



# **H I G H L I G H T S**

**National Risk Management Research Laboratory  
Ground Water and Ecosystem Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of February 2, 2004**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region II: On January 26, 2004, Dr. Dominic DiGiulio (GWERD) provided RPM Michael Zeolla with review comments on a remedial design work plan for a soil vapor extraction system at the D'Imperio Property Superfund Site in Hamilton Township, NJ. In addition to discussing performance objectives, suggestions were offered with respect to the design and construction of vapor probe clusters as well as the number of clusters and their location with respect to SVE wells. Soil vapor monitoring was discussed in terms of the type of canisters used for sample collection and the preferred method of analysis. Problems associated with the proposed "radius of influence" SVE design were outlined and the need to base the design on a knowledge of subsurface permeability variations and resulting specific discharge or pore-gas velocity rates was stressed.

(03-R02-003)

(D. DiGiulio(GWERD)580-436-8605)

Technical Assistance to Region III: On January 27, 2004, Dr. David Jewett (GWERD), and Mark Paddock and Dr. Bruce Pivet (Dynamac) provided RPM Frank Vavra with comments on the use of BiQuat Resin and other treatment alternatives for the remediation of perchlorate-contaminated ground water at the Aberdeen Proving Ground Site in Aberdeen, MD. Specifically, the request was for a literature review covering an evaluation of ion exchange technologies including BiQuat resins, advantages and disadvantages of the technology, and identification of case studies. Generally, the BiQuat technology has been shown to be successful in water having low concentration of perchlorate. It was pointed out that the effectiveness and longevity of the resin are dependent on water chemistry and will vary between sites.

(04-R03-002)

(D. Jewett(GWERD)580-436-8560)

Technical Assistance to Region IX: On January 9, 2004, Steven Acree (GWERD) provided RPM Jeff Dhont with comments concerning the location of injection wells for a DNAPL extraction test program at the Montrose Superfund Site in Torrance, CA. In general, it was not clear that sufficient hydraulic analyses were performed to support reported conclusions that injection will not result in significant DNAPL mobilization. Discussed in detail were the gradients required to mobilize DNAPLs, direction of movement, location of injection wells with respect to future source removal systems, and the size of the calculated capture zone.

(95-R09-015)

(S. Acree(GWERD)580-436-8609)

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Wilkin, Richard T. and Robert W. Puls (GWERD). 2003. "Capstone Report on the Application, Monitoring, and Performance of Permeable Reactive Barriers for Ground-Water Remediation: Volume 1 - Performance Evaluations at Two Sites." EPA Report. EPA/600/R-03/045a.

(R. Wilkin(GWERD)580-436-8874)

Paul, Cynthia J., Mary S. McNeil, Frank P. Beck, Jr. (GWERD), Patrick J. Clark (NRMRL), Richard T. Wilkin, and Robert W. Puls (GWERD). 2003. "Capstone Report on the Application, Monitoring, and Performance of Permeable Reactive Barriers for Ground-Water Remediation: Volume 2 - Long-Term Monitoring of PRBs: Soil and Ground Water Sampling." EPA Report. EPA/600/R-03/045b.

(C. Paul(GWERD)580-436-8556)



# **HIGHLIGHTS**

**National Risk Management Research Laboratory  
Ground Water and Ecosystem Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of February 9, 2004**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: During January 14-16, 2004, Dr. David Jewett (GWERD) and Dr. Mingyu Wang (Shaw-CSMoS) attended a meeting in Harvard, MA, to discuss ground-water flow and solute transport modeling being conducted by Geotrans Inc. at the W.R. Grace Superfund Site in Acton, MA. Others attending the meeting were from EPA Region 1, Metcalf & Eddy (Region 1 contractor), MADEP, Brown & Caldwell (MADEP contractor), and Remedium Group (Grace representative). The meeting focused on revisions to the ground-water flow model, model calibration and verification, proposed contaminant transport modeling, and the use of models in the feasibility study. CSMoS concerns with the ground-water flow model were also discussed and additional information was requested to aid in reviewing model revisions.

(02-R01-002)

(D. Jewett(GWERD)580-436-8560)

Technical Assistance to Region IV: During January 26-30, 2004, Dr. Ralph Ludwig (GWERD) and Mark Paddock (Dynamac) conducted a field trip to the Macalloy Corporation Site in Charleston, SC, to collect ground-water samples as part of a continuing performance monitoring investigation of two pilot redox studies. One involves the injection of a sodium dithionite/ferrous sulfate solution into a saturated zone hexavalent chromium source area. The second involves the injection of the same solution into the path of a dissolved hexavalent chromium plume. Samples were collected from 31 performance monitoring wells and analyzed in the field for ferrous iron, hexavalent chromium, sulfide, and alkalinity. Samples to be analyzed for anions and cations were shipped to GWERD.

(01-R04-008)

(R. Ludwig(GWERD)580-436-8603)

Technical Assistance to Region VI: During January 26-29, 2004, Steve Acree and Dr. Randall Ross (GWERD) made a field trip to the Delatte Metals Superfund Site in Ponchatoula, LA, to characterize the hydraulic conductivity of a recently installed permeable reactive barrier (PRB) to serve as a basis for evaluating changes that may occur over time. The tests were performed using both pneumatic and conventional slug testing methods. In addition, dataloggers were installed to monitor temporal fluctuations in hydraulic gradients in the vicinity of the wall.

(03-R06-001)

(S. Acree(GWERD)580-436-8609)



# **H I G H L I G H T S**

**National Risk Management Research Laboratory  
Ground Water and Ecosystem Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of February 23, 2003**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region II: On February 12, 2004, Dr. Ralph Ludwig (GWERD) provided RPM Michelle Granger with review comments on a bench-scale treatability study of in-situ technologies for the remediation of hexavalent chromium in ground water at the Puchack Well Field Superfund Site in Pennsauken Township, NJ. In general, the scope of work was found to be sufficiently detailed with respect to the feasibility of employing abiotic or biotic approaches for treating chromate at the site. Issues discussed in detail included the need to differentiate between chromate reduction and sorption, and proposed chemical analyses.

(04-R02-002)

(R. Ludwig(GWERD)580-436-8603)

Technical Assistance to Region III: On February 17, 2004, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided James Cummings (Technical Innovation Office) with comments on a pilot-scale test for in-situ chemical oxidation of chlorinated solvents in ground water at the Dublin Site in Dublin Borough, PA. The basis of the review was to assess whether the proposed activities are innovative and, therefore, warrant support from the risk sharing initiative program of the Technology Innovative Office. It was pointed out that TCE oxidation by  $MnO_4^-$  has often been documented in the scientific literature, and the recirculation method of distribution has been used for well over 20 years. However, the depth of contamination in fractured bedrock and other factors may collectively present technical challenges that have not been addressed at other sites.

