



HIGHLIGHTS

**National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of January 2, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On December 9, 2005, Dr. John Wilson (GWERD) provided RPM Debra Rossi with review comments on a natural attenuation evaluation report for the Maryland Sand, Gravel, & Stone Site in Elkton, MD. Although no significant errors were found in the report, a number of comments were offered with respect to the level of oxygen when ground water should be considered reduced, chloride concentrations resulting from reductive dechlorination, calibration of BIOCHLOR, and estimated degradation rates. In general, the review agreed that naturally occurring processes appear to be able to contain the plume within the study area.

(00-R03-002)

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

Technical Assistance to Region VIII: On December 19, 2005, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Erna Waterman with comments concerning the proposed locations of monitoring wells at the Ogden Railyard Site in Ogden, UT. In general, relatively few wells were designated to monitor some aspects of the performance of monitored natural attenuation (MNA) which may increase the uncertainty of future performance assessments and necessitate additional well installations. Also discussed was the frequency of sampling to adequately monitor and define the plume. The location of additional wells was also suggested.

(05-R08-001)

(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 January 16, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On January 11, 2006, Dr. Robert Ford and Steven Acree (GWERD) and Dr. Daniel Pope (Dynamac) provided RPM Turpin Ballard with review comments on documents concerned with monitored natural attenuation (MNA) at the Savannah River Site, L-Area Southern Groundwater (LASG) Operable Unit in Aiken, SC. The review focused on the technical adequacy of the reported evaluations of a MNA remedy in light of existing guidance. In general, the review indicates that certain site conditions do not appear to be optimal for implementation of MNA. The conditions, however, would not necessarily preclude the implementation of MNA, but do indicate the need for a comprehensive performance monitoring program to ensure that remedial action objectives are met within the desired time frames.

(06-R04-002)

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

Technical Assistance to Region VI: On January 12, 2006, Dr. David Burden (GWERD) and Rob Earle, Dr. Mingyu Wang, and Dr. Noman Ahsanuzzaman (Shaw Env.) provided RPM Katrina Coltrain with a review of a treatability study evaluation report for the AT&SF Albuquerque Superfund Site in Albuquerque, NM. The review focused on the technical adequacy of development of a ground-water flow model and soundness of the conclusions. The review offered a number of detailed comments concerning topics such as ignoring the shallow aquifer, an assumption of homogeneity of hydraulic conductivity, boundary conditions, calibration errors, model validation, and recharge.

(06-R06-001)

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

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 Dr. Noman Ahsanuzzaman, Dr. Mingyu Wang, and Rob Earle (Shaw Env.) provided RPM Jeff Dhont with review comments concerning an interim modeling memorandum. The January 4, 2006, comments noted that a major issue is a negative simulated concentration of benzene near the sources. As mentioned in the memo, the negative concentration resulted from a numerical phenomenon known as oscillation, which means the numerical solution is unstable and cannot converge. Several options were discussed to resolve the problem, and it was suggested that selected calibration methods will likely produce acceptable results.

(95-R09-015)

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Lin, Zhixun and Greg Jungclaus (Shaw Env.) and Scott Huling (GWERD). "Determination of Chlorophenols, Nitrophenols and Methylphenols in Ground-Water Samples Using High Performance Liquid Chromatography." 2005 Hydrologic Science and Technology Journal, (20)1-4, 101-110.

(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 January 23, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On January 17, 2006, Dr. Randall Ross (GWERD), Dr. Milovan Beljin (Dynamac), and Dr. Mingyu Wang, Dr. Noman Ahsanuzzaman, and Rob Earle (Shaw Env.) provided RPM Lolita Hill with review comments on a memorandum titled “Chem-Dyne Site - Proposal for the Experimental Shutdown of Intermediate Extraction Well IE-01” prepared for the Chem Dyne Superfund Site in Hamilton, OH. Since there are currently two conflicting hypotheses related to the potential contaminant distribution associated with the intermediate aquifer extraction Well IE-01, it was recommended that the installation of additional monitoring points be considered. Given the advancements in monitoring well installation technologies since the site was identified and characterized more than 20 years ago, it may be possible to install appropriate monitoring wells using direct-push technologies without incurring excessive costs.

(01-R05-001)

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

Technical Assistance to Region X: On January 13, 2006, Dr. Ralph Ludwig (GWERD) provided Howard Orlean (Region 10) and Hideo Fujita (WA State Dept. of Ecology) with review comments on the “Focused Remedial Investigation Summary/Feasibility Study” for the BSB Diversified RCRA facility in Kent, WA. It was suggested that the report was very well prepared and technically sound. It was also agreed that the proposed slurry wall should be effective in containing contaminants at one part of the site, and that a zero-valent iron PRB is well suited to treat contaminants exiting another part of the site. Concerns were expressed with respect to the continuity and integrity of the low-permeability layer into which the slurry wall would be keyed.

(06RC10-001)

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

Technical Assistance to Region IX: On December 14, 2005, Dr. Chumming SU (GWERD) provided RPM Matt Jefferson with comments on a document titled “Draft Work Plan for in-situ Remediation Pilot Testing at Solid Waste Management Unit D Installation Restoration Program Site 5 Air Force Plant 44, Tucson, Arizona.” It is proposed to use in-situ chemical reduction of hexavalent chromium (Cr(VI) to trivalent chromium (Cr(III) and geochemical fixation of Cr(III) using calcium polysulfide (CaS_x), and enhanced in-situ bioremediation of TCE and DCE using CaS_x alone or in combination with an organic substrate. Zerovalent iron and a chemical oxidant are also proposed to treat the residual chlorinated solvents. It was noted that the work plan is generally adequate with clear objectives and proven technologies for treating Cr(VI); however, the use of CaS_x alone is not expected to work for chlorinated solvents based on reports in the literature and the technology evaluation tests the authors conducted.

