Ground Water Remedy Optimization Progress Report: 2006 - 2007

Appendix

Optimization Recommendations and Progress Toward Implementation

RSE Recommendations and Progress Toward Implementation
Site Name: Groveland Wells (Groveland, MA)
RSE Report: EPA-542-R-02-017 (September 2002)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
No Recommendations		
Cost Reduction		
6.2.1 Discontinue pumping at EW-M3	Alternative implemented	TCE concentrations in well EW-M3 have fluctuated between about 7 ug/L and 36 ug/L in the last two years. Although well EW-M2 is being reactivated after being off line for awhile, the site team has been and will continue to operate EW-M3 on an intermittent/pulse basis since it may be capturing contamination that would not be "swept up" by the overburden extraction wells An alternate, less maintenance-intensive pumping system is being evaluated for this well.
6.2.2 Evaluate costs for ground water sampling and analysis	Implemented	Final transition to passive diffusion bags (PDBs) for sampling was made in 2006. Further savings were realized by streamlining reporting for the spring sampling event into a brief technical memorandum, and providing a comprehensive report for the entire year following the fall sampling event. The approximate combined cost savings resulting from these modifications is $15,000 per year.
6.2.3 Switch from UV/OX to air stripping	Declined	
Technical Improvement		
6.3.1 Replace well EW-S5	Alternative implemented	.
6.3.2 Discontinue pumping at G1 and G2	Implemented	

6.3.3 Monitor extraction wells for fouling	Implemented	Monitoring showed that several wells have experienced declines in specific capacity. Extraction well EW-M1 was redeveloped in April 2006; the withdrawal rate can now reach 40 gpm (max. before redevelopment was 25 gpm). The capacity of this well will be monitored. Redevelopment of other extraction wells that have lost efficiency will be considered in the future; the use of other possibly more effective, but more expensive, redevelopment methods will also be considered. The lines are still cleaned annually, and the pump heads are cleaned of fouling deposits as required.
Progress Toward Cleanup Goals		
6.4.1 Improved source area characterization	Implemented	Initial characterization of the source area was conducted in summer of 2004, followed by a more comprehensive characterization during the spring and summer of 2006. A report detailing the results of the characterization was completed in September, 2006.
6.4.2 Limited feasibility study regarding more aggressive source area remediation	Implemented	A limited feasibility study was completed in September, 2006, following the work under 6.4.1. The site team is leaning toward in situ thermal treatment for both unsaturated and saturated soils, but a final decision has not yet been made.

RSE Recommendations and Progress Toward Implementation
Site Name: Savage Municipal Water Supply (Milford, NH)
RSE Report: EPA-542-R-02-008h (September 2001)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Dispose of recovered solvent offsite to avoid complications with solvent circulating through treatment system	Implemented	
6.1.2 Determine actual capture zone of extraction wells	Implemented	
6.1.3 Move recharge points beyond influence of extraction wells to improve system efficiency	Alternative implemented	
6.1.4 Verify effectiveness of subsurface containment wall	Implemented	
6.1.5 Improve reporting by providing regular analysis of treatment system data	Implemented	
Cost Reduction		
6.2.1 Discontinue steam regeneration of carbon system	Alternative implemented	
6.2.2 Reduce operator labor	In progress	EPA requested that State re-bid O&M contract with specific aim of reducing labor costs for 2007 and beyond. The State has moved forward on obtaining new operator and maintenance services; a new contract is expected to be awarded in early FY08. As part of this effort, the State is having a contractor review site data and make recommendations for future operations and optimization efforts.
6.2.3 Replace the blower with a smaller, more efficient model	Alternative implemented	
6.2.4 Request survey of electricity usage	Implemented	

Technical Improvement		
6.3.1 Improve invoicing to ensure timely delivery of monthly updates	Implemented	
6.3.2 Repair or replace air compressor for air sparging system	Implemented	
Progress Toward Final Cleanup Goals		
6.4.1 Clarify exit strategy and closure criteria	In progress	EPA and the State are currently in disagreement regarding additional chemical oxidation efforts, and the final exit strategy. A decision will be made after the State evaluates options in preparation of the contract re-bid (see 6.2.2.).
6.4.2 Aggressive mass removal - Pumping from "hot-spot" wells - Chemical oxidation of "hot-spot"	Implemented	

RSE Recommendations and Progress Toward Implementation
Site Name: Bog Creek Farm (Howell Township, NJ)
RSE Report: EPA 542-R-02-015 (September 2002)

RSE Recommendations	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Evaluate ground water impacts between slurry wall and brook with a GeoProbe	Implemented	Ground water samples and water levels were collected from existing piezometers and with a Geoprobe in September 2006. These data will be evaluated during the preparation of the 30% design phase for the new treatment system.
6.1.2 Monitor VOCs and water levels in piezometers between slurry wall and brook	Implemented	Completed under recommendation 6.1.1.
6.1.3 Analyze for 1,1-DCE in ground water samples	Implemented	
Cost Reduction		
6.2.1 Review USACE oversight costs	Implemented	
6.2.2 Reduce operator labor	Implemented	A new O&M contract awarded in FY2006 reduced line item operating costs during that first year from $476,391 to $208,726.
6.2.3 Revise the ground water sampling program	Implemented	
Technical Improvement		
6.3.1 Eliminate continuous emissions monitoring	Declined	The current permit will remain in place until the new plant is operating. The Region is actively working with the State to obtain a more suitable permit to take effect then.
6.3.2 Test individual extraction wells to determine yield	Declined	
6.3.3 Repair and clean various items	Declined	
Progress Toward Final Cleanup Goals		
6.4.1 Considerations for site closeout and reduction of life-cycle costs	Implemented	

RSE Recommendations and Progress Toward Implementation
Site Name: Brewster Well Field (Brewster, NY)
RSE Report: EPA 542-R-02-008t (April 2002)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Preliminary conceptual site model (CSM)	Implemented	
6.1.2 Additional delineation south of EW-1(GeoProbe, new wells)	Implemented	
6.1.3 Define target containment zone	Implemented	
6.1.4 Interpret capture zone	Implemented	
6.1.5 Revise conceptual site model	Implemented	
6.1.6 New extraction wells: replace EW-2 to EW-4 with new wells	Implemented	Replacement extraction wells were installed and connected to the new groundwater treatment system in fall 2007.
Cost Reduction		
6.2.1 Cut oversight expense	Implemented	
6.2.2 Reduce sampling and analysis, equipment rental, and travel/per diem costs	Declined	
6.2.3 Replace alarm monitoring service with autodialer	Declined	
Technical Improvement		
6.3.1 Install new underground discharge line	Implemented	
6.3.2 Improve annual O&M reports	Implemented	

6.3.3 Ensure vapors from acetic acid wash complies with OSHA standards	Declined	
6.3.4 Measure the air flow through the air stripper	Declined	
Progress Toward Final Cleanup Goals		
6.4 Continue evaluating alternative remedial options	Deferred to State	The ground water remedy transferred to the State for operation and maintenance in October 2007.