(04-R03-001)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IV: On February 6, 2004, Dr. Mary Gonsoulin (GWERD), and Mark Paddack and Drs. Daniel Pope and Kelly Hurt (Dynamac) provided Environmental Scientist Channing Bennett with review comments on an in-situ enhanced bioremediation work plan for the Owens Corning Facility in Anderson, SC. A number of issues were discussed including inadequate data for selecting remedial alternatives, the possible existence of NAPLs as evidenced by high concentrations of VOCs in ground water, potential problems associated with the proposed remedy, determination of bacterial species present at the site, performance monitoring, and the need to consider alternative remedies such as dewatering combined with SVE/bioventing to remove VOCs.

(04RC04-001)

(M. Gonsoulin(GWERD)580-436-8616)

Technical Assistance to Region X: In a continuing technical assistance effort at the Boomsnub/Airco Superfund Site in Hazel, WA, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac consultant) provided RPM Lee Marshall with technical review comments on a ground-water modeling summary report. The February 17, 2004, comments, which followed a February 6, 2004, teleconference, stressed the need for more realistic input values and cautioned against overconfidence in model results, particularly with respect to solute transport. The collection and incorporation of site-specific data was urged. The primary issue yet to be resolved concerns natural attenuation as there is no direct evidence to support the biotic or abiotic degradation of TCE or chromium at the site.

(03-R10-001)

(R. Ross(GWERD)580-436-8611)



# **HIGHLIGHTS**

**National Risk Management Research Laboratory  
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Robert S. Kerr Environmental Research Center  
Status Report for the Week of March 22, 2004**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On March 11, 2004, Dr. David Jewett (GWERD) and Dr. Mingyu Wang (Shaw-CSMoS) provided RPM Derrick Golden with review comments on additional ground-water flow model outputs for the W.R. Grace Superfund Site in Acton, MA. The comments were offered following a January 15, 2004, briefing on the status of flow and transport models held at the Geo Trans, Inc. offices in Harvard, MA. A number of issues were discussed including model design and calibration, impact of ground-water withdrawals on boundary conditions, grid discretization, and use of site-specific versus literature data. It was recommended that model refinements continue and the performance be evaluated periodically to insure that the results are reliable.

(02-R01-002)

(D. Jewett(GWERD)580-436-8560)

Technical Assistance to Region II: On March 3, 2004, Dr. Scott Huling (GWERD), Dr. Bruce Pivetz (Dynamac), and Dr. Dominic DiGiulio (GWERD) provided RPM Farnaz Saghafi with technical comments on an in-situ chemical oxidation test plan at the Chemical Leamen Tank Lines Superfund Site in Bridgeport, NJ. The soil vacuum extraction (SVE) system and operation were questioned with regard to capturing volatiles released during in-situ Fenton oxidation. Detailed comments were offered in a number of areas including the chemical oxidation test, monitoring well installation, soil sampling and analysis, process monitoring parameters, sampling and monitoring plan, and data analysis and interpretation.

(00-R02-002)

(S. Huling(GWERD)580-436-8610)

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Hattan, Greg (KS Dept. of Health and Environ.), Barbara Wilson (Dynamac), and John T. Wilson (GWERD). 2003. "Performance of Conventional Remedial Technology for Treatment of MTBE and Benzene at UST Sites in Kansas." *Remediation*. Winter 2003, Vol. 14, No. 1, pp. 85-94.

(J. Wilson(GWERD)580-436-8534)

Wilkin, Richard T. (GWERD). 2003. "Sulfide Minerals in Sediments." In *Encyclopedia of Sediments and Sedimentary Rocks*, Edited by G.V. Middleton. pp. 701-703, Kluwer Academic Publishers, The Netherlands.

(R. Wilkin(GWERD)580-436-8874)

Smieja, Joanne A. (Gonzaga Univ.) and Richard T. Wilkin (GWERD). 2003. "Preservation of Sulfidic Waters Containing Dissolved As(III)." *Journal of Environmental Monitoring*, Vol. 5, pp. 913-916.

(R. Wilkin(GWERD)580-436-8874)



# *H I G H L I G H T S*

National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of April 12, 2004 -

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On March 13, 2004, Dr. Scott Huling (GWERD) provided Dr. Ralph Ludwig (GWERD) and RPM Brian Farrier with technical review comments on a document titled "Draft Workplan for Treatability Studies Pertaining to In-Situ Chemical Oxidation, Volume I - Technical" (February 2004) prepared for the Brunswick Wood Preserving Site in Brunswick, GA. In general, a major deficiency in the work plan is that there is very little information regarding Fenton oxidation and no information on the permanganate oxidation treatability study. In the current form, it is unclear whether useful information would be provided which would allow decisions to be made regarding either of the proposed oxidation technologies. It was recommended that significant improvements be made to the work plan regarding proposed activities before it is approved by EPA.

(01-R04-005)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IX: On April 1, 2004, Dr. John Wilson (GWERD) provided Dr. David Burden (GWERD), ORD Technical Liaison Michael Gill, and Hydrologist Herb Levine review comments on an enhanced reductive dechlorination work plan for the Former Siemens/Sobrato Properties Site in Mountain View, CA. Issues discussed in detail included iron and manganese sampling, enumeration of bacteria, possible increases in the cis-DCE concentration, and proposed attenuation of vinyl chloride. Figures were provided which show the expected distribution of contaminants downgradient of the source.

(04-R09-001)

(J. Wilson(GWERD)580-436-8534)

## **PUBLIC SERVICE ACTIVITIES**

On April 2, 2004, the following individuals served as judges at the 2004 Oklahoma State Science and Engineering Fair at East Central University: Special Award Judges - Dr. Ann Keeley, Dr. Scott Huling, Dr. Dave Burden, and Mr. Tim Canfield; and Category Award Judges - Dr. John Wilson, Mr. Joe Williams, and Dr. Paul Mayer.

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Ferrey, Mark L. (Minnesota Pollution Control Agency), and Richard T. Wilkin, Robert G. Ford, and John T. Wilson (GWERD). 2004. "Nonbiological Removal of cis-Dichloroethylene and 1,1-Dichloroethylene in Aquifer Sediment Containing Magnetite." Environmental Science & Technology, Vol. 38, No. 6, pp. 1746-1752.

(R. Wilkin(GWERD)580-436-8874)





# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of April 19, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: In a continuing technical assistance effort at the Resolve Superfund Site in Dartmouth, MA, Dr. Scott Huling (GWERD) provided RPM Joseph Lemay with comments on the “Standard Operating Procedure for the RESOLVE Dynamic Flux Chamber Measurements (Revision 2.0).” In the response of April 12, 2004, issues discussed in detail included methods for extracting contaminants from activated carbon tubes, quality assurance and quality control data, assurance that representative soil gas is being collected, and the required number of activated carbon sample collection tubes to be connected in series.