(06-R09-001)

(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 January 30, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On January 20, 2006, Dr. Scott Huling (GWERD) provided RPM Kevin Willis with comments on a draft feasibility study report for the Fulton Avenue Superfund Site in North Hempsted, NY. In general, the study provides a good foundation upon which to develop a more detailed in-situ chemical oxidation (ISCO) feasibility study. A number of issues were identified which require additional detailed evaluation. Prior to the deployment of in-situ permanganate oxidation, it was recommended to investigate the potential downgradient transport of MNO₄⁻ and recovery, advantages of direct push technology for oxidant injection, evaluation of long-term impact of soluble manganese in ground water, and assessment of oxidant-specific injection requirements.

(04-R02-001)

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

Technical Assistance to Region IV: On January 19, 2006, Dr. Ralph Ludwig (GWERD) attended a meeting in Atlanta, GA, to discuss ongoing remediation efforts at the Memphis Defense Depot Site in Memphis, TN. Attendees at the meeting included representatives from EPA Region 4, Defense Logistics Agency, U.S. Army, U.S. Army Corps of Engineers, Tennessee Department of Environment and Conservation, and consultants. Discussions were held regarding the proposed installation of a deep aquifer zero valent iron permeable reactive barrier (PRB) to be used to treat a dissolved chlorinated solvent plume. It was agreed that a pilot test PRB 50-feet long consisting of overlapping zero valent iron/sand columns, completed to a depth of approximately 90 feet, would initially be installed. The pilot test is scheduled for installation in April 2006.

(05-R04-003)

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

Technical Assistance to Region IV: On January 20, 2006, Steven Acree (GWERD), and Drs. Bruce Pivetz and Milovan Beljin (Dynamac) provided RPM Dawn Taylor with review comments on a site conceptual model for Shaw Air Force Base in Sumter, SC. Several issues were discussed including whether monitored natural attenuation (MNA) will occur in an aerobic environment without enhancements, effectiveness of a proposed pump and treat remedy, plume delineation and capture, use of a regression analysis to predict time of remediation, and the source of contamination.

(06-R04-003)

(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 February 20, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On February 13, 2006, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac) provided Hydrogeologist Kathy Davies with review comments on a document titled "City of Aberdeen Wellhead Protection Plan: Groundwater Modeling Report." In general, the stated objectives of the modeling project were considered to be correct and complete. Detailed discussions were offered with respect to the model domain, boundary conditions, recharge, aquifer properties, model calibration, sensitivity analysis, and simulations.

(06-R03-001)

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

Technical Assistance to Region VI: On February 10, 2006, Dr. Robert Ford, Steven Acree, and Dr. Randall Ross (GWERD) and Greg Davis (Dynamac) provided LANL Project Manager Richard Mayer with review comments on a number of documents concerning well construction practices and water quality evaluations at the Los Alamos National Laboratory (LANL) RCRA Site in Los Alamos, NM. The review focused on the capability of existing hydrogeologic characterization wells to provide representative ground-water samples for all site-related constituents of concern. It was suggested that the questions and issues raised are valid and, in many cases, difficult to reliably address. However, it is correct to identify the intrusion of bentonite and organic drilling fluids as potential problems for reactive contaminants of concern and it is likely that many of the screens may not produce representative samples for constituents that strongly sorb to clays or whose fate in the environment is sensitive to changes in redox conditions for some period of time.

(05RC06-001)

(GWERD)Ford:580-436-8872/Acree:580-436-8609/Ross:580-436-8611)

Technical Assistance to Region IX: On February 2, 2006, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac) provided RPM James Chang with technical review comments on a three-dimensional ground-water model at the George Air Force Base in Victorville, CA. With regard to the flow model development, comments addressed the model's objective, grid design, boundary conditions, hydraulic conductivity distribution, and recharge. Comments directed at the fate and transport model development included contaminant source definition, horizontal and vertical dispersivity values, degradation processes, and model verification.

(05-R09-004)

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



HIGHLIGHTS

**National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of March 6, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On February 24, 2006, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Luis Negron with a review of a report titled “Natural Attenuation Evaluation - PPG Discontinued Operations Site” which was prepared for a RCRA site in Guayanilla, Puerto Rico. The report provided responses to previous GWERD comments dated August 25, 2005. Previous concerns with the remedial approach were the speculative interpretation of natural attenuation in Layer 5 and over-reliance on natural attenuation for preventing contaminant migration. In general, the report recognizes this concern, and now, more appropriately, focuses on examining the likelihood of contaminant exposure. Specific comments were offered with respect to improvements in the contaminant migration conceptual model, potential human exposure, additional monitoring, and possible impact on exposure pathways by changes in the development of the area.

(01RC02-001)

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

Technical Assistance to Region IV: On February 21, 2006, Drs. Ralph Ludwig, Robert Ford, and Richard Wilkin (GWERD) provided RPM William Joyner with review comments on a report titled “Geochemical Testing and Evaluation of Contaminant Mobility: Former Agrico Phosphate Plant - Cayce, SC.” Although the authors of the report were commended for incorporating geochemical modeling into the development of a conceptual transport and fate model for the site, it was suggested that significant uncertainty still exists with regard to the proposed model and the conclusions based thereon. Validation of the conceptual model is likely to be challenging without the availability of long-term monitoring data or a more extensive and defensible data set to better support some of the arguments presented.