RSE-Lite Recommendations and Progress Toward Implementation
Site Name: Circuitron Corp. (East Farmingdale, NY)
RSE Report: EPA-542-R-05-004 (January 2005)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Periodically evaluate if existing institutional controls remain sufficient	Implemented	
Cost Reduction		
6.2.1 Eliminate liquid phase GAC	Implemented	
6.2.2 Sample extraction wells, then potentially eliminate pumping at RW-2 and RW-3	Implemented	
6.2.3 Revise filter bag configuration (conditional)	Implemented	
6.2.4 Reduce operator labor	Alternative Implemented	The P&T system was shut down in August 2007. The system equipment is being "exercised" twice a month, resulting in reduced labor and project management costs consistent with the current level of system downtime.
6.2.5 Reduce project management labor	Implemented	See recommendation 6.2.4.
6.2.6 Consider replacing pumps (Only if extraction is to continue three years or more)	Declined	
Technical Improvement		
6.3.1 Clarify reporting of flow rates	Implemented	
6.3.2 Continue with current jetting for infiltration trench	Implemented	

Progress Toward Final Cleanup Goals		
6.4 Considerations for gaining site close-out	Implemented	EPA's Environmental Response Team (ERT) completed its investigation and identified two source areas, each co-located with storm drains that are located upgradient of well MW-4S. ERT has completed installation of an in-well vapor stripping unit near MW-4S, which began operating in March 2008.

RSE Recommendations and Progress Toward Implementation
Site Name: Claremont Polychemical (Old Bethpage, NY)
RSE Report: EPA 542-R-02-008n (March 2002)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Convert depths-to-water to water levels, survey if necessary	Implemented	
6.1.2 Interpret process data and quarterly aquifer data, report results	Implemented	
6.1.3 Develop a groundwater flow model	Implemented	
Cost Reduction		
6.2.1 Eliminate unused metals removal system	Implemented	
6.2.2 Simplify system	Declined	
6.2.3 Eliminate unnecessary process monitoring (also included in 6.2.1)	Implemented	
6.2.4 Attempt to relax pH discharge standard	Implemented	
6.2.5 Investigate eliminating the vapor phase carbon treatment	Declined	
6.2.6 Optimize above-ground treatment facility of the Old Bethpage Landfill Site	Declined	
Technical Improvement		
6.3.1 Replace faulty influent flow meters	Implemented	
6.3.2 Sample with a PID influent as well as effluent for vapor phase carbon unit	Implemented	

6.3.3 Determine the cause of the pressure buildup of the liquid phase carbon units	Implemented	
Progress Toward Cleanup Goals		
6.4.1 Address "hot spot" contamination after analysis of aquifer data	Implemented	With the construction and monitoring of 7 additional wells, EPA refined plume delineation and identified possible upgradient sources of groundwater contamination. The groundwater flow model was used to assess the direction where that source might have originated, and EPA Region 2's pre-remedial program was tasked with assessing these potential sources upgradient of Claremont. Field investigations at two suspected sources have been conducted with drilling exploratory wells and sampling completed. Initial results confirm the existence of off-site contaminant sources unrelated to Claremont contamination, which have impacted a portion of the Claremont Site. Follow-up actions for this unrelated off-site source will be managed separately.

RSE Recommendations and Progress Toward Implementation
Site Name: Ellis Property (Evesham and Medford Townships, NJ)
RSE Report: EPA 542-R-06-015 (September, 2006)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1. Improve capture zone evaluation with installation of piezometer pairs	Planned	The work is on hold until the source area investigation is completed.
6.1.2 Consider modification of treatment plant and injection trench to increase hydraulic capacity (contingent on outcome of 6.1.1)	Alternative implemented	The site team has had a discharge line installed to direct treated water to the wetlands. The site team is filing a State permit to allow the discharge.
6.1.3 Improve site characterization with installation of two monitoring wells	Planned	The work is on hold until the source area investigation is completed.
6.1.4 Conduct limited sampling of the wetlands surface water and sediments as indicated in the Five Year Review	Implemented	The work was conducted in September 2006. The 2007 sample could not be collected in September due to a drought. The sample will be collected in March, and annual sampling in September will resume in 2008.
6.1.5 Confirm that ground water monitoring network provides enough information to evaluate capture	Planned	The work will be completed once information from 6.1.1 and 6.1.3 are available.
Cost Reduction		
6.2.1 Revise process monitoring program	Implemented	
6.2.2 Consider not implementing aspects of the proposed work plan	In progress	The source area investigation is being conducted. The site-wide sampling event and the pump test were not conducted.
Technical Improvement		
6.3.1 Install timer for wasting sludge from clarifier	Implemented	

Progress Toward Final Cleanup Goals		
6.4.1 Pilot in-situ chemical oxidation with permanganate for aggressive source removal	Under Consideration	The State will consider this source area technology but will also consider and potentially pilot other technologies before making a final selection.

RSE Recommendations and Progress Toward Implementation
Site Name: GCL Tie & Treating (Sidney, NY)
RSE Report: EPA 542-R-06-016 (December, 2006)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Institute a routine ground water monitoring program	Implemented	A sampling event was conducted in Summer 2007 using the USACE contractor, and EPA ERT will conduct the sampling event for Summer 2008. The site team is planning annual events using ERT for the foreseeable future. Using ERT instead of the previous USACE contractor is providing substantial savings to the site, potentially on the order of $100,000 per year. A revised sampling frequency may be considered.
6.1.2 Optional plume delineation	Implemented	The site team has installed two wells in the suggested location. The wells are co-located but screen different intervals. The wells will be sampled in Summer 2008. All work is being conducted by ERT.
6.1.3 Soil vapor intrusion evaluation	Alternative planned	A soil vapor intrusion study based on sub-slab sampling is planned for Summer 2008. This approach is a deviation from the RSE recommendation of sampling shallow ground water but comes at the recommendation of the Region's risk assessor. The RSE team does not disagree with the approach.
Cost Reduction		
6.2.1 Discontinue pumping from the intermediate zone	Planned	The site team will implement this recommendation on a trial basis in FY08 once baseline data has been obtained from a new, deeper well installed in the vicinity of MW-8I.
6.2.2 Consider modifications to the backwashing and solids handling procedures (contingent of outcome of 6.2.1)	Under consideration	The site team will consider this recommendation and various options based on the outcome of 6.2.1
6.2.3 Suggestions for long-term ground water monitoring	Implemented	See recommendation 6.1.1.