(01-R01-002)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IV: Ground-water sampling, coring, and hydraulic testing associated with field pilot installations at the Columbia Nitrogen and Macalloy Corporation Superfund Sites in Charleston, SC, were conducted during March 29 - April 2, 2004. Personnel involved included Frank Beck and Drs. Ann Keeley, David Jewett, and Ralph Ludwig (GWERD), Mark Paddock (Dynamac), Patrick Clark (NRMRL), and Dr. David Smyth (Univ. of Waterloo). At the Columbia Nitrogen Site, where arsenic and heavy metal contamination is present in ground water, two well transects through a mixed media PRB consisting of zero valent iron, compost, and pea gravel, were sampled for a variety of parameters including anions, cations, pH, ORP, alkalinity, TOC/DOC, and TIC/DIC. In addition, cores were collected and processed on site in a glove box for microbiological analysis. Several wells were installed for pneumatic slug testing. At the Macalloy Corporation Superfund Site, where a ferrous iron-based reductant has been injected into an aquifer to treat solid-phase and dissolved-phase hexavalent chromium, selected wells were sampled and analyzed in the field for sulfite and thiosulfate. In addition, new wells were installed to better define the ground-water flow regime and cores were collected to better define lithology in the pilot test areas.

(00-R04-003 and 01-R04-008)

(R. Ludwig(GWERD)580-436-8603)

Technical Assistance to Region IV: During March 29 - April 2, 2004, in support of two pilot-scale treatability studies, Steve Acree and Dr. Randall Ross (GWERD) characterized the hydraulic conductivity of materials within and in the vicinity of a recently installed permeable reactive barrier (PRB) at the Columbia Nitrogen Site and a subsurface reactive treatment zone at the Macalloy Corporation Site in Charleston, SC. The studies were performed using pneumatic slug testing techniques in materials of moderate to high hydraulic conductivity, and conventional slug testing methods in materials of moderate to low conductivity. The data will be used to estimate ground-water flow rates and fluxes through these subsurface systems as part of the ongoing performance evaluations.

(00-R04-003 and 01-R04-008)

(S. Acree(GWERD)580-436-8609)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of April 26, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region II: On April 14, 2004, Dr. David Burden (GWERD) and Dr. Daniel Pope (Dynamac) provided RPM Michael Infurna with review comments concerning a natural attenuation study for the Former Ashland Distribution Facility in Rensselaer, NY. The review was requested to determine whether the modeling analysis was done correctly, the parameters used are appropriate, and if the conclusions are supported by the results of the study. It was suggested that the results are sufficient to encourage further characterization and monitoring to assess the role of natural attenuation processes. It was also pointed out that the study did not present adequate information with respect to the potential for natural attenuation to meet remedial goals for the site.

(04-R02-003)

(D. Burden(GWERD)580-436-8606)

Technical Assistance to Region IV: On April 13, 2004, Dr. Scott Huling (GWERD), and Dr. Bruce Pivetz and Mark Paddock (Dynamac) provided RPM Lofton Carr with comments concerning the presence of NAPLs at the Wrigley Charcoal Superfund Site in Wrigley, TN, and provided guidance regarding additional site characterization work needed to improve a conceptual model of NAPL distribution. It was recommended that the hydrogeologic and contaminant conceptual model be modified to assist in understanding the type, source area, volume, and driving force of the NAPL; the type and stratigraphy of the subsurface materials; and ground-water flow patterns in the overburden and bedrock.

(04-R04-001)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region V: In a continuing technical assistance effort at the Chem-Dyne Superfund Site in Hamilton, OH, Dr. David Jewett (GWERD), and Abu Noman Ahsanuzzaman and Dr. Mingyu Wang (Shaw-CSMoS) provided RPM Lolita A. Hill with comments on a ground-water transport model for the site. The April 14, 2004, critique stated that the modeling approach, incorporating the mass distribution ratio concept, has the capability of handling the complexity and capturing the average primary attributes of the contaminant sources stored in soil layers in a capture zone, such as contaminants sorbed to soils and those present as residual nonaqueous phase liquid droplets. The approach is particularly valuable for estimating VOC mass removals and their average concentrations in the corresponding capture zones. However, the modeling approach has a limited capability for evaluating the spatial distribution of contaminant concentrations at different points of interest within the capture zones formed by extraction wells.

(01-R05-001)

(D. Jewett(GWERD)580-436-8560)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of May 10, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Headquarters: On April 16, 2004, Dr. David Jewett (GWERD) and Dr. Bruce Pivetz (Dynamac) provided Marlene Berg (OSWER, OERR) with a review of the literature on the facilitated transport of PCBs in ground water along with review comments on a draft PCB guidance document on the subject. The information provided also included a worst case scenario that would generate a generic, but conservative, soil screening level for PCB migration to ground water, the identification of appropriate laboratory tests, and a verification of PCB physical and chemical properties data presented in the guidance document. -

(04-R00-002)

(D. Jewett(GWERD)580-436-8560) -

Technical Assistance to Region IV: On April 30, 2004, Dr. Scott Huling (GWERD) provided RPM Brian Farrier with comments concerning a treatability study for permanganate oxidation of PAHs, PCP, benzene, and toluene in ground water at the CDM Site in Brunswick, GA. In general, it was suggested that the proposal serves as a good basis upon which to develop a scope of work. The review comments and recommendation were provided to focus the scope of bench-scale treatability tests. Issues discussed in detail included the size of the bench-scale reactors, length of oxidant demand tests, solids to solution ratio for testing, and oxidant delivery concentrations. -

(01-R04-005)

(S. Huling(GWERD)580-436-8610) -

Technical Assistance to Region IV: On April 5, 2004, Dr. Richard Wilkin (GWERD) provided Dr. Carol Stein (Gannett Fleming, Inc.) with comments on a document titled "Geochemical Protocol for Site-to-Background Comparisons of Trace Metals in Soils: Examples from the Avon Park Air Force Range, Florida." The report was found to be a clearly written discussion and presentation of a new methodology for establishing background element concentrations in soil. Several suggestions were provided to improve the clarity of the presentation and to point out the limitations of this method for identifying metal sequestration mechanisms. -

(04-R04-002)

(R. Wilkin(GWERD)580-436-8874) -

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Jorgensen, Eric E. (GWERD) and Stephen L. Yarbrough (Dynamac). November 2003. "Ecosystem Restoration to Restore Water Quality; An Unrealized Opportunity for Practitioners and Researchers." EPA Report. EPA/600/R-03/144

(E. Jorgensen(GWERD)580-436-8545)





# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of May 17, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On May 11, 2004, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Galo Jackson with technical review comments on a draft work plan for pilot-scale injection of KMnO<sub>4</sub> at the Southern Solvents Superfund Site in Tampa, FL. General discussions centered on the proposed injection strategy, mass and cost of required permanganate, and soil oxygen demand. Detailed comments were offered with respect to bench-scale studies, pilot plan overview, design basis, pre-injection sampling and analysis, and performance monitoring.  
(00-R04-005) (S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IX: On May 10, 2004, Steven Acree (GWERD), and Dr. Mingyu Wang, Noman Ahsanuzzaman, and Robert Earle (Shaw Env.) provided RPM Jeff Dhont with comments regarding Interim Modeling Memorandum No. 7 for the Montrose and Del Amo Superfund Sites in Torrance, CA. Concerns were expressed with respect to the source term and vertical hydraulic conductivity used in the model. Other concerns were the general head boundary, calibrated hydraulic conductivity values, and a weight scheme applied to different investigation areas during the model construction and calibration.  
(95-R09-15) (S. Acree(GWERD)580-436-8609)