(06-R04-005)

(GWERD)Ludwig: 580-436-8603/Ford: 580-436-8872/Wilkin:
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 3, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: During March 20-22, 2006, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) traveled to Chattanooga, TN, to observe site conditions and provide on-site technical assistance at the Tennessee Products Site (Chattanooga Creek). The investigation focused on subsurface non-aqueous phase liquids encountered during the remediation of creek sediments. Also involved were RPM Craig Zeller and other Region 4 personnel, as well as representatives from the Tennessee Department of Health and Environment.

(06-R04-006)

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

Technical Assistance to Region VI: On March 7, 2006, Dr. Randall Ross and Steven Acree (GWERD) provided Nancy Dorsey (Region 6, UIC) with the results of a LaCrone Property Seepage Site characterization study in Harden City, OK. The primary objective of the study was to identify possible source(s) for the saline water, including whether it may be related to brine migration along a postulated fault. Primary results of the investigation suggest that the postulated fault transecting the area was not indicated as a source for brine contamination, ground water at the site appears to have been impacted by oilfield related brine, multiple sources of brine are possible based on the large aerial extent and distribution of water with high specific conductance values, no point source(s) for the brine were identified, and the source is likely due to historic practices and does not appear to be related to any ongoing site related activities.

(Misc.)

(GWERD)Ross: (580) 436-8611/Acree: (580) 435-8609)

Technical Assistance to Region IX: On March 22, 2006, Dr. Richard Wilkin (GWERD) provided RPM Jeanne Geselbracht with review comments on the Final Wash-Plant Refuse Disposal Hydrologic Impact Evaluation Report for the Black Mesa Mine Complex in Kayenta, AZ. In general, the data collected and discussed in the report did not provide sufficient detail to address the potential hydrologic impact of refuse disposal at the selected sites. Since leaching tests were conducted on interburden and overburden samples collected from a previous corehole drilling program and not on the fine-grained refuse produced at a pilot wash-plant facility, the analytical test results are misleading with respect to providing a meaningful assessment of potential hydrologic impacts. It was recommended that a long-term ground-water monitoring program be established around the pit complexes that will accept the waste materials.

(06-R09-002)

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Jorgensen, Eric E., Scott M. Holub, Paul M. Mayer, and Mary E. Gonsoulin (GWERD), Rendahandi G. Silva and Ann E. West (Oak Ridge Inst.), Susan J. Tunnell, Jay E. Clark, Jennifer L. Parsons, David M. Engle, and Eric C. Hellgren (OSU), Julie D.H. Spears and Clyde E. Butler (Shaw Env.), and D.M. Leslie, Jr. (USGS). "Ecosystem Stress from Chronic Exposure to Low Levels of Nitrate." (2005) EPA Report. EPA/600/R-05/087. National Risk Management Research Laboratory, Cincinnati, Ohio.

(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 April 17, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On March 31, 2006, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Galo Jackson with review comments on a work plan for an in-situ field pilot-scale test of potassium permanganate (KMnO₄) injection for chemical oxidation of chlorinated compounds (primarily PCE) at the Southern Solvents Superfund Site in Tampa, FL. In general, the plan appears to have incorporated some elements of previous EPA reviews. General comments centered on issues such as the proposed mass of KMnO₄ to be injected, contaminant contour presentations, and injection phases. Specific comments addressed the projects objectives; pilot-scale basis, design, and assumptions; well installation and development, pre-injection sampling and analysis; and KMnO₄ injection and operational performance monitoring.

(00-R04-005)

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

Technical Assistance to Region IV: On April 1, 2006, Dr. Ann Keeley (GWERD) provided RPM Jan Rogers with a review of a supplemental feasibility study for the Tower Chemical Company Superfund Site in Clermont, FL. Generally, the proposed plan document was found to be well written, concise, and thorough with respect to the site historical practices, remedial investigations, and evaluation of remedial options presented. The former pesticide factory is contaminated with chlorinated benzenes, chlorinated phenols, HCH, and other pesticide by-products. While the biodegradation potential of the various organic constituents has been demonstrated, it is crucial to note that the majority of the data relating to soil and aquifer bioremediation techniques result from laboratory investigations. Relating data acquired from a controlled environment to field conditions is very challenging. The potential microbial degradation of the 36 tentatively identified contaminants at the site is discussed in considerable detail.

(06-R04-004)

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

PUBLIC SERVICE ACTIVITIES

On March 31, 2006, the following individuals served as judges at the 2005 Oklahoma State Science and Engineering Fair at East Central University: Special Award Judges - Dr. Ann Keeley and Dr. Scott Huling (GWERD); and Category Award Judges - Dr. John Wilson, Mr. Joe Williams, Dr. Paul Mayer, Dr. Mary Gonsoulin, and Mr. Bart Faulkner (GWERD), Dr. Dan Pope (Dynamac Corp.), and Dr. Dennis Fine (SHAW Environmental).

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Wilson, John T. (GWERD), Ravi Kolhatkar (Atlantic Richfield), Tomasz Kuder and Paul Philp (Univ. of Okla.), and Seth J. Daugherty (Orange Co., CA). "Stable Isotope Analysis of MTBE to Evaluate the Source of TBA in Ground Water." 2005. *Ground Water Monitoring & Remediation*. 25(4):108-116.