6.2.4 Pilot test bypassing the air stripper	Planned	EPA was hesitant to making any plumbing changes, which might be costly under the existing contract, prior to establishing whether or not pumping would occur from the intermediate zone. The RSE team suggested potentially temporarily shutting off the air stripper blower, allowing the water to flow through the air stripper without the cost of operating the blower. EPA will discuss this option with USACE and the plant operator and potentially shutdown the blower on a pilot basis by the end of FY08. Increased sampling between the carbon units may be appropriate to evaluate the performance of the carbon in the absence of the air stripper.
6.2.5 Consider a hybrid time and materials and fixed-price contract	Under consideration	The Region believes that this may be one of the more difficult recommendations to implement and need to discuss it with the Region's contracting staff. The option years on the current contract will be expiring soon and USACE is encouraging EPA to move over to a new LTRA contract rather than another construction contract. This might provide the opportunity to implement a hybrid contract as discussed.
6.2.6 Reductions in project management consistent with steady state system operation	Under consideration	The Region will consider this recommendation once the pumping and system changes have been made and the system is operating in steady state.
Technical Improvement		
6.3.1 Relocate equalization tank high-level switch	Planned	The Region agrees with this recommendation and will discuss it with USACE. Most of the site team's focus has been placed on implementing the field work in preparation for the pumping changes.
6.3.2 Discontinue use and service to generator	Planned	The Region agrees with this recommendation and will discuss it with USACE. Most of the site team's focus has been placed on implementing the field work in preparation for the pumping changes.
6.3.3 Modify use of water levels from operating extraction wells when developing potentiometric surface maps	In progress	The Region confirmed that potentiometric surface maps were generated for the 2007 event and will be generated for the 2008 event. The RPM is providing the 2007 report to the RSE team to evaluate the development of the potentiometric surface map. The potentiometric surface map will not be based on water levels from operating extraction wells.
Progress Toward Final Cleanup Goals		
No recommendations		

RSE Recommendations and Progress Toward Implementation
Site Name: Higgins Farm (Franklin Township, NJ)
RSE Report: EPA 542-R-04-034 (May 2004)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Plume definition	In progress	The off-site investigation is underway and groundwater sampling is planned for April 2008. Once data is received and verified, the final report will be provided to EPA (expected delivery date is July 2008).
6.1.2 Surface water sampling	Implemented	USACE completed sampling of quarry seeps in 2005. Impacts to Carter Brook are assessed based on effluent monitoring; additional impacts from ground water will be assessed as part of 6.1.1.
6.1.3 On-site plume capture	In progress	In August 2007, the Water Diversion Permit for the treatment plant was revised to increase the permitted pumping rates in four wells from 4 gpm to 10 gpm. In accordance with the revised permits, new pumps were installed in the wells in November 2007. Data from the April 2008 sampling event will be incorporated into the final report to evaluate the effects of the increased pumping rates on the distribution of contaminants in site groundwater.
Cost Reduction		
6.2.1 Bypass treatment plant to POTW	Declined	
6.2.2. Extraction system revisions	Implemented	The number of extraction wells used was reduced from 25 to 13 wells.
6.2.3 Downsize air stripper blower	Implemented	A new discharge permit was obtained for the treatment facility. The VOCs in the influent are low enough that although they are sparged out of solution from the influent tank, they can be vented without the need for a permit equivalence. This has eliminated the need for the air stripper.
6.2.4 Alternate manganese removal technologies	Implemented	A new discharge permit was obtained for the treatment facility. Manganese no longer needs to be removed since the new permit does not regulate for metals such as iron and manganese that are naturally occurring.
6.2.5 Changes in monitoring program	In progress	The PRP is in the process of streamlining the current monitoring program, and will switch the sampling method to diffusion bags.

6.2.6 Review level of USACE oversight	Deferred to PRPs	
6.2.7 Reduce monthly reporting frequency to quarterly	Implemented	
Technical Improvement		
6.3.1 Change well maintenance methods	Deferred to PRPs	This recommendation has been deferred to the PRPs.
6.3.2 Extraction pipe testing	Deferred to PRPs	This recommendation has been deferred to the PRPs.
6.3.3 Control system modification	Implemented	
Progress Toward Cleanup Goals		
6.4.1 Verify source removal	Implemented	Documented chemical trends in site wells indicate that source removal actions have been successful. PRP will use monitoring program to continually evaluate this conclusion.
6.4.2 Develop site exit strategy	Deferred to PRPs	Implementation of this recommendation has been deferred to the PRPs. The ROD objective remains restoration to drinking water standards.

RSE Recommendations and Progress Toward Implementation
Site Name: Greenwood Chemical (Newtown, VA)
RSE Report: EPA 542-R-04-032 (April 2004)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Sample residential wells and surface water	Implemented	
6.1.2 Delineate the contaminant plume	Implemented	
6.1.3 Determine a target capture zone and conduct a capture zone analysis	Implemented	
6.1.4 Consider sampling influent and effluent to vapor phase GAC	Implemented	
Cost Reduction		
6.2.1 Reduce operator labor	Implemented	
6.2.2 Address remaining lagoon sediments and discontinue lagoon extraction on an expedited schedule	Implemented	
6.2.3 Continually aim to eliminate metals removal and UV/Oxidation system	Portions Implemented and Declined	The UV/Oxidation unit remains shutdown, and discharge parameters continue to be met. The site team will continue to utilize metals removal because the influent exceeds the discharge standards.
6.2.4 Optimize ground water monitoring program	Implemented	Adjustments have been, and will continue to be made to the monitoring network. Frequency has been reduced where appropriate, and some wells have been removed from the monitoring network. Some additional monitoring points will be installed to better understand the effectiveness of new extraction wells. Cost savings have been realized by utilizing the Regional lab, reducing process monitoring, and training plant operators to conduct some sampling.
6.2.5 Evaluate project management/ technical support/reporting costs	Implemented	

Technical Improvement		
6.3.1 Improve reporting	Implemented	
6.3.2 Tabulate ground water monitoring data and manage data electronically	Implemented	
Progress Toward Final Cleanup Goals		
6.4.1 A suggested approach for using P&T as a final remedy	Implemented	
6.4.2 An alternative to the proposed RCRA cap	Implemented	

RSE Recommendations and Progress Toward Implementation
Site Name: Havertown PCP (Havertown, PA)
RSE Report: EPA 542-R-04-033 (March 2004)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Properly seal abandoned 12-inch sewer line and remediate surface soils near the seep	Alternative implemented	The site team has plugged the entire abandoned sewer line and has conducted an investigation of the Residential Open Space (ROS) area near the seep, including 15 borings with shallow and deep soil samples plus ground water samples. The site team noted that concentrations were not high enough to warrant removal because they are more than 8 feet below ground surface.
6.1.2 Improve plume delineation to the south and vertically	Implemented	
6.1.3 Evaluate plume capture once plume is delineated	Implemented	The plume was fully delineated during the OU3 investigation. Plume delineation and capture analysis resulted in the installation of two new extraction wells. Well RW-5 was installed in the source area to extract source strength material in the deep groundwater. Well RW-6 was installed in the bedding of the former Naylor's Run to extract groundwater from the deeper aquifer beyond the trench. Operation of these two wells have resulted in better capture of both the shallow and deep aquifer with a general reduction in contamination at the down gradient and side gradient edges of the plume. (The original extraction wells are no longer in service since effective drawdown was realized with RW-5.) Plume delineation and capture analysis will be performed on an ongoing basis. The Record of Decision (ROD) for OU3 requires the installation of additional groundwater extraction wells to assist in plume capture.
6.1.4 Take measures to further reduce system downtime	Implemented	
Cost Reduction		
6.2.1 Use fewer UV/oxidation units	Implemented	

6.2.2 Evaluate areas to reduce labor costs	Implemented	Labor costs were re-evaluated when a new contract for long-term remedial action was negotiated. The pre-treatment portion of the treatment facility is being re-designed with one goal being reduced maintenance/labor to operate. The programmable control system is being updated.
Technical Improvement		
6.3.1 Continue improving treatment plant to facilitate operation and potentially increase capacity	In progress	The site team continues to make improvements to the treatment plant. The pre-treatment portion of the facility is being re-designed to allow for an increase in capacity of groundwater being treated. It is anticipated that the pre-treatment system will be on-line by 2009 and will be able to treat 70 gallons per minute, which more than doubles the current capacity.
6.3.2 Make piping changes to better use the second equalization tank	Alternative implemented	
Progress Toward Final Cleanup Goals		
6.4.1 Adapt P&T system to focus primarily on cost-effective containment with decreased emphasis on restoration	Implemented	The ROD for OU3 (signed April 16, 2008), requires the installation of additional extraction wells to assist in plume capture for both the shallow and deep aquifers. The ROD also requires the use of in-situ contaminant flushing of the source area to attempt to remediate the principle threat waste. The installation of RW-5 and RW-6 has provided more effective capture of the plume. The original extraction wells are no longer in service.
6.4.2 Potential options for improving capture	Implemented	See response to 6.1.3 and 6.4.1.

