



SITE NO. 7-55-010

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1 Project Status and Progress to Date

WSP Engineering of New York, P.C., has prepared this Operation, Maintenance, and Monitoring (OM&M) report on behalf of Emerson and its subsidiary, Emerson Power Transmission (EPT). This report summarizes the activities associated with the Interim Remedial Measure (IRM) at the EPT facility (Morse Industrial Corporation, Site No. 7-55-010) located in Ithaca, New York (Figures 1 and 2).

OM&M activities were conducted by WSP Engineering in accordance with the OM&M Plan, dated March 31, 2009, and as required by the Administrative Order on Consent (Index # A7-0125-87-09) entered into by the New York State Department of Environmental Conservation (NYSDEC) and EPT on July 13, 1987. This report describes operation and maintenance of the Dual Phase Extraction (DPE) system for the reporting period of July 2010 through December 2010.



2 Summary of Dual Phase Extraction System Operation, Maintenance, and Performance Monitoring Events

During the reporting period, WSP Engineering collected monthly influent and effluent water and vapor samples for laboratory analysis. This data was used to monitor the performance of the treatment system (Figure 3).

2.1 OPERATING RESULTS

- The average uptime of the DPE system was 89 percent during the reporting period between July and December 2010 (Table 1).
- The system ran for a total of 3,866 hours with 474 hours of downtime during 4,340 hours of routine operation (Table 1). The routine operation period excludes the shutdown necessary for a carbon change out in the two aqueous phase granular activated carbon (GAC) units between November 11 and 12, 2010 (Table 2).
- The system extracted a total of 173,352 gallons of groundwater at an average pumping rate of 0.79 gallons per minute and an estimated $4.73E+07$ standard cubic feet of vapor based on an average flow rate of 240 standard cubic feet per minute (scfm) over the reporting period (Tables 3 and 4).
- During the reporting period, approximately 4.1 pounds (lbs) of volatile organic compounds (VOCs) were removed from the aqueous phase, and approximately 296.2 lbs of VOCs were removed from the vapor phase (Tables 3 and 4). Since the start of the IRM system, approximately 774.6 lbs of VOCs have been removed by the DPE system.
- Concentrations of four site-related chlorinated (VOCs) were detected in the influent vapor during the reporting period (Table 5).
- Six site-related chlorinated VOCs were detected in influent water samples, and one site-related chlorinated VOC was detected at trace levels in the effluent samples during the reporting period (Table 6).

2.1.1 Summary of Difficulties Encountered and Resolved

- On November 20, 2010, the direct drive coupler on the vacuum blower failed. WSP Engineering researched and purchased a heavier duty (higher torque rated) coupler to resolve the continued coupler breakages and installed the coupler on January 10, 2011.



3 Quarterly and Semi-Annual Performance Monitoring

Groundwater samples were collected from monitoring wells associated with the quarterly event between September 27 and September 29, 2010 and between December 27 and December 29, 2010 (Figures 4 and 5). Monitoring wells associated with the semi-annual sampling event were sampled between December 27 and December 29, 2010 (Figure 10).

3.1 DUAL PHASE EXTRACTION SYSTEM HYDRAULIC CAPTURE

- Groundwater elevations collected during the quarterly sampling events are presented in Table 7 and depicted in Figures 6 and 7. Groundwater elevation measurements collected during the semi-annual sampling event are presented in Table 9 and shown in Figure 11.
- The 2010 drawdown data indicates that the groundwater table in the treatment area continues to be sufficiently depressed by the DPE system and that the IRM system is effective at imposing hydraulic capture of VOCs to prevent them from migrating downgradient, in accordance with the goals of the IRM (Figures 6 and 7; Table 7). Results show consistent hydraulic containment.

3.2 QUARTERLY AND SEMI-ANNUAL SITE-WIDE GROUNDWATER SAMPLING

- Groundwater monitoring wells were sampled to assess groundwater quality on the EPT site at locations upgradient of the firewater reservoir, in the treatment area, and downgradient of the treatment area in the residential neighborhoods of South Hill (Figure 10). Table 10 and Figure 12 present the sample results for the semi-annual sampling.
- The quarterly groundwater sampling results are listed in Table 8 and presented in Figures 8 and 9.
- Historical sampling results can be found in Table 11.
- Monitoring wells MW-7B and MW-8B are currently used as product recovery wells and are no longer sampled as part of the quarterly groundwater monitoring program.
- WSP Engineering also collected a blind duplicate groundwater sample designated MW-1007, a trip blank, and a matrix spike and matrix spike duplicate (MS/MSD) set for quality assurance/quality control (QA/QC).
- The analytical laboratory report is included in Appendix A, and the Data Usability Summary Reports (DUSR) are included in Appendix B.
- The pH, specific conductance (SC), temperature, turbidity, and dissolved oxygen (DO) were monitored during the purging process with a water quality meter to ensure that representative groundwater quality samples were collected (Appendix C).



4 References

WSP Engineering of New York. March 31, 2009. Operation, Maintenance and Monitoring Plan, Interim Remedial Measure, Emerson Power Transmission, Ithaca, New York.



5 Acronym List

DO	dissolved oxygen
DPE	dual phase extraction
DUSR	Data Usability Summary Report
EPT	Emerson Power Transmission
GAC	granular activated carbon
IRM	Interim Remedial Measure
lbs	pounds
MS/MSD	matrix spike and matrix spike duplicate
NYSDEC	New York State Department of Environmental Conservation
OM&M	Operation, Maintenance, and Monitoring
QA/QC	quality assurance/quality control
SC	specific conductance
scfm	standard cubic feet per minute
VOCs	volatile organic compounds