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



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 1, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On April 14, 2006, Dr. Robert Ford and Steven Acree (GWERD) provided RPM Robert Pope with comments on the “2005 Annual Review, Performance Assessment and Composite Analysis” for the Savannah River Site, E-Area in Aiken, SC. The review focused on projections of contaminant migration outside the facility boundaries, monitoring program to assess the potential migration, and the modeling approach to describing contaminant migration. In general, the information available in the report was insufficient to fully address the areas of review. There is concern, for example, that modeling results may have been used as a substitute for ground-water monitoring. Considerable information was provided in the review concerning the information required to evaluate migration. It was also noted that most of the proposed monitoring was associated with the vadose zone and it was recommended that an equal effort be given in characterizing and monitoring the saturated zone. It was suggested that monitoring data should be the primary basis for assessing performance due to the simplifications and uncertainties inherent in ground-water flow and contaminant transport modeling.

(06-R04-007)

(GWERD)Ford 580-436-8872/Acree 580-436-8609)

Technical Assistance to Region V: In a continuing technical assistance effort at the Chem Dyne Superfund Site in Hamilton, OH, Dr. Randall Ross (GWERD), Dr. Milovan Beljin (Dynamac), and Matt Justice (OEPA) visited the site on February 15, 2006. In addition, on April 12, 2006, Dr. Ross and Dr. Beljin provided RPM Lolita Hill with written comments on the site visit as well as modifications to a proposal for the experimental shutdown of an intermediate extraction well. Detailed comments were offered with respect to discrete interval sampling while the pump is operating, evaluation of well efficiency, capture zone determination, and automatic water-level measurements. Also discussed was the need to monitor nearby City of Hamilton wellhead protection wells before modifications of the current pump-and-treat system, and the maintenance of existing monitoring wells and piezometers.

(01-R05-001)

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Mayer, Paul M., Steven K. Reynolds, Jr., and Timothy J. Canfield (GWERD), and Marshal D. McCutchen (East Central University). “Riparian Buffer Width, Vegetative Cover, and Nitrogen Removal Effectiveness: A Review of Current Science and Regulations.” (2005) EPA Report. EPA/600/R-05/118. National Risk Management Research Laboratory, Cincinnati, Ohio.

(P. Mayer(GWERD)580-436-8647)



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 15, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On May 10, 2006, Dr. Mary Gonsoulin (GWERD) and Dr. Daniel Pope (Dynamac) provided RPM Channing Bennett with review comments on an interim measures work plan for enhanced bioremediation at the Owens Corning Facility in Anderson, SC. The plan proposed an in-situ reactive zone using molasses as an electron donor to enhance reductive dechlorination of 1,1,1-TCA and 1,1-DCA. Concerns expressed in this and previous review comments centered on an expected reduction in permeability due to increased microbial growth, problems with reagent distribution and monitoring due to poorly understood site hydrogeology, mobilization of metals resulting from changes in pH, probable presence of NAPLs, and other sources of contamination around the site.

(06RC04-001)

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

Technical Assistance to Region VIII: During April 25-26, 2006, Steven Acree (GWERD) participated in a meeting in the EPA Regional Office in Denver to discuss remedial actions at the Asarco East Helena Montana Superfund Site in East Helena, MT. Strategies for remediating sources of arsenic contamination of ground water and halting the migration of the contaminant plume were discussed along with the status of an on-going evaluation of a pilot-scale PRB. Also attending the meeting were representatives from Asarco, Montana Department of Environmental Quality, and EPA Region 8.

(01-R08-002)

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

Technical Assistance to Region X: During April 17-18, 2006, Steven Acree and Dr. Robert Ford (GWERD) participated in a meeting at the USEPA field office to discuss technical assistance needs at the U.S. DOE Hanford Site in Richland, WA. Also discussed were issues including subsurface contamination and remedial efforts. An orientation to site features and a tour of the site were provided. Others attending were DOE and Pacific Northwest Laboratory personnel, DOE contractors, and representatives from EPA Region 10.

(06-R10-001)

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Ford, Robert G. and Richard T. Wilkin (GWERD) and Scott Fendorf (Stanford Univ.). "Introduction - Controls on Arsenic Transport in Near-Surface Aquatic Systems." (2006) Chemical Geology. 228:1-5.

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

Ford, Robert G. and Richard T. Wilkin (GWERD) and Gina Hernandez (ECU). "Arsenic Cycling within the Water Column of a Small Lake Receiving Contaminated Ground-Water Discharge." (2006) Chemical Geology. 228:137-155.

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

Wilkin, Richard T. and Robert G. Ford (GWERD). "Arsenic Solid-Phase Partitioning in Reducing Sediments of Contaminated Wetland." (2006) Chemical Geology. 228:156-174.

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

Ford, Robert G. and Richard T. Wilkin (GWERD), Kirk G. Scheckel (NRMRL), Cynthia J. Paul and Frank Beck, Jr. (GWERD), Patrick Clark (NRMRL), and Tony Lee (GWERD). "Field Study of the Fate of Arsenic, Lead, and Zinc at the Ground-Water/Surface-Water Interface." (2005) EPA Report. EPA/600/R-05/161. National Risk Management Research Laboratory, Cincinnati, Ohio.

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



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 5, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region X: On May 3, 2006, Dr. David Burden, Dr. Robert Ford, and Steven Acree (GWERD) provided RPM Dennis Faulk with an initial review of material for the TETRAD Benchmarking Model for the DOE Idaho National Laboratory near Idaho Falls, ID. The benchmark problems test for advection, dispersion, diffusion, retardation, chain decay, and density driven flow in ground water; flow and transport in the vadose zone; and flow and transport in dual porosity media. Comments concerning the code and an outline of a proposed method for testing TETRAD in two stages were also included. On May 16, 2006, Dr. Burden and Steven Acree sent the consultant's completed report, dated May 12, 2006, to the Region. The report contained 10 selected problems which are appropriate to test the TETRAD computer code. A summary of the benchmark problems was provided along with output data that should be provided for comparison to existing simulation results.