RSE Recommendations and Progress Toward Implementation
Site Name: American Creosote Works (Pensacola, FL)
RSE Report: EPA-540-R-06-068 (June 2006)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Continue revisiting soil cleanup levels and ACLs	In progress	The dioxin in surface soils has been characterized, and EPA and the State are determining next steps, including locations for deeper sampling. A ROD for addressing this soil will be completed next year. The points of compliance previously mentioned have not been established and are not currently considered a viable approach by EPA. FDEP and EPA are still working to establish appropriate objectives for the off-site contamination.
6.1.2 Consider potential vapor intrusion	Under consideration	The site team has not yet addressed this recommendation.
6.1.3 Revise program for determining GAC replacement	Implemented	The recommendation has been implemented. Both carbon units are replaced when breakthrough is detected from the first unit. Replacement typically happens more than a month after the sampling, so the second unit has been at least partially used prior to replacement.
6.1.4 Evaluate options to implement stronger institutional controls	Under consideration	The Department of Health will not be surveying the wells in the area given that people in the area are on public water. Other means will need to be implemented by the site team to confirm residents of the area are not using impacted groundwater.
Cost Reduction		
6.2.1 Revise ground water sampling program	Alternative implemented	Quarterly sampling was completed this spring but the results have not been fully analyzed.
6.2.2 Review labor costs once system operation has stabilized	Implemented	Routine operation of the past year under the new contract has provided information on system costs. The funding for the contract has lasted 5 months longer than expected despite increased DNAPL recovery and disposal. These costs will be considered when negotiating a new O&M contract.

Technical Improvement		
6.3.1 Re-pipe DNAPL line from treatment shed to DNAPL storage tank	Implemented	
Progress Toward Final Cleanup Goals		
6.4.1 Modifications intended to gain site close-out	Under consideration	Remedial investigation activities have continued and revealed DNAPL, shallow dissolved contamination, and deep dissolved contamination that extends to the bay. The site team has not yet decided on remedial objectives or a remedial strategy but envisions an in-situ approach to avoid an above-ground, off-site system that would be prone to damage from hurricanes.

RSE-Lite Recommendations and Progress Toward Implementation
Site Name: Benfield Industries (Waynesville, NC)
RSE Report: EPA 542-R-07-020 (September 2007)

An RSE-Lite was performed at the Benfield Industries site in August, 2007. The first follow-up discussion to document progress will occur in 2008.

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Document potential downgradient receptor locations and adjust monitoring locations if necessary	New	
6.1.2 Consider sampling for dioxins/furans in soil	New	
6.1.3 Document rationale for eliminating metals analysis	New	
Cost Reduction		
6.2.1 Do not restart the extraction system	New	
6.2.2 Consider monitored natural attenuation as the ground water remedy	New	
Technical Improvement		
6.3.1 Improve sampling and analysis methods/reports	New	
Progress Toward Final Cleanup Goals		
6.4.1 Assess feasibility and cost-benefit of in-situ treatment of remaining soil hot spot(s)	New	
6.4.2 Consider reassessing the cleanup criterion for 1,4-Dichlorobenzene	New	

RSE-Lite Recommendations and Progress Toward Implementation
Site Name: Cape Fear Wood Preserving (Fayetteville, NC)
RSE Report: EPA-542-R-05-005 (February 2005)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Install and sample a monitoring well downgradient of MW-16	Planned	The site team is still unable to get the necessary property access. The site team agrees with the recommendation and will continue to try to gain the access required for well placement.
6.1.2 Sample outer monitoring wells annually	Implemented	
6.1.3 Do not use water levels from operating recovery wells or infiltration galleries when generating potentio-metric surface maps	Implemented	
Cost Reduction		
6.2.1 Contract O&M services and ground water sampling to a local contractor	Implemented	
6.2.1 Eliminate select wells from monitoring program, and reduce sampling and reporting frequency to annually	Implemented	
Technical Improvement		
6.3.1 Consider alternatives before adding a sequestering agent	Implemented	
6.3.2 Reduce frequency of water level measurements, discontinue dissolved oxygen monitoring, and simplify O&M reporting	Implemented	
6.3.3 Add a suffix to well labels to indicate shallow and deep wells	Implemented	

Progress Toward Final Cleanup Goals		
6.4 .1 Evaluate effectiveness of various remedy components	Alternative Implemented	
6.4.2 Considerations for evaluating thermal pilot study	In progress	The site team expects to make a decision in fall 2008 regarding whether to continue P&T or move to the more aggressive, thermal approach.

RSE Recommendations and Progress Toward Implementation
Site Name: Elmore Waste Disposal (Greer, SC)
RSE Report: EPA 542-R-02-008d (April 2001)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Plume definition	Implemented	
6.1.2 Capture zone analysis	Implemented	
6.1.3 Indoor air sampling	Implemented	
6.1.4 Surface water sampling	Implemented	
Cost Reduction		
6.2.1 Re-evaluation of treatment criteria	Implemented	Discharge of treated water has been modified from POTW to NPDES permit.
6.2.2 Reduction in monitoring and reporting requirements	Implemented	
6.2.3 Modify GAC operations	Implemented	
6.2.4 Natural attenuation	Declined	
Technical Improvement		
6.3.1 Changes to data evaluation protocols	Declined	
6.3.2 Goals for extraction from individual wells	Implemented	
Progress Toward Final Cleanup Goals		
6.4.1 Reconsider closure criteria	Declined	

Changes is Site Approach Requiring Re-Design		
6.5.1 Permeable reaction barrier	Declined	
6.5.2 In-situ bioremediation barrier	Declined	

RSE Recommendations and Progress Toward Implementation
Site Name: FCX, Inc. (Statesville, NC)
RSE Report: EPA 542-R-02-008e (March 2002)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Update target capture zone	Alternative Implemented	
6.1.2 Site cleanup	Implemented	
6.1.3 Improved treatment system enclosure	Alternative Implemented	
Cost Reduction		
6.2.1 Discharge to surface water (NPDES)	Declined	
6.2.2 Remove the sand filter	Declined	A ROD amendment was signed in September 2006 to change the groundwater remedy for OU1 from pump and treat to Monitored Natural Attenuation (MNA). With the remedy change, the active treatment at the site was discontinued and this recommendation is no longer applicable.
6.2.3 Eliminate SVOC and metals in quarterly well sampling analysis	Declined	The ROD amendment removed SVOCs and metals as contaminants of concern, therefore this recommendation is no longer applicable.
6.2.4 Concentrate system on pesticides	Alternative Implemented	
6.2.5 Suspension of pump and treat	Alternative Implemented	
Technical Improvement		
No recommendations		
Progress Toward Final Cleanup Goals		
No recommendations		

