAL DATA

Analytical results for the landfill monitoring wells, surface water locations, and private supply wells are summarized in Tables 3, 4, and 5. Detections above their respective groundwater or surface water standards are highlighted in grey. Well sampling logs containing field measurements of pH, conductivity, temperature and water levels are included in the Appendix. The monitoring wells and surface water stations were sampled for volatile organics by EPA Method 8260B and for RCRA metals.

3.1 Monitoring Well Sampling

Volatile Organic Compounds (VOCs)

No volatile organic compounds (VOCs) were detected in the background monitoring well MW-1.

Eleven VOCs were detected in monitoring well MW-2. Of the eleven constituents detected, three were detected at levels above their respective NCAC 2L standard and/or their respective SW GWP standard (1,4-Dichlorobenzene, 1,2-Dichloropropane, and Vinyl Chloride).

Eleven VOCs were detected in monitoring well MW-3. Of the eleven constituents detected, four were detected at levels above their respective NCAC 2L standard and/or their respective SW GWP standard (1,4-Dichlorobenzene, 1,2-Dichloropropane, Benzene, and Tetrachloroethene).

Ten VOCs were detected in monitoring well MW-4. Of the ten constituents detected, two were detected at levels above their respective NCAC 2L standard and/or their respective SW GWP standard (1,4-Dichlorobenzene and 1,2-Dichloropropane).

One VOC was detected in monitoring well MW-5, Tetrachloroethene, however it was below its respective NCAC 2L standard and/or respective SW GWP standard.

Twelve VOCs were detected in monitoring well MW-6. Of the twelve constituents detected, three were detected at levels above their respective NCAC 2L standard and/or their respective SW GWP standard (1,4-Dichlorobenzene, trans-1,3-Dichloropropene, and Vinyl Chloride).

Twelve VOCs were detected in monitoring well MW-6A. Of the twelve constituents detected, four were detected above their respective NCAC 2L standard and/or SW GWP standard (1,4-Dichlorobenzene, 1,2-Dichloropropane, 1,2-Dichloroethane, and Vinyl Chloride).

Thirteen VOCs were detected in monitoring well MW-7. Of the thirteen constituents detected, two were detected above their respective NCAC 2L standard and/or their respective SW GWP standard (1,4-Dichlorobenzene and Vinyl Chloride).

Eleven VOCs were detected in monitoring well MW-7A. Of the eleven constituents detected, two were detected at levels above their respective NCAC 2L standard and/or their respective SW GWP standard (1,4-Dichlorobenzene and Vinyl Chloride).

Metals

Barium was detected in each of the nine monitoring wells, including the background monitoring well MW-1, at concentrations ranging from 85.1J to 920 µg/L, which are below the NCAC 2L standard of 2000 µg/L.

Cadmium was detected in monitoring well MW-7 at a concentration of 1.7 µg/L, which is below the NCAC 2L standard of 1.75µg/L.

Chromium was detected in monitoring well MW-1 at a concentration of 5.6 J ug/L, which is below the NCAC 2L standard of 50 ug/L.

Please note that the concentrations of metals in the monitoring wells fluctuate with time and may be due to suspended solids rather than actual dissolved metals.

No other metals were detected in the monitoring wells.

3.2 Surface Water Sampling

The volatile organic compound acetone was detected at surface water sampling location SW-2 at a concentration of 7.5µg/L. The NCAC 2B Freshwater standard for acetone is 500 µg/L.

The volatile organic compound cis-1,2-Dichloroethane was detected at surface water sampling locations SW-2 and SW-3 at concentrations of 0.41 J µg/L and 0.46 J µg/L, respectively. The NCAC 2B Freshwater standard for cis-1,2-Dichloroethane is 6740 µg/L.

Barium was detected at surface water sampling locations SW-2 and SW-3 at concentrations of 518 to 301 µg/L, respectively. The NCAC 2B Freshwater standard established for barium is 1,400 µg/L.

Chromium was detected at surface water sampling location SW-2 at a concentration of 2.1 µg/L. The NCAC 2B Freshwater standard for chromium is 50 µg/L.

Lead was detected at surface water sampling location SW-2 at a concentration of 6.9 µg/L. The NCAC 2B Freshwater standard for lead is 25 µg/L.

3.3 Private Supply Well Sampling

Annually in October, four private supply wells (PSW-1, PSW-3, PSW-6, and PSW-16) are sampled for EPA Method 8260B and RCRA metals. No volatile organic constituents were detected in the four private supply wells; however each private supply well had at least one detection of the following metals: Arsenic, Barium, Chromium, and Lead.

Arsenic was detected in PSW-16 at a concentration of 2.6 J µg/L, which is below the 2L Standard of 50 µg/L. Barium was detected in all four of the private supply wells at concentrations ranging from 42.7 to 104 µg/L, which are below the 2L Standard of 2000 µg/L. Chromium was detected in PSW-16 at 2.2J µg/L, which is below the 2L standard of 50 µg/L. Lead was detected in PSW-3 and PSW-6 at concentrations of 24.3 and 6.4J µg/L. The 2L Standard for lead is 15 µg/L. Because the concentration of lead in PSW-3 has fluctuated with time from non-detect to greater than 15 µg/L and concentrations of lead have been detected in the upgradient monitoring well MW-1, the concentrations of

lead detected in the private supply wells are believed to be naturally occurring and not from a release from the landfill.

4.0 METHANE READINGS

Methane readings were taken from the four methane monitoring wells (MMW-1, MMW-2, MMW-3, and MMW-4) during the October 2007 semi-annual monitoring event. Please note that all methane monitoring wells, except MMW-1 were at 100 % of the lower explosive limit. Table 6 summarizes the data collected.

TABLES

FIGURES

APPENDIX I

WELL SAMPLING LOGS AND LABORATORY REPORTS