(06-R10-002)

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

Technical Assistance to Region X: In a continuing technical assistance effort at the Boomsnub/Airco Superfund Site in Hazel Dell, WA, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac) provided RPM Bernie Zavala with a review of the recalibration results for a ground-water flow and contaminant transport model. The May 31, 2006, comments discussed a number of parameters including water levels, bulk density, and sorption in terms of their utility in model calibration. Also discussed in detail were the results of tests and the accuracy of predictions.

(03-R10-001)

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

DiGiulio, Dominic C. and Cynthia J. Paul (GWERD), Raphael Cody, Richard Willey, Scott Clifford, and Peter Kahn (EPA Region 1), Ronald Mosley (NRMRL, Research Triangle Park), and Annette Lee and Kaneen Christensen (Xpert Design and Diagnostics, LLC). "Assessment of Vapor Intrusion in Homes Near the Raymark Superfund Site Using Basement and Sub-Slab Air Samples." (2006) EPA Report. EPA/600/R-05/147. National Risk Management Research Laboratory, Cincinnati, Ohio.

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



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 26, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On June 5, 2006, Dr. John Wilson (GWERD) provided RPM Debra Rossi with review comments on a bioremediation field pilot test plan for the Maryland Sand, Gravel & Stone Site in Elkton, MD. The efficacy of introducing oxygen into the subsurface is discussed along with the use of MODFLOW modeling to identify areas requiring active bioremediation. Model calibration and excavation were also discussed in terms of meeting ground-water performance goals within a reasonable time frame. It was pointed out that until the vertical and horizontal distribution of contaminants is better determined, it is premature to evaluate the relative performance of treatment alternatives. It was suggested that, based on the current understanding of anaerobic bioremediation, a design based on engineering judgment should proceed without a pilot-scale evaluation.

(00-R03-002)

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

Technical Assistance to Region IV: On June 13, 2006, Drs. Ralph Ludwig and Robert Ford (GWERD) provided RPM William Joyner with a reply to a contractor's comments on a February 21, 2006, GWERD review of geochemical testing and evaluation of contaminant mobility at the Former Agrico Phosphate Plant in Cayce, SC. The speciation and reversibility of contaminant partitioning to soil minerals was discussed as well as the reliability and accuracy of data. The uncertainty of implementing monitored natural attenuation at the site remains a significant concern as was suggested in the earlier review.

(06-R04-005)

(GWERD)Ludwig 580-436-8603/Ford 580-436-8872)

Technical Assistance to Region IX: In a continuing technical assistance effort at the Del Amo Superfund Site in Torrance, CA, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Dante Rodriguez with review comments on a detailed evaluation of remedial alternatives for NAPL/ground-water contamination source areas. The June 19, 2006, remarks suggested that, in general, there are very few differences between this version of the evaluation and earlier versions with virtually all of the earlier concerns remaining unaddressed. Examples include insufficient characterization to make informed decisions, overstated difficulties of implementing remedial technologies, lack of treatment of contaminant mass under a building, and estimates in the reduction of contaminant mass.

(94-R09-006)

(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 July 3, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On June 20, 2006, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Mark Granger with comments on a preliminary remedial work element design report for the Cortese Landfill Superfund Site in Narrowsburg, NY. The remediation approach consists of the extraction and treatment of ground water from a series of wells to reduce or minimize the migration of contaminated ground water from the site. It was suggested that, in general, this approach would be appropriate only if the data were completely representative of site conditions, the subsurface was homogeneous, and the extraction system worked. Specific needs to make the approach acceptable, such as monitoring to reduce uncertainty and suggestions as how to approach MCLs, were discussed in considerable detail.

(06-R02-002)

(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, Dr. Eva Davis and Steven Acree (GWERD) provided RPM Jeff Dhont with review comments on a DNAPL extraction test summary. The June 20, 2006, comments stated that data in the report were useful in identifying some of the constraints on recovery using conventional pumping technology. However, the data used to estimate parameters, such as the hydraulic radius of influence of pumping wells and extrapolation of DNAPL recovery, is extremely limited. Detailed comments related to DNAPL recovery included the size of the screen slots, changes in the water table elevation, calculation of the radius of influence, and the accuracy of aquifer parameters used in the extraction design.

(95-R09-015)

(GWERD)Davis 580-436-8548/Acree 580-436-8609)

Technical Assistance to Region IX: On June 19, 2006, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac) provided RPM James Chang with review comments on a three-dimensional ground-water model for the George Air Force Base Site in Victorville, CA. The main object of the review was the assumptions used in the fate and transport model and its ability to predict clean-up times. Significant conclusions were that the transport model as presented is not ready to be used as a long-term management tool, and the ground-water flow model must be closely reviewed before the fate and transport model is accepted.

(05-R09-004)

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



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 24, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On June 23, 2006, Dr. Ralph Ludwig (GWERD) provided RPM Mary Logan with review comments on a pre-design investigation work plan for the Rutgers Organics Corporation, Nease Chemical Superfund Site in Salem, OH. In general, the document was found to be technically sound with no major suggestions for improvement. Minor comments concerned the inability of zero-valent iron (NZVI) to treat 1,2-DCA, adverse impact of high concentrations of nitrate on the ability of NZVI to treat target compounds, and the need to collect nitrate-nitrite data.