RSE Recommendations and Progress Toward Implementation
Site Name: Douglas Road/Uniroyal, Inc., Landfill (St. Joseph County, IN)
RSE Report: EPA 542-R-04-031 (February 2004)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Sample extraction wells annually	Implemented	
6.1.2 Investigate off-site sources and remaining down-gradient impacts	Declined	
Cost Reduction		
6.2.1 Reduce analytical QA/QC	Alternative implemented	
6.2.2 Consider converting cell 3 to an additional infiltration basin	Alternative implemented	
Technical Improvement		
No recommendations		
Progress Toward Final Cleanup Goals		
6.4.1 Develop an exit strategy	In progress	As a result of the offsite Geoprobe sampling, well EXT-5 was restarted in the fall of 2006. Results indicated TCE in areas immediately upgradient of EXT-5 that were either slightly below or slightly above the site cleanup levels. Additional sampling is planned for spring 2008 to further evaluate the groundwater plume in the area of EXT-5.

RSE Recommendations and Progress Toward Implementation
Site Name: Oconomowoc Electroplating (Ashippun, WI)
RSE Report: EPA 542-R-02-008b (August 2000)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Capture zone analysis	Implemented	
6.1.2 Plume delineation west of Eva Street (New Well)	Implemented	
6.1.3 Surface water sampling for copper near MW-12D	Declined	Surface water sampling is done quarterly at three locations: one upstream of well MW-12D and two downstream of well MW-12D; however, metals are not considered contaminants of concern at the site and therefore are not included in the sampling.
Cost Reduction		
6.2.1 Re-evaluation of cleanup/discharge criteria	Alternative Implemented	
6.2.2 Eliminate cyanide treatment	Implemented	
6.2.3 Eliminate metals precipitation	Implemented	
6.2.4 Delisting metals precipitation sludge	Alternative Implemented	
Technical Improvement		
6.3.1 Changes to monitoring program and data evaluation	Implemented	
6.3.2 Verification of well elevations and depths	Implemented	
6.3.3 Additional monitoring points	Implemented	
6.3.4 Low-flow sampling	Implemented	
6.3.5 Electronic data management	Implemented	

6.3.6 Expansion of well sampling program	Implemented	The sampling program was modified subsequent to treatment plant shutdown, in order to better address monitored natural attenuation (MNA) approach.
6.3.7 Media replacement for tertiary filter media	Implemented	
6.3.8 Control modifications (remote monitoring and emergency shut off)	Declined	The plant was shutdown in July 2004, because it was believed to no longer be effective in reducing contaminant levels in groundwater. The site team continues to evaluate MNA and expects to document a remedy change in 2009. Item is no longer applicable.
6.3.9 Conduit relocation	Declined	Due to treatment plant shutdown, this recommendation is no longer applicable.
6.3.10 Piping maintenance	Declined	Due to treatment plant shutdown, this recommendation is no longer applicable.
6.3.11 Well maintenance	Implemented	
6.3.12 Independent review of analytical data	Implemented	
6.3.13 Treatment process optimization	Alternative Implemented	
6.3.14 Waste sludge storage options	Alternative Implemented	
Progress Toward Final Cleanup Goals		
6.4.1 Establish closure criteria	Declined	
6.4.2 Additional source area identification/removal	Declined	Additional removal is no longer being considered, but methods are being investigated to accelerate the decomposition of persistent VOC contamination in residual hot spots.
Outstanding Value Engineering Proposal		
6.5 Postpone evaluation of VE proposal for a second air stripper	Implemented	
Changes in Current Approach to Site Remediation Requiring Re-Design		
6.6.1 Consider permeable reaction barrier	Alternative Implemented	
6.6.2 Additional VOC source removal	Declined	See recommendation 6.4.2.
6.6.3 Installation of a subsurface barrier	Alternative Implemented	

RSE Recommendations and Progress Toward Implementation
Site Name: Ott/Story/Cordova Chemical Co. (Dalton Township, MI)
RSE Report: EPA 542-R-02-008s (March 2002)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
No recommendations		
Cost Reduction		
6.2.1 Replace DAS units with tray aerators or packed towers	Declined	
6.2.2 Reexamine NPDES permit and potentially bypass PACT system	Declined	
6.2.3 Reduce process monitoring and analysis	Implemented	
6.2.4 Reduce aquifer monitoring and analysis	Implemented	
6.2.5 Remove excess equipment and do not construct the planned storage building	Declined	
6.2.6 Evaluate potential reduction in onsite presence of USACE	Implemented	
6.2.7 Remove trailers from site	Implemented	
6.2.8 Have onsite staff conduct sampling for OU3	Alternative Implemented	
Technical Improvement		
6.3.1 Establish consistent sampling method	Implemented	
6.3.2 Modify program for water-level measurement	Implemented	

Progress Toward Final Cleanup Goals		
6.4.1 Establish agreement between the OU2 remedy and ROD	In progress	The 2007 Five Year Review recommended that EPA and the State complete a "Remedial Strategy Analysis", including a more definitive time estimate to reach cleanup standards, confirmation of groundwater contaminant plume boundaries, assessment of a deep well in the former production area, an "extent of contamination" characterization of the semi-confined aquifer, and a capture zone analysis. The analysis is to be complete by September 2008, followed by a ROD Amendment or ESD, as appropriate.

RSE Recommendations and Progress Toward Implementation
Site Name: Peerless Plating (Muskegon, MI)
RSE Report: EPA 542-R-06-011 (February 2006)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Evaluation of ground water capture	In progress	The RPM has tasked the site contractor with developing a model to establish if the current plume is being captured at the site.
6.1.2 Modifications to the monitoring program	In progress	A monitoring well to address background concentrations was installed. The State installed 8 new monitoring wells to establish plume limits. Low flow sampling is used exclusively.
Cost Reduction		
6.2.1 Eliminate several ground water treatment processes	Implemented	An ESD has been prepared and the remaining treatment processes have been bypassed. Flow still enters and exits the treatment building. The RPM is working on an ESD that will bypass the building and discharge directly into the POTW sewer.
6.2.2 Modifications to the monitoring program	In progress	EW-3 was relocated. The contractor was tasked with developing a ground water model to assess capture and make revisions to the existing system. At the urging of the State, the analytical suite was not changed. The site team has evaluated the sampling and analysis program and reduced the number of wells sampled during the semi-annual sampling effort; nearly all wells are sampled as part of the annual sampling effort.
6.2.3 Revise reporting requirements	Declined	Since the treatment plant components are no longer operational, this item is no longer applicable.
6.2.4 Review level of operator support	Implemented	The operator is no longer servicing the facility. Operations support is obtained from a nearly location. Number of operator hours has been reduced during the transition period, for a savings of approximately $8000/yr. This will be subject to annual review.
Technical Improvement		
6.3.1 Install dust collection system over $FeSO_4$ hopper	Declined	Since the treatment plant components are no longer operational, this item is no longer applicable.