Technical Assistance to Region IX: On May 11, 2004, Dr. David Jewett, Steven Acree, and Dr. Robert Ford (GWERD) provided RPM James Sickles with a review of 4th Quarter 2004 Radionuclide Data for ground-water samples collected in the vicinity of the Yerington Mine Site in Yerington, NV. Other documents were also reviewed to gain additional knowledge about the hydrogeologic and geochemical settings at the site. Insufficient data with respect to hydraulic gradients and conductivity in aquifer units where uranium has been detected and limited data defining the geochemical setting make it difficult to reliably perform even a screening-level evaluation of the possible mobility of uranium and the distance and direction the plume may have migrated. Detailed review comments on subsurface characterization and uranium fate and transport issues were provided.  
(01-R09-004) (D. Jewett(GWERD)580-436-8560)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of June 7, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On May 21, 2004, Dr. David Jewett (GWERD), and Dr. Noman Ahsanuzzaman, Dr. Mingyu Wang, and Robert Earle (Shaw Env.) provided RPM Derrick Golden with review comments concerning ground-water flow and contaminant transport model results at the W.R. Grace Superfund Site in Acton, MA. The review focused on vertical hydraulic gradients produced by the flow model and preliminary results of the transport model. It was suggested that statistical results be presented with respect to simulated and observed vertical hydraulic gradients. Sensitivity simulations, specific times and locations for calibrating the transport model, and the justification of model parameters were discussed in detail.

(02-R01-002)

(D. Jewett(GWERD)580-436-8560)

Technical Assistance to Region IX: On May 10, 2004, Steven Acree (GWERD), and Dr. Mingyu Wang, Dr. Noman Ahsanuzzaman, and Robert Earle (Shaw Env.) provided RPM Jeff Dhont with comments regarding Interim Modeling Memorandum No. 8 for the Montrose and Del Amo Superfund Sites in Torrance, CA. Factors that could result in model uncertainty were discussed along with calibration statistics, ways to reduce uncertainty, and implications of uncertainty in modeling results.

(95-R09-015)

(S. Acree(GWERD)580-436-8609)

Technical Assistance to NYS: On May 25, 2004, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided Eric Hausamann (NYS Dept. of Environmental Conservation) with comments and recommendations on a draft of "Strategies for Monitoring the Performance of DNAPL Source Zone Remedies" prepared by the Interstate Technology and Regulatory Council (ITRC) DNAPLs Team. In addition to a plethora of detailed comments directed at various sections of the document, general remarks were directed at addressing significant differences in the proposed chemical oxidants, and defining the terms and phrases used in the document. Editorial comments were provided in the margins of the text.

(Misc.)

(S. Huling(GWERD)580-436-8610)

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Azadpour-Keeley, Ann (GWERD). "NRMRL Evaluates Microbial Responses to Ground-Water Remediation Technologies." Technology News and Trends. Issue 11, March 2004, pp. 5-6.

(A. Azadpour-Keeley(GWERD)580-436-8890)



# **HIGHLIGHTS**

**National Risk Management Research Laboratory  
Ground Water and Ecosystem Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of June 14, 2003**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region V: On June 9, 2004, Dr. David Burden (GWERD), and Dr. Dan Pope and Mark Paddock (Dynamac) provided RPM Terese Van Donsel with review comments on documents associated with the Field Brooks Superfund Site in Ashtabula, OH. In general, suggestions were offered with respect to proposed additional test extraction wells and the operation of a vacuum enhanced DNAPL recovery system. Detailed comments concerned operational problems that may be associated with silt influx into the wells, freezing problems, the design and installation of additional recovery wells, and well spacing. In addition, other possible DNAPL remediation technologies were discussed including six phase heating, steam injection, and in-situ chemical oxidation.

(04-R05-001)

(D. Burden(GWERD)580-436-8606)

Technical Assistance to Region IX: In a continuing technical assistance effort at the Montrose Superfund Site in Torrance, CA, Steven Acree (GWERD) provided RPM Jeff Dhont with comments concerning proposed changes in the locations of two wells to be used for short-term tests of DNAPL extraction using conventional pumping techniques. In the response of June 9, 2004, it was pointed out that both of the new locations appear to be near the lateral extent of DNAPL migration where little recovery may be expected. Specific site locations were suggested where greater accumulations of DNAPL are indicated.

(95-R09-015)

(S. Acree(GWERD)580-436-8609)

## **NATIONAL MEETING**

During May 24-28, 2004, Dr. David Burden (GWERD) and Dr. Kelly Hurt (Dynamac) attended the combined EPA National Association of Remedial Project Managers (NARPM) and Technical Support Project Meeting in Miami, FL. The conference was attended by more than 400 RPMs, Regional Forum members, and representatives from state agencies. On Wednesday May 26, Dr. Burden gave a presentation during the morning plenary session on the capabilities and services provided by the Ground Water Technical Support Center. Throughout the week, Dr. Burden and Dr. Hurt promoted the Ground Water Technical Support Center in the Resource Area using GWERD's new display and several informative handouts.

(D. Burden(GWERD)580-436-8606)

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Y.-J. An (ORISE) and D.H. Kampbell (GWERD). 2003. "Monitoring Chlorophyll-*a* as a Measure of Algae in Lake Texoma Marinas." Bull. Environ. Contam. Toxicol. 70:606-611.

(J. Williams(GWERD)580-436-8608)

Su, Chunming and Robert W. Puls (GWERD). 2004. "Nitrate Reduction by Zerovalent Iron: Effects of Formate, Oxalate, Citrate, Chloride, Sulfate, Borate, and Phosphate. Environmental Science and Technology, 38(9): 2715-2720.

(C. Su(GWERD)580-436-8638)

Su, Chunming (GWERD) and Donald L. Suarez (USDA). 2004. "Boron Release from Weathering of Illite, Serpentine, Shales, and Illite/Palygorskitic Soils." Soil Science of America Journal. 68:96-105.