(05-R05-001)

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

Technical Assistance to Region VII: On July 7, 2006, Dr. Scott Huling (GWERD) provided RPM Nancy Swyers with a review of a document titled "Basis of Design for In Situ Chemical Oxidation Remedial Action, 10th Street OU 2 Site, Columbus, Nebraska (June, 2006)." It was suggested that the pilot-scale study conducted as a part of the feasibility assessment of ISCO could provide useful information upon which to design the full-scale system. However, it appeared that few, if any details were used to assist in the ISCO design included in the report. It was recommended that the pilot-scale study be included in the revised draft report as an appendix and that the data and information be incorporated into the final design. It was also recommended that performance monitoring be included in the proposed design report.

(06-R07-001)

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

Technical Assistance to Region X: On July 7, 2006, Dr. Richard Wilkin, Dr. Robert Ford, and Steven Acree (GWERD) provided RPM Martha Lentz with review comments on a document titled "300 Area Uranium Plume Treatability Demonstration Project: Uranium Stabilization through Polyphosphate Injection" prepared for the Hanford Site 300 Area in Richland, WA. Although concepts provided in the report were found to be reasonable, insufficient details concerning column and pilot-scale treatability tests were provided for review. Concerns were expressed regarding how polyphosphate will be injected and dispersed, impacts of subsurface heterogeneity, and possible reduction in permeability due to the formation of non-uranium bearing phosphatic minerals.

(06-R10-004)

(GWERD)Wilkin 580-436-8874/Ford 580-436-8872/Acree 580-436-8609)



HIGHLIGHTS

**National Risk Management Research Laboratory
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Status Report for the Week of August 7, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On July 21, 2006, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Dick Goehlert with review comments on an Accelerated Remediation Technology (ART) pilot study using two wells to reduce DNAPLs at the South Municipal Water Supply Superfund Site in Peterborough, NH. The plan combines ground-water extraction, in-well air stripping, in-well vapor vacuum extraction, and movement of the aerated/cleaned ground water out through the upper portion of the well, thus creating a ground-water circulation cell. Issues discussed in detail are the potential for redistribution of DNAPLS, problems associated with the short duration of the pilot test, horizontal and vertical flow, and causes of fouling that have occurred in extraction wells at the site.

(06-R01-002)

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

Technical Assistance to Region I: In a continuing technical assistance effort at the Savage Well Superfund Site in Milford, NH, Dr. Ann Keeley provided RPM Dick Goehlert with a technical review of a report concerning microbial dynamics as a function of permanganate concentration. In the comments of August 2, 2006, it was stated that the report is very well prepared as it presents a novel demonstration of the impact of in-situ chemical oxidation (ISCO) on microbial populations using current biotechnological tools and instrumentations. It was suggested that T-RFLP analysis were successful in providing real-time data to track the overall changes in microbial diversity between pre- and post-ISCO events within the treatment area. The potential utility of this type of monitoring was also pointed out with respect to the use of bioremediation as a polishing step in a treatment train approach to ground-water remediation. Additional sampling parameters were provided to further support the findings of the technology.

(03-R01-004)

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

Technical Assistance to Region IV: On August 1, 2006, Dr. Ralph Ludwig (GWERD), Dr. Bruce Pivetz (Dynamac), and Dr. Noman Ahsanuzzaman and Rob Earle (Shaw Env.) provided RPM Turpin Ballard with comments on a ground-water intermediate remedial design for the Memphis Defense Depot Site in Memphis, TN. In general, the proposed zero-valent iron PRB, enhanced bioremediation, and natural attenuation components of the remedial activities are well presented and provide an appropriate level of detail. A number of issues were discussed including the long-term ground-water monitoring plan, proposed ground-water model, and performance standards verification plan.

(05-R04-003)

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



HIGHLIGHTS

**National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
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Status Report for the Week of September 18, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region I: During July 31 - August 4, 2006, Steven Acree and Dr. Randall Ross (GWERD) continued support of ongoing sediments research in the Red Cove study area at the Fort Devens Superfund Site in Devens, MA. Pneumatic slug testing techniques were applied to characterize the hydraulic conductivity distribution within the aquifer. The data, combined with ground-water elevations monitored using dataloggers and vertical profiles of water quality from well clusters, will be used to estimate arsenic flux to Red Cove.

(05-R01-001) (GWERD)Acree 580-436-8609/Ross 580-436-8611)

Technical Assistance to Region V: On September 13, 2006, Dr. Mary Gonsoulin (GWERD) and Dr. Daniel Pope (Dynamac) provided RPM Mary Tierney review comments on a data summary report for Operable Unit 2 at the Aircraft Components, Inc. Superfund Site in Benton Harbor, MI. It appears that the remediation efforts (injection of HRC/HRC-X) have been reasonably successful at inducing conditions suitable for reductive dechlorination in ground water based on the apparent disappearance of PCE and TCE and the appearance of daughter compounds. Since the injected HRC/HRC-X is being depleted as remediation proceeds, it seems appropriate to consider a new round of injections to enhance and extend remedy effectiveness.

(06-R05-002) (M. Gonsoulin(GWERD)580-436-8616)

Technical Assistance to Region IX: On September 5, 2006, Steven Acree, Dr. Robert Ford, and Dr. Randall Ross (GWERD) provided RPM James Sickles with comments on a Hydrogeologic Framework Assessment for the Yerington Mine Site in Yerington, NV. In general, investigations performed during the study were of high quality and provide a good basis for specification of additional investigations needed to determine sources and extent of contamination related to operations at the site. General and specific comments were offered in a number of areas including location and screening interval for new monitoring wells, well installation, radius of influence of extraction wells, hydraulic tests, and monitoring program.