6.3.2 Install enclosure around air compressor to reduce noise	Declined	Since the treatment plant components are no longer operational, this item is no longer applicable.
6.3.3 Initiate a formal O&M program	In progress	The RPM is working with the contractor to determine appropriate items for the program. Most information will deal with the O&M issues associated with extraction and monitoring well system. The RPM is considering bypassing flow around the building and installing all equipment at the wells themselves.
6.3.4 Advertise availability of used equipment on USACE/EPA web page	In progress	The web page was provided to the RPM.
Progress Toward Final Cleanup Goals		
6.4.1 Assess source area treatment alternatives	Under consideration	The RPM has considered alternative technologies for source treatment. Redox manipulation was forwarded to management. The concept has met with resistance given the extensive characterization needed to locate the contamination, and assess if the technology is viable. Sediments along the creek might be removed but the damage to the ecosystem was determined to be greater than the risk to human health and the environment. Site contamination, especially the sediments is becoming an issue with the State. Activists have blocked development a mile downstream because they believe site related contamination would recontaminate the creek.
6.4.2 Permeable barrier	Under consideration	This item is under review; emphasis has been on capture zone evaluation and the ESD.

RSE Recommendations and Progress Toward Implementation
Site Name: Penta Wood Products (Daniels, WI)
RSE Report: EPA-540-R-06-069 (February 2006)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Follow trends in monitoring wells to determine if plume is migrating	Implemented	The site team confirmed that concentrations have decreased since 2004, indicating that the plume is not migrating.
Cost Reduction		
6.2.1 Provide a more accurate prediction of consumables and disposal costs	Implemented	
6.2.2 Consider modifying management of GAC units	Implemented	The site team modified the chemistry of the dissolved air flotation (DAF) unit and implemented Option 2 of the RSE recommendation. The last carbon unit lasted approximately 12 weeks and may have lasted longer if an abrupt change in process chemistry did not occur. Extending the duration between changeouts from 8 weeks to 12 weeks could result in savings of approximately $62,000 per year in material and disposal costs.
6.2.3 Eliminate redundant or unnecessary lab analysis	Implemented	Analysis for total metals has been eliminated. Dioxin analysis will not be eliminated or reduced from the process stream sampling. The site contractor has further reviewed the discharge sampling requirements and has suggested reductions for 2008, resulting in cost savings of approximately $3,800. The site team will revisit eliminating the Spring sampling event in 2010.
6.2.4 Use of dedicated pumps installed in monitoring wells	Implemented	The use of dedicated pumps has reduced overall contractor level of effort for the sampling events. The plant operator will continue to serve as a field team member to further reduce travel costs. The change has resulted in nearly $7,000 in savings per year. Use of the dedicated pumps has also provided more representative ground water data.
6.2.5 Investigate possibility of declassifying waste	Declined	The site team investigated this recommendation and determined that they are unable to move forward with it due to the characteristics of the waste.

6.2.6 Decrease project management and reporting costs	Implemented	The site team continues to look for opportunities to reduce project management costs during LTRA. An unexpected change in the permanent operator resulted in higher than expected labor until the replacement operator was identified and trained. Since that time, the monthly LOE for both project management and subcontractor management has been less than the budgeted level of effort.
6.2.7 Develop tracking of routine and non-routine costs	Implemented	The site team implemented this recommendation in 2007 by creating a tracking system as part of the new contract.
6.2.8 Evaluate potential to reduce ground water extraction without significantly affecting LNAPL recovery	Implemented	The site team confirmed that reducing the ground water extraction rate did not decrease LNAPL recovery rates. The ground water extraction rate has been decreased to 55 gpm and will remain there pending further evaluation of capture. The costs changes associated with this change will be difficult to estimate until the lower flow rates have been maintained and chemical usages and disposal costs compared to those associated with previous pumping rates.
6.2.9 Adjust pH from 7.0 to 6.5	Implemented	The site team implemented the recommendation. The cost savings are negligible.
Technical Improvement		
No recommendations		
Progress Toward Final Cleanup Goals		
6.4.1 Transition from ground water extraction and LNAPL recovery system to bioventing system and intrinsic remediation	Implemented	The bioventing system began operation in September 2007 and was shut down for the winter months. It will resume in Spring 2008 in a pulse-mode operation to maintain oxygen levels and minimize electrical costs. There has been no evidence of biofouling at this point.

RSE Recommendations and Progress Toward Implementation
Site Name: Reilly Tar & Chemical Corp. (Indianapolis, IN)
RSE Report: EPA 542-R-04-035 (February 2004)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Install piezometers and monitoring wells to allow for improved evaluation of plume capture	Implemented	
6.1.2 Perform improved plume capture evaluation (Including numerical model)	In progress/ Deferred to PRP	A model will not be developed for the site as the PRP has proposed a pilot test using biosparging to determine if this can help speed up groundwater cleanup. This may lead to a remedy modification if testing is successful.
6.1.3 Consider the need for a modified extraction system	Declined	
Cost Reduction		
6.2.1 Consider using extracted water for process and cooling uses	Declined	
Technical Improvement		
6.3.1 Minor suggestion for improved O&M reporting	Implemented	
Progress Toward Final Cleanup Goals		
6.4.1 Develop an exit strategy (consider alternate approach)	In progress/ Deferred to PRP	Dependent upon recommendation 6.1.2.

RSE Recommendations and Progress Toward Implementation
Site Name: 57th and North Broadway (Wichita, KS)
RSE Report: EPA-540-R-06-067 (June, 2006)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Perform additional source area characterization	Implemented	Additional investigation has been completed and has identified a new source that is likely responsible for the ground water plume. EPA is currently talking to this responsible party about implementing a removal action with air sparging and soil vapor extraction.
6.1.2 Consider contingent wellhead treatment at the public water supply well	Implemented	The site team has communicated regularly with the state during all aspects of the site work. A meeting is scheduled with the mayor and the water authority to discuss wellhead treatment.
6.1.3 Consider change to P&T after source characterization, in 53rd Street area	Under consideration	The density-driven circulation (DDC) wells along 53rd Street are no longer operating. Some have been discontinued because the ground water is clean in that area. The others have been discontinued because of damage from an electrical storm and questionable effectiveness during operation. The site team will be discussing the path forward for the ground water remedy.
6.1.4 Evaluate whether extent of SVE system is adequate	Implemented	The system has been evaluated and determined to be functioning as designed. Air sparging will not be considered as an enhancement to this remedy. The site team believes that the contamination on the Midland property is not migrating and that the cause of the plume is the contamination at the newly identified source. Air sparging and soil vapor extraction is the selected removal action for this area.
6.1.5 Consider using air sparging with existing SVE	Declined	See 6.1.4.
6.1.6 Continue monitoring of sentinel wells in Bel Aire well field	Implemented	The recommendation has been implemented.
6.1.7 Evaluate potential for vapor intrusion	Implemented	The site team reports that because the contamination is in the deep zone of the aquifer that vapor intrusion is not a valid exposure pathway. There are reportedly no receptors in the source area where contamination is shallow.