(C. Su(GWERD)580-436-8638)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of July 12, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: In a continuing technical assistance effort at the Savage Well Superfund Site in Milford, NH, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Dick Goehlert with comments and recommendations regarding a second injection of permanganate ( $MnO_4^-$ ) at the site. The July 7, 2004, comments suggested that the pilot study was useful in acquiring information regarding the fate and transport of the oxidant in the aquifer and its impact on the VOCs. In addition to detailed responses to specific questions by the RPM, general comments were provided concerning the fate and transport of the oxidant, VOCs, and chloride.  
(03-R01-004) (S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IV: On June 23, 2004, Dr. Ralph Ludwig (GWERD) provided RPM Craig Zeller with a review of an engineering evaluation/cost analysis report for the Estech General Chemical Site in Navassa, NC. The comments included the cost of zero valent iron (ZVI) for the wall, the amount of ZVI in the barrier, and the location and construction of the PRB. The possible need to pay a patent licensing fee was also discussed.  
(04-R04-003) (R. Ludwig(GWERD)580-436-8603)

Technical Assistance to Region IV: In a continuing technical assistance effort at the Sydney Mine NPL Site in Brandon, FL, Steven Acree (GWERD) and Dr. Daniel Pope (Dynamac) provided RPM Galo Jackson with review comments on a November 2003 Analytical Data Report. The July 6, 2004, response indicated that, in general, contaminate concentrations may be declining. Although a statistical analysis for long-term temporal trends was conducted, the data available for review were insufficient to draw firm conclusions in this respect. It was recommended that the data from all sampling events be evaluated to better define trends that may exist.  
(96-R04-003) (S. Acree(GWERD)580-436-8609)

Technical Assistance to Region V: On June 18, 2004, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Richard Boice with comments on bench-scale and pilot-scale treatability studies for the Forest Waste Superfund Site in Otisville, MI. The discussions adequately described the bench-scale treatability study while the pilot-scale work plan provided good information upon which a more detailed plan can be prepared. Permanganate and persulfate tests were discussed along with the variability of natural oxidate demands. Recommendations were made with respect to QA/QC evaluations in the bench-scale studies. The pilot-scale work plan was discussed in terms of the  $KMnO_4$  dose rate, injection-well spacing, the possibility of installing additional monitoring wells, and health and safety training.  
(03-R05-001) (S. Huling(GWERD)580-436-8610)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of July 19, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region VI: On July 14, 2004, Steven Acree and Dr. Randall Ross (GWERD) provided RPM Sue Westbrook with review comments on a borehole geophysics report for Altus AFB in Altus, OK. In general, the investigation indicates that the formation becomes more competent with decreasing depth and ground-water flow may become dominated by discrete, transmissive zones. It was recommended that additional investigations be initiated to determine whether measures, in addition to a proposed biowall, may be required to address contaminants below the wall. It was also suggested that monitoring wells be installed and screened at contaminated intervals below the wall to evaluate performance at those levels. Specific locations downgradient of the proposed wall were recommended for assessing the maximum depth of contaminants.

(04-R06-002) (S. Acree(GWERD)580-436-8609/R. Ross(GWERD)580-436-8611)

Technical Assistance to Region IX: On July 6, 2004, Steven Acree (GWERD), and Dr. Mingyu Wang, Rob Earle, and Dr. Noman Ahsanuzzaman (Shaw Env.) provided RPM Jeff Dhont with comments concerning an interim modeling memorandum for the Montrose and Del Amo Superfund Sites in Torrance, CA. The memorandum presents two calibration solutions developed to assess the predictive uncertainty of the baseline model with regard to meeting ROD objectives for mass and volume reduction. Suggestions were offered with respect to data gaps, weighting scheme effect on calibration results, and biodegradation.

(95-R09-015) (S. Acree(GWERD)580-436-8609)

Technical Assistance to Region IX: In a continuing technical assistance effort at the Montrose Superfund Site in Torrance, CA, Steven Acree and Dr. Eva Davis (GWERD) provided RPM Susan Keydel with comments concerning the results of a DNAPL reconnaissance investigation. The July 13, 2004, technical assistance response indicated that the use of multiple lines of evidence to estimate the extent of the DNAPLs appears to be appropriate; however, there remains uncertainty due to subsurface heterogeneity and the imperfect nature of the available tools and techniques. Comments were also offered with respect to data interpretation.

(95-R09-015) (S. Acree(GWERD)580-436-8609/E. Davis(GWERD)580-436-8548)





# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of August 16, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On July 16, 2004, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Joseph Lemay with comments on a proposal to collect soil samples at the ReSolve Superfund Site in Dartmouth, MA. The proposed coring is to investigate the cause of reduced infiltration in one of the trenches at a phytoremediation field pilot study. It was suggested that the permeability of the core material be measured as a function of depth. It was also suggested that dry bulk densities be determined with depth as an inexpensive means of qualitatively and quantitatively assessing permeability reductions. Effluent flow rates should be closely monitored from just prior to coring until a short period after to determine if short-circuiting occurs due to coring activities.

(01-R01-002)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region I: In a continuing technical assistance effort at the Savage Well Superfund Site in Milford, NH, Dr. David Burden (GWERD), and Dr. Kelly Hurt, Dr. Daniel Pope, and Wayne Kellogg (Dynamac) provided RPM Dick Goehlert with review comments on documents and data associated with the site. In the response of August 11, 2004, a number of issues were discussed in detail including changes in water levels with respect to pumping rates, pre-test data collection, estimation of aquifer parameters, appropriate use of models, and the reported conclusions.

(03-R01-004)

(D. Burden(GWERD)580-436-8606)

Technical Assistance to Region III: On August 10, 2004, Dr. John Wilson (GWERD) provided RPM Debra Rossi with review comments on a ground-water monitoring program for the Maryland Sand, Gravel and Stone Superfund Site in Elkton, ME. A number of screening-level projections of the behavior of the plume were made using BIOSCREEN. In addition, comments were offered with respect to the interpretation of geochemical data, and the location of an additional monitoring transect was recommended.

(00-R03-002)

(J. Wilson(GWERD)580-436-8534)

Technical Assistance to Region IX: In a continuing technical assistance effort at the Montrose and Del Amo Superfund Sites in Torrance, CA, Steven Acree (GWERD), and Drs. Mingyu Wang and Norman Ahsanuzzaman (Shaw Env.) provided RPM Jeff Dhont with review comments on an interim modeling report. The July 30, 2004, response suggested that, in general, the modeling exercise is helpful in understanding possible data gaps and their effect on remedial design activities. In addition to the ratios of horizontal to vertical hydraulic conductivities, the ground-water model's sensitivity to the distribution of high conductivity zones in terms of uncertainty was discussed.

(95-R09-015)

(S. Acree(GWERD)580-436-8609)

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Holub, Scott M. (GWERD) and Kate Lajtha (Oregon St. Univ.). 2004. "The Fate and Retention of Organic and Inorganic 15N-Nitrogen in an Old-Growth Forest Soil in Western Oregon." ECOSYSTEMS. 7:368-380.

(S. Holub(GWERD)580-436-8547)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of August 30, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region II: On August 19, 2004, Drs. Scott Huling and Dominic DiGiulio (GWERD), and Dr. Bruce Pivetz (Dynamac) provided RPM Farnaz Saghafi with a review of a pilot test plan for in-situ remediation at the Chemical Leaman Tank Lines Superfund Site in Bridgeport, NJ. The plan proposed the use of in-situ Fenton oxidation and a hydrogen release compound. A review was also provided of previous comments on the test plan by a consulting firm. Although many of the earlier EPA comments had been incorporated into the plan, some were not fully addressed and new issues had become apparent. In addition to a poorly defined system design and operation, the monitoring program was not described in sufficient detail. Also discussed were the basis of the pilot design, sampling and analysis, implementation of the chemical oxidation injection, and process monitoring parameters.