(01-R09-004) (GWERD)Acree 580-436-8611/Ford 580-436-8872/Ross 580-436-8611)



HIGHLIGHTS

**National Risk Management Research Laboratory
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Status Report for the Week of October 2, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On September 18, 2006, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Byron Mah with review comments on the “Draft Phase 3 Pre-Design Investigation Report Round 4 (Fall 2005) Monitoring Event, Davis Liquid Waste Superfund Site.” The site is located in Smithfield, RI. A number of issues were discussed in detail including treatment time of MNA as compared to pump-and-treat, water quality and geochemical parameters, contaminant measurements, delineation of contaminants as well as screen locations, and a summary of natural attenuation biodegradation fate mechanisms. Other issues included the sufficiency of existing monitoring wells with respect to the monitoring program, and the natural attenuation of THF. Only in-situ chemical oxidation, in-situ enhanced biodegradation, and monitored natural attenuation were compared as treatment alternatives at the site.

(06-R01-003)

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

Technical Assistance to Region I: On September 25, 2006, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Dick Goehlert with comments on responses to a July 21, 2006, GWERD technical assistance review for the South Municipal Water Supply Superfund Site in Peterborough, NH. In general, the response included satisfactory modifications to the originally-proposed Accelerated Remediation Technology (ART) well pilot test design that addressed previous concerns and comments. Issues that still require clarification concerned the potential mobilization of DNAPL by the proposed ART well system, pilot test monitoring, and the application of the ART recirculation concept technology at other locations. It was pointed out that these do not appear to be significant reasons to prevent the pilot test from moving ahead.

(06-R01-002)

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



HIGHLIGHTS

**National Risk Management Research Laboratory
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Status Report for the Week of October 9, 2006**

Technical Assistance to Region V: On September 29, 2006, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac) provided RPM Lolita Hill with review comments on the 2005 annual report for the Chem Dyne Superfund Site in Hamilton, OH. Since the extraction wells have been continuously pumping for 18 years, and six of the ten wells are pumping below the recommended rates, the need for pump and well-screen maintenance was emphasized. Concerns were expressed with regard to the method used in reporting water levels and calculating capture zones. Other issues included the delineation of VOC plumes, the affect of water levels on VOC sample concentrations, and the validity of the ground-water flow and transport model. With respect to model results, it was noted that calculated mass extraction rates are significantly different from the measured mass removal rates.

(01-R05-001)

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

Technical Assistance to Region VIII: During September 17-22, 2006, Dr. Rick Wilkin, Steve Acree, Dr. Randall Ross, Dr. Doug Beak, Ken Jewell, and Brad Scroggins (GWERD) continued studies to evaluate the performance of a pilot-scale permeable reactive barrier (PRB) at the Asarco East Helena Montana Superfund Site in East Helena, MT. The activities included sampling wells within and surrounding the PRB, obtaining core material for laboratory analyses, determining the hydraulic conductivity of aquifer material adjacent to the PRB using an electromagnetic borehole flowmeter, and characterizing the hydraulic conductivity of PRB material using pneumatic slug testing techniques. The project, designed to evaluate zero-valent iron for the treatment of arsenic in ground water, is a joint effort of Region 8, Asarco, and GWERD.

(01-R08-002)

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



HIGHLIGHTS

**National Risk Management Research Laboratory
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Status Report for the Week of October 30, 2006**

Technical Assistance to Region I: On October 12, 2006, Dr. Mary Gonsoulin (GWERD) and Dr. Daniel Pope (Dynamac) provided Site Assessment Manager Gerardo Millan-Ramos with reviews of two documents associated with the Somersworth Landfill Superfund Site in Somersworth, NH. The comments focused on monitored natural attenuation (MNA) with respect to the sufficiency of data to evaluate if processes are leading to remediation goals, and the level of confidence in the data and its interpretation. Also discussed were modifications to increase certainty including density of sampling points, sampling frequency, and monitoring parameters.

(06-R01-004)

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

Technical Assistance to Region I: On October 12, 2006, Dr. David Burden (GWERD), and Dr. Noman Ahsanuzzaman and Rob Earle (Shaw Env.) provided RPM Jane Dolan with review comments of the “J-2 Range North Groundwater Rapid Response Action (RRA) Plan” for the Massachusetts Military Reservation located at Cape Cod, MA. With respect to the groundwater flow model, the conditions and parameters were obtained from a previous model and were not available for a critical review of model calibration. A number of recommendations were offered concerning model boundaries and hydraulic conductivity, constant head boundaries, vertical flow, and calibration statistics. Comments concerning the contaminant transport model included the affect of contaminant source assumptions, assumed transport model parameters, and time required for solute mass recovery.

(06-R01-005)

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

FY 2006 GWERD ACTIVITIES

During FY06, there were 51 Superfund Technical Assistance activities at 41 sites and 7 RCRA activities at 5 sites. There were 27 Superfund and 3 RCRA requests for assistance entered into the Technical Support Center tracking system during FY06. Of these, 23 Superfund and 2 RCRA sites were at new locations. One Miscellaneous Technical Assistance activity was provided. GWERD provided Region 6 with the results of a LaCrone Property Seepage Site characterization study in Harden City, OK, to identify possible source(s) for the saline water, including whether it may be related to brine migration along a postulated fault. The Center for Subsurface Modeling Support (CSMoS) distributed 15,526 models. In addition, about 271 technical assistance responses were provided in response to telephone and E-Mail requests. The Subsurface Remediation Information Center (SRIC) provided 552 GWERD publications in response to 144 requests to all levels of government, private consultants, industry, educational institutions, and foreign countries. In addition, there were 640,676 “hits” on titles loaded at www.epa.gov/ada/publications.html. There were 27 GWERD Publications in scientific journals, EPA research reports, or Issue Papers and Briefs.