Cost Reduction		
6.2.1 Consider immediately taking eastern 53rd Street DDC wells out of operation	Implemented	All of the DDC wells on 53rd street are now out of operation. An electrical storm in early 2007 disrupted power to the western DDC wells, and they systems may have sustained some damage. The eastern wells have been shut down since the ground water in that area has been clean. There are currently no plans to repair and restart the western ones as their effectiveness is questionable. No cost has been associated with these wells since they have been out of service.
6.2.2 Consider better tracking of routine and non-routine site costs	Implemented	Costs have been verified with the contractor on a monthly basis, and the contractor has been responsive to these requests. O&M activities and costs have been reduced significantly for 2008. Groundwater monitoring has been reduced from quarterly to semi-annually. Utilities went down from about $1,800 per month to about $400 per month. Only the DDC wells in Riverview area have been monitored on a monthly basis and cost about $758 per month.
Technical Improvement		
6.3.1 Prepare and distribute annual monitoring reports	Implemented	The recommendation has been implemented.
6.3.2 Improve site maps	Implemented	The recommendation has been implemented.
6.3.3 Report detection levels for 'non-detect' results	Implemented	The recommendation has been implemented.
Progress Toward Final Cleanup Goals		
6.4.1 Clarify and document date for turnover to State for O&M	Under consideration	Discussions regarding this item will be planned soon to clarify if the turnover is in 2012 or 2013.
6.4.2 Develop consensus on terminating SVE at Wilko	Implemented	The system has been discontinued and the downgradient monitoring well will be sampled.

RSE Recommendations and Progress Toward Implementation
Site Name: Ace Services (Colby, KS)
RSE Report: EPA 542-R-07-017 (September 2007)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Modify methods of evaluating capture zone	Implemented	The modified methods include preparing potentiometric surface maps without operating extraction wells, following concentration trends at downgradient monitoring locations, and conducting a flow budget analysis. All lines of evidence suggest complete capture.
6.1.2 Re-start pumping at extraction wells where concentrations have increased above standards	Implemented	The recommendation has been implemented.
Cost Reduction		
6.2.1 Evaluate extraction pumping	Implemented	This recommendation has been implemented. A management decision was made to continue pumping at some locations where concentrations were detectable but below cleanup standards.
6.2.2 Suggestions for ground water monitoring	Alternative Implemented	The site team optimized the ground water monitoring program by utilizing the software program MAROS, rather than following the RSE report suggestions. This action is consistent with the intent of the RSE recommendation to optimize the ground water monitoring program.
6.2.3 Reductions in project management costs	Implemented	The site team indicates that project management costs are decreasing as system operations become smoother. In addition, the frequency of audit reports have decreased while maintaining the audit frequency and level of communication.
Technical Improvement		
6.3.1 Continue re-using on-site equipment rather than purchase new equipment	Implemented	The recommendation has been implemented.
6.3.2 Prepare map illustrating results of soil excavations	In progress	The suggested map is being prepared as part of the field sampling plan that is being submitted to the State in June 2008 for review. The field work will begin during the summer.

Progress Toward Final Cleanup Goals		
6.4 Consideration for gaining site closure	Planned	The suggested field work, plus additional borings and analysis to locate the former lagoons, will be implemented in Summer 2008.

RSE Recommendations and Progress Toward Implementation
Site Name: Cleburn Street Well (Grand Island, NE)
RSE Report: EPA 542-R-02-008k (July 2001)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Rehabilitate fouled extraction wells	Implemented	
6.1.2 Determine capture- zone effectiveness with sampling	Implemented	
6.1.3 Modify well-sampling program	Implemented	
6.1.4 Survey local private wells	Implemented	
6.1.5 Conduct indoor air sampling	Alternative Implemented	
6.1.6 Sample Pine Street well for TCE	Deferred to State	
Cost Reduction		
6.2.1Combine operator labor for OU1 and OU2	Declined	
6.2.2 Replace blower for OU1	Declined	
6.2.3 Consider reducing project management costs	Implemented	
Technical Improvement		
6.3.1 Measure SVE well parameters	Implemented	
6.3.2 Treat SVE condensate with air stripper	Implemented	
6.3.3 Reformat Quarterly Performance Reports	Implemented	

6.3.4 Drain water from extraction well vaults	Implemented	
6.3.5 Sample wells for additional parameters	Declined	
Progress Toward Final Cleanup Goals		
6.4.1 Investigate and implement air sparging	Alternative implemented	In October 2006, the region conducted an extensive Geoprobe survey of the source area and characterized soil, soil gas, and ground water contamination. The site team is expanding the network of SVE wells in order to address the source area beneath the building using the existing SVE unit. Air sparging or an alternative technology may be employed in the future if the expanded SVE system does not prove effective. Three new groundwater monitoring wells were installed inside the building to provide monitoring points upgradient of the hot spot. In addition, the three extraction wells were rehabilitated and all the pumps were replaced. Total system flow has now been restored to 110 gpm, which is expected to provide adequate plume capture.
6.4.2 Develop an exit strategy	Deferred to State	

RSE Recommendations and Progress Toward Implementation
Site Name: Central City/Clear Creek, Argo Tunnel (Idaho Springs, CO)
RSE Report: EPA-542-R-07-019 (September 2007)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Evaluate and decide on need for blowout prevention	In progress	The site team recognizes that the potential for Argo Tunnel blowouts is a safety issue. The State and Region potentially agree that blowout control is appropriate, but that there is a desire for further study.
6.1.2 Evaluate importance of complete collection and treatment of the Virginia Canyon ground water	Under consideration	This recommendation has not been fully considered yet.
6.1.3 Evaluate indoor air quality for metals and confirm medical monitoring for plan workers	Implemented	This recommendation was implemented by the site contractor as a health and safety measure for its employees; no problems were identified.
Cost Reduction		
6.2.1 Install new filter presses	Planned	When funding is received, the site team may proceed with evaluating additional technology and design options beyond those presented in the RES. A final decision and implementation is planned for Summer or Fall 2008.
6.2.2 Realize savings from improved operations	In progress	The site team is in preliminary discussions with a filtration design company to pilot an air scouring system, which is consistent with this recommendation.
6.2.3 Improve metals treatment by solids recycling	Under Consideration	The site team is understandably hesitant to make a permanent or substantial modification to the metals removal system. The RSE team notes that once the inefficiencies are addressed in the current system, that this type of modification would be one of the few that would provide additional cost savings.
Technical Improvement		
6.3.1 Reduce discharge of recycled solids and high pH water to equalization basins	In progress	The site team has partially implemented this recommendation by creating a sump and pump system to recirculate the high pH water to the rapid mix tank rather than the EQ basins. Additional changes are being reviewed to return underbasin flow to the rapid mix tank with flow to the EQ basins only when needed. These modifications are consistent with the RSE recommendations.