(00-R02-002)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region III: On August 26, 2004, Dr. John Wilson (GWERD) provided a response to questions from RPM Debra Rossi concerning a pilot program for the temporary suspension of a pump-and-treat system at the Army Creek Landfill in Dobbinsville, DE. Specifically, the questions focused on a “trigger” to immediately restart the pump-and-treat system. The proposed one-year shut down of the ground-water recovery wells is for determining the impact on ground-water elevations and water quality in the aquifer beneath and within the Army Creek and adjacent landfills. It was suggested that the PRP’s approach to evaluating natural attenuation is valid and recommended that the proposed “trigger” be accepted.

(01-R03-002)

(J. Wilson(GWERD)580-436-8534)

Technical Assistance to Region V: On August 24, 2004, Dr. David Burden (GWERD), and Drs. Daniel Pope and Bruce Pivetz (Dynamac) provided Hazardous Substances Technical Liaison Charles Maurice with a response to questions concerning vinyl chloride contamination from septic tanks near the Wauconda Sand & Gravel Landfill Superfund Site in Wauconda, IL. It was suggested that organic chemicals can be used to unplug septic tank systems and their anaerobic degradation could result in the production of vinyl chloride. It was pointed out, however, that landfills are an obvious source of a wide range of organic and inorganic chemicals that contaminate ground water. As proposed by the PRP, a soil-gas and ground-water study would be useful in identifying the source.

(04-R05-002)

(D. Burden(GWERD)580-436-8606)

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Gonsoulin, Mary E. (GWERD), Jason R. Masoner (USGS), and Mike L. Cook and Thomas E. Short (GWERD). 2003. “Water Quality Assessment of Lake Texoma Beaches, 1999-2001.” Proc. Okla. Acad. Sci. 83:63-72.

(M. Gonsoulin(GWERD)580-436-8616)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of September 13, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On September 2, 2004, Dr. Ralph Ludwig and Steve Acree (GWERD) attended a kick-off meeting in Charleston, SC, to discuss the initiation of full-scale remediation activities at the Macalloy Corporation Site. Technical input was provided on the proposed ground-water remedy involving the injection of a ferrous iron based reductant into the subsurface. Potential issues associated with the proposed ground-water remedy and post-implementation monitoring were discussed as well as scheduling and sequencing of activities. Also in attendance were representatives from the South Carolina Department of Health and Environment, the PRP and contractors, and EPA Region 4.

(01-R04-008)

(R. Ludwig(GWERD)580-436-8603)

Technical Assistance to Region IX: During August 25-26, 2004, Dr. David Jewett (GWERD) participated in meetings in Yerington, NV, to discuss issues associated with the Yerington Mine-Anaconda Copper Co. Site. In addition to a public meeting on radionuclides in mine wastes, a technical workgroup focused on a work plan review, BLM radionuclide sampling results, Health and Safety Plan efforts, subsurface characterization concerns, ground-water quality issues, and the revision of the community relations plan. Other participants at the technical meeting included USEPA Region 9, BLM, Nevada DEP, Yerington Paiute Tribe, Walker River Paiute Tribe, BP/ARCO, Brown & Caldwell, and SECOR. Also in attendance were representatives from the City of Yerington, Lyon County, US Senator Reid's Office, and the local and national press.

(01-R09-004)

(D. Jewett(GWERD)580-436-8560)

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

U.S. Environmental Protection Agency. 2003. "The DNAPL Remediation Challenge: Is There a Case for Source Depletion?" EPA Report. EPA/600/R-03/143. National Risk Management Research Laboratory, Cincinnati, Ohio.

(D. Burden(GWERD)580-436-8606)

Pope, Daniel F. (Dynamac), Steven D. Acree (GWERD), Herbert Levine (EPA Region 9), Stephen Mangion (EPA Region 1), Jeffrey van Ee (NERL), and Kelly Hurt and Barbara Wilson (Dynamac). 2004. "Performance Monitoring of MNA Remedies for VOCs in Ground Water." EPA Report. EPA/600/R-04/027.

(D. Burden(GWERD)580-436-8606)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of September 27, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On September 10, 2004, Dr. Ann Keeley (GWERD) provided RPM Karen Lumino with review comments concerning a feasibility study for the Solvents Recovery Service of New England, Inc. (SRSNE) Site in Southington, CT. In general, the documents were well done from the standpoint of technical content and presentation. Issues discussed were the required amount of electron donor to be injected into the ground water, problems associated with the introduction of microorganisms into the subsurface, and the response of indigenous organisms to chemical oxidation and heat during remediation activities. It was pointed out that Dr. Keeley and others at GWERD have a publication in this month's issue of Remediation Journal dealing with the effect of heat and oxidizing chemicals on indigenous microorganisms at Cape Canaveral.

(99-R01-004)

(A. Keeley(GWERD)580-436-8890)

Technical Assistance to Region IX: On September 14, 2004, Steven Acree and Dr. David Jewett (GWERD), and Dr. Noman Ahsanuzzaman, Dr. Mingyu Wang, and Rob Earle (Shaw Env.) provided RPM Greg Lovato with a review of a proposed modeling study at the Carson Ground-Water Contamination RCRA Site in Carson, CA. In general, the description of the study was too vague in most aspects, including discussions of objectives, available data, and procedures, to allow a detailed review. Discussed in detail were a number of issues including the assumption of pseudo-steady-state flow, general head boundaries, vertical hydraulic conductivity, calibration data, and model selection.

(04RC09-001)

(S. Acree(GWERD)580-436-8609/D. Jewett(GWERD)580-436-8560)

Technical Assistance to Region X: During August 31 - September 2, 2004, Dr. Eva Davis (GWERD) was in Seattle, WA, to discuss and visit the Port of Ridgefield Site where steam injection is being used for the remediation of creosote at a former wood treatment facility. An earlier steam injection pilot test at the Wyckoff/Eagle Harbor Site ran into technical problems associated with the treatment of recovered chemicals. In addition to discussing the Wyckoff pilot study report, a site tour of the Port of Ridgefield Site was held including the steam injection field and above-ground treatment facilities.

(98-R10-001)

(E. Davis(GWERD)580-436-8548)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of October 11, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: During September 20-24, 2004, field sampling was carried out at the Industri-Plex Superfund Site in Woburn, MA, as part of an ongoing cooperative research effort between GWERD and Region 1 (Joseph LeMay, RPM) to assess the role of natural attenuation processes in mitigating arsenic transport through an urban and industrialized watershed. Sampling efforts included a characterization of ground-water geochemistry and the collection of ground water, surface water, and sediments for laboratory analysis. The sampling effort was conducted to assess the behavior of arsenic in the subsurface relative to findings reported by Dr. Robert Ford (GWERD) in an Internal Report to Region 1 following an initial investigation from October 1999 through September 2001. Individuals participating in the field trip were Drs. Robert Ford and Rick Wilkin (GWERD), Kirk Scheckel (LRPCD-Cincinnati), and Tim Bridges and Marcel Belaval (Region 1). This field trip also marked the initiation of collaborative research between GWERD and LRPCD to address issues of inorganic contaminant fate and transport in subsurface systems.