HIGHLIGHTS

**National Risk Management Research Laboratory
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Status Report for the Week of November 6, 2006**

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On October 24, 2006, Steven Acree (GWERD) and Dr. Bruce Pivetz (Dynamac) provided RPM Mark Granger with review comments on a Preliminary (30 Percent) Design Report for the Cortese Landfill Superfund Site in Narrowsburg, NY. Conceptually, the mass-flux-based approach presented in the report appears to be logical. However, for the approach to work successfully, a better understanding of contaminant concentration distribution and fluxes, ground-water and contaminant flow paths, and mass removal mechanisms is necessary. The number and location of additional monitoring wells was suggested to achieve more certainty in monitoring results. It was also recommended that extensive piezometric data be collected before and during any ground-water pumping, either during the pre-design phase or during startup of a ground-water extraction system.

(06-R02-002)

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

Technical Assistance to Region IX: During October 25-26, 2006, Steven Acree and Dr. Randall Ross (GWERD) attended a meeting at the Yerington Mine Site in Yerington, NV, to discuss GWERD comments on an Interim Data Summary Report for an ongoing Hydrogeologic Framework Assessment. The comments focused on additional studies needed to complete the assessment. Others in attendance included representatives from EPA Region 9, Bureau of Land Management, and the Atlantic Richfield Company. A tour of previous mining operations and associated waste areas was provided.

(01-R09-004)

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Wilkin, Richard T. (GWERD) and Kelly J. Bischoff (Univ. of OK). "Coulometric Determination of Total Sulfur and Reduced Inorganic Sulfur Fractions in Environmental Samples." (2006) *Talanta*. 70(4):766-773.

(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 13, 2006**

Technical Assistance to Region IV: On November 8, 2006, Dr. Eva Davis (GWERD) provided RPM Turpin Ballard with comments on a pre-final remedial design at the Memphis Defense Depot Site in Memphis, TN. The focus of the review was on sections pertinent to Loess Deposits Thermal Enhanced Soil Vacuum Extraction (SVE). In general, it was suggested that thermal remediation, either electrical resistance heating (ERH) or thermal conductive heating, is appropriate for recovery of chlorinated volatile organic compounds from low permeability, high moisture content soils. Detailed comments were offered in a number of areas including the effect of buried metal objects on the design and operation of the system, treatment time analysis, SVE wells construction, and performance.

(05-R04-003)

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

Technical Assistance to Region X: On October 31, 2006, Drs. Richard Wilkin and Robert Ford, and Steven Acree (GWERD) provided Hydrologist Martha Lentz with review comments on a site-characterization plan at the Hanford Site-300 Area Site in Richland, WA. The plan describes work to collect site-specific geochemical and hydrological data needed to design and implement a novel polyphosphate injection technology for treating uranium contamination in ground water. Specific comments concerned the location and construction of monitoring wells, borehole flowmeter tests, and the selection of monitoring parameters.

(06-R10-004)

(GWERD)Wilkin 580-436-8874/Ford 580-436-8872/
Acree580-436-8609)

Technical Assistance to Region X: On November 2, 2006, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Dynamac) provided RPM Christy Brown with comments concerning the efficacy of a barrier wall at the Rhone-Poulenc RCRA Facility in Tukwila, WA. Discussed in detail are extraction wells and the construction of the barrier wall with respect to containment, analysis and presentation of hydraulic head data, and the head difference between the inside and outside of the containment system. Suggestions were offered with respect to water level evaluations, need for new monitoring well clusters, and the installation of data-logging transducers to evaluate temporal changes in head inside and outside the wall.

(06RC10-002)

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



HIGHLIGHTS

**National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
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Status Report for the Week of December 11, 2006**

Technical Assistance to Region III: On November 15, 2006, Dr. John Wilson (GWERD) provided RPM Debra Rossi with review comments on the “Proposed Dewatering for Anaerobic Bioremediation Maryland Sand, Gravel, & Stone Site” in Elkton, MD. A major concern is that an interpretation of the site characterization efforts to date does not truly define the upper and lower extent of contamination in excess of the Preliminary Action Levels (PAL) which significantly affects the originally proposed implementation sequence of remedial measures.

(00-R03-002)

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

Technical Assistance to Region VIII: In a continuing technical assistance effort at the Asarco Smelter Site in East Helena, MT, Dr. Richard Wilkin, Steven Acree, and Dr. Randall Ross (GWERD) provided RPM Linda Jacobson with a summary of the performance monitoring results for a pilot-scale PRB installed to treat a portion of an arsenic plume at the site. The November 27, 2006, critique provided detailed characterizations of the hydrology including conductivity structure and distribution, ground-water flow, and hydraulic gradients. Also described in detail were time-dependent trends in arsenic concentrations along with trends in DOC, pH, and ORP. Ion-balance diagrams for ground-water samples upgradient and downgradient of the PRB were also provided. Tables and graphics were used extensively in describing the evaluation of the PRB technology.

(01-R08-002)

(GWERD: Wilkin 580-436-8874/Acree 580-436-8609/Ross
580-436-8611)