6.3.2 Improve lime feed system	In progress	The site team has made some minor changes to the lime feed system but will wait until funding is available to make further modifications.
6.3.3 Provide additional compressed air capacity	Planned	The site team is waiting for funding to implement this recommendation.
6.3.4 Reduce solids wasting flow rate	Alternative Implemented	The site team did not have success with modifying the air flow rate and instead has modified the timing of the solids wasting.
6.3.5 Consider construction of an on-site solids disposal repository as a contingency to disposal at a landfill	Under consideration	The site team views this feature in the same manner as the RSE team, which is a means of increasing flexibility of solids disposal rather than a means of reducing operating costs. Therefore, it is not seen as a high priority. Furthermore, implementing this feature is contingent on accessing specific property that is under negotiation.
6.3.6 Additional improvements	In progress	The site team has replaced a turbidity meter, which has improved operations. The site team has decided against an autosampler given that the costs outweigh the benefits. The site team is waiting for funding to implement additional, permanent lime storage.
Progress Toward Final Cleanup Goals		
No recommendations		

RSE Recommendations and Progress Toward Implementation
Site Name: Modesto Ground Water Contamination (Modesto, CA)
RSE Report: EPA-542-R-02-008o (December 2001)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Monitor subsurface performance of SVE system	Implemented	
6.1.2 Assign responsibility for evaluating monitoring and performance data	Implemented	
6.1.3 Analyze capture zone	Implemented	
6.1.4 Delineate plume (if necessary)	Implemented	
Cost Reduction		
6.2.1 Consider alternate discharge locations - Discharge to storm sewer - Reinject to subsurface	Declined	Negotiation over discharges is a time consuming process, complicated by the presence of naturally occurring uranium in the area around the site. The site team will reconsider the appropriateness of this recommendation in the development of the final ground water remedy.
6.2.2 Simplify system (remove equalization tank, simplify filtration system, and remove transfer pump)	Implemented	
6.2.3 Regularly evaluate need for ion exchange units	Implemented	
Technical Improvement		
6.3.1 Relocate vacuum breaker	Implemented	
6.3.2 Install valving for backwashing carbon and ion exchange units	Implemented	
6.3.3 Monitor extraction well performance	Implemented	New extraction well was installed in 2006; the original well malfunctioned in 2005 and has since been turned off.

6.3.4 Modify SVE system to address high operating temperatures	Declined	
6.3.5 Regularly evaluate need for vapor phase carbon	Declined	
6.3.6 Properly convert PID readings to PCE concentrations	Implemented	
6.3.7 Improve accuracy of SVE flow	Implemented	
6.3.8 Adjust membrane around Baker tank	Alternative Implemented	
6.3.9 Improve drainage to secondary sump	Implemented	
6.3.10Add fans to the control panel	Implemented	
6.3.11Relocate vapor phase carbon for the groundwater treatment system	Implemented	
6.3.12 Add phone line for data acquisition	Implemented	
Progress Toward Final Cleanup Goals		
6.4.1 Initiate screening of final remedy	In progress	Selection of a final remedy is planned for FY2008, after the expanded SVE system has been operational and additional soil characterization is complete.
6.4.2 Measure DO and ORP in monitoring wells	Implemented	

RSE Recommendations and Progress Toward Implementation
Site Name: Boomsnub/Airco (Hazel Dell, WA)
RSE Report: EPA-542-R-02-016 (September 2002)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Conduct a hydro-geological analysis	Implemented	
6.1.2 Evaluate potential management options for extraction and discharge	Implemented	
6.1.3 Considerations for potential extraction and discharge options	Implemented	
6.1.4 Consider other discharge options	Implemented	
Cost Reduction		
6.2.1 Eliminate ion exchange effluent tank and pump	Implemented	
6.2.2 Improve electric work for air stripper	Implemented	
Technical Improvement		
6.3.1 Consider limitations of passive technologies	Implemented	
6.3.2 Develop an exit strategy	In progress	A consent decree with the PRP was finalized in 2007. The PRP has provided EPA with a Closure Plan for Operable Units 2 and 3. Once agreement has been reached on the closure plan, EPA will then finalize an exit strategy.
Progress Toward Final Cleanup Goals		
No recommendations		

RSE Recommendations and Progress Toward Implementation
Site Name: Northwest Pipe & Casing (Clackamas, OR)
RSE Report: EPA 542-R-07-018 (September 2007)

Recommendation	Status	Comments
Remedy Effectiveness		
6.1.1 Improve delineation of Plume 1 to the south	In progress	Sampling began in 2007. The site team will continue with a dynamic site characterization approach in Summer 2008.
6.1.2 Finalize institutional controls (ICs) on Parcel A	In progress	EPA and the State are in final negotiations on the Easement and Equitable Servitude agreement that will formalize and document the ICs for the ODOT property.
6.1.3 Continue/conclude efforts to evaluate potential for vapor intrusion on Parcel A	In progress	Vapor intrusion sampling was completed in September 2007; final results are expected in March 2008.
Cost Reduction		
6.2.1 Eliminate operation of GCWs	Implemented	Operation of ground water circulation wells (GCWs) was terminated in May 2007.
Technical Improvement		
6.3.1 Revise sequencing for collecting site-wide water level data	Implemented	Implemented during November 2007 sampling event.
Progress Toward Final Cleanup Goals		
6.4.1 Clarify and document goals for active remediation	Planned	Dependent upon the results of recommendation 6.1.1. The region plans to complete the work necessary to select and construct the modified remedy over the next two years and will utilize either an ESD or ROD amendment.
6.4.2 Implement in-situ bioremediation to reduce highest VOC concentrations, in conjunction with natural remediation	Planned	Dependent upon the results of recommendation 6.1.1. The region plans to complete the work necessary to select and construct the modified remedy over the next two years and will utilize either an ESD or ROD amendment.

RSE Recommendations and Progress Toward Implementation
Site Name: Wyckoff/Eagle Harbor (Bainbridge Island, WA)
RSE Report: EPA-542-R-05-013 (March 2005)

Recommendation	Status	Progress since the previous progress report
Remedy Effectiveness		
6.1.1 Select a final remedy	In progress	The contract for construction of a new treatment plant has been awarded; construction scheduled to be completed in June 2008. The site team will invoke the containment contingency remedy (specified in the 2000 ROD) with a fact sheet and a public meeting in Summer 2008.
Cost Reduction		
6.2.1 Simplify existing treatment plant	Implemented	
6.2.2 Install upgradient sheet pile	In progress	The existing sheet pile may not be keyed into the aquitard in the SE corner of the site. Fieldwork for up to eight additional borings/monitoring wells to confirm aquitard location will be done in Summer 2008. Design and installation of additional section of sheet pile (if warranted) to complete vertical containment will be based on findings.
6.2.3 Remove steam injection/ extraction system and apply cap	Planned	The State and EPA agree that capping is necessary; but it will occur in later stages of implementation of containment remedy. Demolition of existing infrastructure (steam injection well field, old groundwater treatment plant) will be required prior to cap construction.
6.2.4 Conduct water budget analysis	Implemented	
6.2.5 Upgrade extraction system	In progress	Additional borings/monitoring wells to be installed in Summer 2008 will guide placement of any necessary additional extraction wells. Existing wellfield will also be upgraded, as necessary, in Summer 2008 in anticipation of transfer of O&M responsibilities to State of Washington.
6.2.6 Replace the existing treatment plant	In progress	The contract for construction of a new treatment plant has been awarded; construction scheduled to be completed in June 2008. The existing treatment plant will be demobilized pending funding availability.

6.2.7 Augment monitoring in lower aquifer	In progress	Installation of six or seven lower aquifer monitoring wells at the perimeter of the Former Process Area (FPA) to be completed in Summer 2008. Additional five lower and three upper aquifer wells to create five new vertical hydraulic containment well pairs, for a total of nine well pairs.
Technical Improvement		
6.3 Other related items - Improve monitoring approach - Monitor seeps on beach - Consider new extraction points	Under consideration	Contingent on implementation of the above recommendations.
Progress Toward Final Cleanup Goals		
No recommendations		