(97-R01-002)

(R. Ford(GWERD)580-436-8872)

Technical Assistance to Region I: On October 7, 2004, Dr. Eva Davis (GWERD) provided RPM Karen Lumino with comments on a draft feasibility study for the Solvents Recovery Service of New England (SRSNE) Site in Southington, CT. In general, the proposed thermal remediation system, which employs both thermal conductive heating and steam injection to block inward ground-water flow, is a very robust remediation system which should be capable of reducing the concentrations of volatile contaminants found at the site to very low levels. With respect to the possibility of downward movement of DNAPLs into the fractured rock, data was provided on pre- and post-treatment soil concentrations from a variety of sites where thermal remediation was used to recover DNAPLs. In addition, a number of specific recommendations were offered to make the remediation more cost effective without reducing the effectiveness of the proposed system.

(99-R01-004)

(E. Davis(GWERD)580-436-8548)

Technical Assistance to Region V: On October 4, 2004, Dr. David Jewett (GWERD) and Dr. Mingyu Wang (Shaw Env.) provided RPM Lolita Hill with comments on an addendum to a work plan for the modification of a ground-water extraction system at the Chem-Dyne Superfund Site in Hamilton, OH. The addendum followed a conference call on the subject which included the Chem-Dyne consultant, Ohio EPA, and U.S. EPA. Although it was agreed that the modifications are necessary, it was suggested that other GWERD concerns be addressed including the monitoring program, water-level data collection, water-quality data comparisons, and capture-zone analysis. Questions were also posed with respect to the current site-specific contaminant transport model.

(01-R05-001)

(D. Jewett(GWERD)580-436-8560)

Technical Assistance to Region X: On October 1, 2004, Drs. Randall Ross and Rick Wilkin (GWERD) provided RPM Lee Marshall and Hydrogeologist Bernie Zavala with review comments on a quality assurance sampling plan and an additional hydrogeologic investigation for the Boomsnub/AIRCO Superfund Site in Vancouver, WA. The comments generally reflect those discussed during a September 27, 2004, conference call. One of the items is the proposed sequential extraction procedure to evaluate solid-phase partitioning of chromium in the impacted aquifer and provide additional insight about the natural processes responsible for controlling chromium removal from ground water. Other issues are the working chromium model and the use of a reductant acid in step 5 of the sequential extraction procedure.

(03-R10-001)

(R. Ross(GWERD)580-436-8611/R. Wilkin(GWERD)580-436-8874)





# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of November 8, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region III: On October 22, 2004, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Ron Davis with review comments on monitoring results for documenting the performance of a permeable reactive barrier at the Arrowhead Plating Site in Montross, VA. In general, it appeared the PRB may be meeting many, but not all of the performance expectations. Although some monitoring wells located immediately downgradient of the PRB showed declining contaminant trends, others did not. This may indicate that the PRB does not encompass all areas with continuing sources of ground-water contamination. It was noted, however, that the data do not represent a sufficient time period to draw reliable conclusions concerning seasonal variations in flow direction, effects of a cap, and the expected variation of contaminant concentrations. Other comments concerned the hydrology of the system. (98-R03-004) (S. Acree(GWERD)580-436-8609)

Technical Assistance to Region IV: During September 27 thru October 14, 2004, GWERD conducted performance monitoring at the Columbia Nitrogen pilot PRB and Macalloy pilot redox barrier sites in Charleston, SC. Dr. Ann Keeley and Frank Beck (GWERD) and Patrick Clark (NRMRL) collected core samples from the Columbia Nitrogen Site to be used for microbiological characterization. Kyle Jones and Frank Beck (GWERD), Mark Paddock (Dynamac), Patrick Clark (NRMRL), and Dr. David Smith (University of Waterloo) collected over 90 ground-water samples as part of the performance monitoring program for the Columbia Nitrogen PRB. Also during this period, Steven Acree and Dr. Randall Ross (GWERD) conducted hydrogeological testing in the redox zone pilot test area at the Macalloy Site to gain insight into ground-water flow patterns. Kyle Jones and Mark Paddock collected ground-water samples at the Macalloy Site as a part of the performance evaluation of the ferrous iron based redox barrier. In addition, three additional wells were installed at the Macalloy Site by Frank Beck and Patrick Clark under the direction of Dr. Ralph Ludwig (GWERD) to expand the pilot test performance evaluation. Additional wells were also installed at the Columbia Nitrogen Site under the direction of Steven Acree to gain greater insight into ground-water flow behavior. In addition, one core was collected from within the pilot test area at the Macalloy Site to be used for solid phase characterization. (00-R04-003)(01-R04-008) (R. Ludwig(GWERD)580-436-8603)

## **FY 2003 GWERD ACTIVITIES**

During FY04, there were 65 Superfund Technical Assistance activities at 40 sites, 4 RCRA activities at 4 sites, and 0 Brownfields activities. During FY04, 21 Superfund and 4 RCRA technical assistance requests have been entered into the TSC tracking system. Of these, 15 Superfund and 4 RCRA sites were at new locations. No new Brownfields Sites were added to the tracking system during this period. Two Miscellaneous Technical Assistance activities were provided. Comments provided to the NYS Dept. of Environmental Conservation involved a review of "Strategies for Monitoring the Performance of DNAPL Source Zone Remedies" prepared by the Interstate Technology and Regulation Council (ITRC) DNAPLS Team. Headquarters assistance provided to OSWER (OERR) involved the preparation of a literature review on facilitated transport of PCBs in ground water and a review of a draft PCB guidance document. The Center for Subsurface Modeling Support (CSMoS) has distributed about 11,579 models. In addition, about 353 technical assistance responses have been provided to telephone and E-Mail requests. The Subsurface Remediation Information Center (SRIC) has provided 881 GWERD publications in response to 288 requests to all levels of government, private consultants, industry, educational institutions, and foreign countries. There were 22 Publications in scientific journals, EPA Research Reports, and Issue Papers.

(J. Jones(GWERD)580-436-8593)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of November 15, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: In a continuing technical assistance effort at the Solvents Recovery Service of New England Superfund Site in Southington, CT, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Karen Lumino with comments on a draft feasibility study for the remediation of DNAPLs. The November 2, 2004, comments discussed various alternatives including hydraulic displacement with a follow-up of bioremediation, chemical oxidation, and thermal remediation. Comments were also offered with respect to efforts directed at estimating the volume of NAPLs at the site.

