

2.0 PERFORMANCE STANDARDS

Comprehensive monitoring activities are conducted at the ACS Site to verify compliance with performance standards established in the Statement of Work (SOW) for the Remedial Design and Remedial Action at the Site. The performance requirements for each remedial system to achieve its design objectives are discussed:

2.1 ISVE SYSTEMS

The main objective of ISVE at the ACS Site is to reduce the mass of VOCs in source areas by extracting mobile VOCs from below the ground surface. Two ISVE systems were designed and constructed to treat the three source areas: the SBPA, OFCA, and K-P Area. The extracted vapor from these systems is conveyed to two thermal oxidizers, located in the Groundwater Treatment Plant, prior to atmospheric release. Operation of the ISVE systems will continue in the Off-Site Area and SBPA until the total removal rate has been reduced to the remedial goal of 100 lb/day or less for the combined systems.

2.2 DEWATERING/CONTAINMENT

A groundwater extraction system inside the Barrier Wall was installed to maintain hydraulic capture within the wall. The system is referred to as the BWES. The current system is comprised of eight 100-foot long extraction trenches, one 150-foot long extraction trench, and one 350-foot long extraction trench. Locations of the extraction trenches are shown on Figure 10 (page 29). Also aiding in the dewatering efforts within the Barrier Wall are Dual Phase

Extraction (DPE) wells that exist in 21 of the 46 ISVE wells located in the SBPA. The DPE well locations are identified on Figure 7 (page 22).

The purpose of the extraction trenches and dual-phase extraction wells is to dewater the upper aquifer in the vicinity of the ISVE systems in the SBPA, the OFCA, and the K-P Area. Lowering the water table exposes the majority of the soil contamination to the vacuum imposed by the ISVE blowers and creates an air flow through the soil and waste. Once the zone of contamination is exposed, the ISVE system will withdraw contaminated vapors from the subsurface for treatment. Exposing the soil will increase the effectiveness of ISVE systems by exposing the areas with the largest volumes of contaminants. In the Off-Site Area, the objective of the BWES is to lower the water table from preexisting lev-

els to 626 feet above mean sea level (amsl). The target water elevation in the On-Site Area is 629 feet amsl.

The engineered covers in both the SBPA and Off-Site Area were designed and constructed to accomplish the following objectives:

- 1) Eliminate potential direct contact with VOC- and PCB-contaminated soils (and lead-contaminated soils in the K-P Area),
- 2) Eliminate potential worker contact with VOC-contaminated groundwater,
- 3) Reduce the potential for contaminant migration to groundwater by reducing infiltration into these areas, and
- 4) Provide a surface seal for the ISVE system to minimize potential short-circuiting and maximize the capture of VOC vapors.



Construction of the separation barrier wall utilizing a trenching machine.

The design objectives for the engineered covers have been met by a combination of monitoring and verification both during construction and after construction. The field engineer monitored the construction and verified that the engineered cover was constructed in accordance with the Final Design. Those activities are reported in the Off-Site Area Final Engineered Cover Construction Completion Report (MWH, June 2004), and the Still Bottoms Pond Area Final Engineered Cover Construction Completion Report (MWH, January 2005). The CCRs also provide the as-built drawings and describe any variances from the final design. The following monitoring and verification activities are continuing as part of the ongoing O&M defined for the ACS Remedial Systems:

- Monitoring of vacuum level and air flow through the ISVE system to ensure integrity of the engineered cover,
- Monitoring water levels in wells and piezometers within the boundaries of the cover, and documenting the integrity of the engineered covers.
- Quarterly inspections and inspections after storm events to discover cracking or erosion of the engineered covers and then repair them.

2.3 GROUNDWATER TREATMENT PLANT

Construction of the original GWTP was completed in 1997. Significant upgrades (detailed in Section 4.4.2) were completed in December 2000 to meet the expected groundwater extraction quantity and, with the anticipated increase in both volume and contaminant loading, enhanced quality treatment as required to implement the Final Remedy. The treatment system of the GWTP contains the components necessary to provide for flow equalization, free-phase product removal, emulsified product removal, organics removal and destruction, metals removal, solids removal, solids handling, disinfection, and air emission control.

The groundwater treatment system was designed and constructed to reduce the concentrations of contaminants that pass through the GWTP processes to acceptable levels prior to discharge to the wetlands or the atmosphere. The acceptable levels are the effluent quality standards established by IDEM and U.S. EPA as shown in Table 1 and the off-gas air quality standards discussed in section 7.2.3 of this report.

2.4 CHEMICAL OXIDATION

The goal of the chemical oxidation remediation is to reduce the volume of residual hydrocarbon material present in the water table smear zone, minimizing it as a source of ongoing groundwater impact in the south area. Upon completion of the full-scale chemical oxidation applications, the upper aquifer will be transitioned to a MNA program.