(99-R01-004)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region I: On November 2, 2004, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Joseph Lemay with technical review comments on the first year performance report for two bio-filter/phytobed (BFP) test plots at the ReSolve Superfund Site in North Dartmouth, MA. The report described the methods, activities, and results for the first of a three-year field pilot-scale study. General comments were provided with respect to treatment performance, mechanisms of contaminant reduction, recommended improvements, and changes to improve the next performance report. Specific comments were offered in a number of areas including soil moisture, hydraulic performance, temperature within the trenches, and soil core analyses.

(01-R01-002)

(S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IX: During October 18-20, 2004, Steve Acree and Dr. David Jewett (GWERD) participated in meetings to discuss the status of site activities and characterization of ground-water flow and contaminant transport at the Yerington Mine Site in Yerington, NV. The meetings were held at the Bureau of Land Management in Reno and included representatives from the State of Nevada, BLM, EPA Region 9, GWERD, and responsible parties. Among the items discussed were available site data, results of quarterly monitoring, and strategies for further characterization.

(01-R09-004)

(S. Acree(GWERD)580-436-8609)

Technical Assistance to Region IX: On October 22, 2004, Dr. Ann Keeley (GWERD) provided RPM Rose Marie Caraway with comments on an improved alternatives-treatability study work plan for the Purity Oil Superfund Site in Malaga, CA. The review focused on the treatability portion of the report rather than the pump-and-treat segment of the document. The review covered a number of treatability issues in detail including electron-donor requirements, changes in pH, the need to determine Koc values rather than relying on literature information, determining the quantity of dehalococoides microbes in the liquid and solid phases, and field versus laboratory analyses. Other comments addressed sample collection, preservation, and handling.

(04-R09-002)

(A. Keeley(GWERD)580-436-8890)



# **H I G H L I G H T S**

**National Risk Management Research Laboratory  
Ground Water and Ecosystem Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of November 22, 2004**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On November 9, 2004, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac) provided RPM Karen Lumino with comments concerning the hydraulic displacement of DNAPL at the Solvents Recovery Service of New England Superfund Site in Southington, CT. It was pointed out that the use of hydraulic displacement has the potential to remove a significant fraction of mobile DNAPL but may also immobilize a significant fraction of previously mobile DNAPL as residual saturation. The number and location of injection and extraction wells was discussed and it was suggested that the existing model may not be appropriate for screening-level purposes. It was recommended that a simple numerical model be used which would have enough flexibility to take into account the variable thickness of the saturated zone, boundary conditions in the model area, and the unconfined nature of the aquifer.

(99-R01-004)

(R. Ross(GWERD)580-436-8611)

Technical Assistance to Region V: On November 16, 2004, Dr. Ralph Ludwig (GWERD) provided RPM Mary Logan with comments on a draft feasibility study for Operable Unit 2 at the Nease Chemical Company in Salem, OH. Although the feasibility study was well prepared with a detailed discussion of alternatives for soil and ground-water remediation, concerns were expressed concerning the potential use of nanoscale zero valent iron (NZVI) and monitored natural attenuation for ground water. A number of issues were addressed including problems associated with the presence of DNAPLs in fractured bedrock, the lack of treatability of NZVI with respect to 1,2-DCA and BTEX, and the temporal behavior of natural attenuation on the various plumes at the site. It was suggested that additional details be provided with regard to the successful implementation of NZVI and natural attenuation.

(05-R05-001)

(R. Ludwig(GWERD)580-436-8603)

Technical Assistance to Region IX: On November 2, 2004, Steven Acree, Dr. Robert Ford, and Dr. David Jewett (GWERD) provided RPM James Sickles with review comments on proposed ground-water investigations at the Yerington Mine Site in Yerington, NV. In general, the proposed locations for the initial phase of ground-water investigations appear to be appropriate. Although many of the general concepts expressed in the document appear to be appropriate, insufficient details were provided to adequately review the methods or criteria for certain field decisions. Recommendations were offered in a number of areas including the location and construction of monitoring wells and piezometers, required number of samples, sampling methods, suite of parameters to be analyzed, and the use of borehole geophysics.

(01-R09-004)

(S. Acree(GWERD)580-436-8609)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory -  
Ground Water and Ecosystem Restoration Division -  
Robert S. Kerr Environmental Research Center -  
Status Report for the Week of December 6, 2004 -**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: During November 15-17, 2004, Dr. Eva Davis (GWERD) participated in a meeting in Boston, MA, to discuss a draft feasibility (FS) study at the Solvents Recovery Services of New England Superfund Site in Southington, CT. A pre-meeting with Region 1 representatives and their consultants was followed by a technical meeting with Potentially Responsible Parties' (PRPs) consultants. Technical comments on the draft FS which had previously been submitted to the Region by GWERD were discussed. Issues included the potential for downward mobilization of DNAPL in soil during thermal remediation, potential costs, and the effectiveness of the remedial technology. EPA and PRPs attorneys also participated in a meeting where remedial technologies were discussed. The PRPs are willing to select thermal remediation as a remedy based on information provided by EPA.

(99-R01-004)

(E. Davis(GWERD)580-436-8548)

Technical Assistance to Region I: On November 22, 2004, Dr. Robert Ford (GWERD) provided RPM Joe Lemay with comments concerning the effects of arsenic and heavy metal contaminated sediments on the future potable water development of ground water at the Wells G&H Superfund Site in Woburn, MA. The comments are based on a review of a technical memorandum prepared by site consultants. In general, conclusions regarding the distribution of elevated concentrations of arsenic within the aquifer appear reasonable. Detailed suggestions were offered with respect to several sections of the memorandum as well as the executive summary, figures, and recommendations.

(04-R01-001)

(R. Ford(GWERD)580-436-8872)

Technical Assistance to Region V: On December 2, 2004, Dr. Randall Ross (GWERD) provided RPM Stephanie Linebaugh with information on p-Chlorobenzene Sulfonic Acid (pCBSA) in response to a request for assistance at the Velsicol Chemical/Pine River Superfund Site in St. Louis, MI. In addition to providing a number of references on the subject, a detailed presentation was provided with respect to regulatory standards, toxicity studies, as well as carcinogenicity studies and classifications.

(01-R05-002)

(R. Ross(GWERD)580-436-8611)

Technical Assistance to Region VIII: On November 23, 2004, Drs. Ralph Ludwig and David Burden (GWERD) provided RPM Ron Bertram with review comments on a focused feasibility study of the Metro Storm Drain, Butte Priority Soils Operable Unit of the Silver Bow Creek/Butte Area Superfund Site in Butte, MT. The comments followed a site visit on October 13, 2004. Specifically, findings in the feasibility study were used to comment on the soundness of the ground-water technical analysis to evaluate alternatives and determine if the aquifer can be recovered to its beneficial use in a reasonable period of time. Based on a detailed analysis of the information, it was suggested that far too many uncertainties remain with respect to subsurface conditions and contaminant distribution to conclude whether the aquifer system can be remediated. It was also pointed out that resolution of many of the uncertainties is likely to be expensive, technically challenging, and may not be achievable.

(04-R08-001)

(R. Ludwig(GWERD)580-436-8603/D. Burden(GWERD)580-436-8606)