



# ***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 12, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On January 6, 2009, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Byron Mah with review comments on a technical memorandum concerning an update on the status of fate and transport modeling at the Auburn Road Superfund Site in Londonderry, NH. In general, based on the lack of detail provided and numerous unresolved issues, the current model cannot be considered a reliable predictive tool. A number of specific comments were provided discussing errors and omissions which limit the usefulness of the document.  
(09-R01-001) (R. Ross (GWERD) 580-436-8611)

Technical Assistance to Region V: On December 31, 2008, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Lolita Hill with comments on the replacement of a shallow extraction well at the Chem-Dyne Superfund Site in Hamilton, OH. Although the proposed position of the extraction is acceptable, it was suggested that a location near an existing monitoring well may be more desirable. Other issues included screened intervals of the new well, capture zone, tests to determine the operational pumping rate, and the proposed sampling frequency of the extraction well and existing monitoring wells.  
(09-R05-001) (R. Ross (GWERD) 580-436-8611)

Technical Assistance to Region IX: On January 8, 2009, Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPM David Seter with review comments on a pumpback well system characterization work plan for the Yerington Mine Site in Yerington, NV. In general, the proposed studies appear to be acceptable for the given objectives. However, revisions in several specific details of the plan were recommended involving slug tests, well installations, sampling parameters, and the length of time and activities associated with a shutdown period of the system. It was suggested that some aspects of the second phase characterization could be accelerated particularly with respect to hydraulic testing.  
(09-R09-002) (S. Acree (GWERD) 580-436-8609)  
(R. Ford (LRPCD) 513-569-7501)



# ***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 19, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IX: On January 8, 2009, Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPM's David Seter and Nadia Burke with review comments concerning a "Shallow Alluvial Aquifer Characterization Work Plan" for the Yerington Mine Site in Yerington, NV. In general, the proposed sampling locations and methodologies appear to be appropriate, however, recommended amendments to specific details of the plan were made including additional monitoring wells, sampling procedures, sampling parameters, and sample preservation.

(09-R09-002)

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

(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region IX: On January 14, 2009, Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPM's David Seter and Nadia Burke with review comments on a revised remedial investigation work plan for the Yerington Mine Site in Yerington, NV. In general, studies performed to date provided an excellent basis for the identification of data gaps to be filled under Operable Unit 1 (OU1). In addition to a number of specific comments, general issues of discussion included the need for additional pressure transducers/data loggers in the shallow and intermediate zones, development of QA/QC procedures, influence of agricultural operations on mine-impacted ground water, use of geochemical models to project chemical speciation or transport, and suggested sampling locations.

(09-R09-002)

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

(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region IX: On January 9, 2009, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM James Chang with review comments on a ground-water conceptual site model for the Former George AFB in Victorville, CA. Comments ranged from technical issues such as model verification and plume stability, to graphics presentations, scientific nomenclature, and report syntax.

(09-R09-003)

(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 January 26, 2009

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On January 15, 2009, Dr. Ralph Ludwig (GWERD) provided RPM Femi Akindele with review comments on a treatability work plan for reducing Cr(VI) to Cr(III) in soil at the Smalley-Piper Superfund Site in Collierville, TN. Although the various treatments proposed will likely be successful in the laboratory, the question remains as how the bench-scale test results will translate to effectiveness in the field. In addition to discussing the methods and problems associated with delivering amendments to the subsurface, suggestions were offered with respect to sample collection and handling so that valid comparisons can be made among the various treatments proposed. Problems associated with Cr(VI) analyses and interferences were discussed.

(09-R04-004)

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

## **RESEARCH IN PROGRESS**

While on sabbatical leave from Western Michigan University, Dr. Michael Barcelona will be collaborating with Dr. Ann Keeley, EPA Region 6, and Oklahoma DEQ in conducting a field-scale enhanced bioremediation ground-water investigation at the abandoned Oklahoma Refinery Company Site in Cyril, OK. The project will focus on resistivity technology to monitor injected amendments in three dimensions in real time. Dr. Barcelona will be at GWERD approximately five months.

(09-R06-003)

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

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Craig, L.S. (Univ. of MD), M.A. Palmer (Univ. of MD), D.C. Richardson (Univ. of MD), S. Filoso (Univ. of MD), E.S. Bernhardt (Duke Univ.), B.P. Bledsoe (CO St. Univ.), M.W. Doyle (Univ. of NC), P.M. Groffman (Inst. For Ecosystems Studies), B.A. Hassett (Duke Univ.), S.S. Kaushal (Univ. of MD), P.M. Mayer (GWERD), S.M. Smith (Johns Hopkins Univ.), and P.R. Wilcock (Johns Hopkins Univ.) 2008. "Stream Restoration Strategies for Reducing River Nitrogen Loads." *Frontiers in Ecology and the Environment* 6:529-538.

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

Wilkin, Richard T. (GWERD). 2008. "Contaminant Attenuation Processes at Mine Sites." *Mine Water Environ* 27:251-258.

(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 February 9, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region III: On January 22, 2009, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Charlie Root with review comments on an “Accelerated In Situ Bioremediation (AISB) Pilot Test” at the Malvern Superfund Site in Malvern, PA. Specifically, the review focused on an evaluation of available data and a preliminary design proposed by the PRPs. Also discussed was whether the AISB Pilot Test was successful and sufficient enough to base a decision on the final remedial design. While there are some fluctuations in dissolved contaminant concentrations in some wells, the concentrations continue to decline over much of the site. The AISB Pilot Test results indicate that the injection of the electron donor can result in contaminant decreases. Expansion of injection throughout the entire target area of the site is likely to similarly result in contaminant destruction. Therefore, it is likely that similar results will be achieved in the destruction of contaminants during the full-scale bioremediation.

(09-R03-001)

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

Technical Assistance to Region IX: On January 22, 2009, Steve Acree (GWERD) participated in a site visit at the Yerington Mine Site in Yerington, NV, along with RPM Dave Seter and other personnel from Region 9. Other participants included the State of Nevada, representatives of the Yerington Paiute Tribe, and representatives of the Atlantic Richfield Company and their consultants. The purpose of the visit was to discuss sampling locations for the upcoming shallow aquifer investigations and to evaluate the locations of monitoring wells that will be used to determine the impact of heap leaching activities on ground water. In addition, a public meeting was held by Region 9 personnel to provide information regarding the ongoing remedial investigations and removal actions.

(09-R09-002)

(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 March 2, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: During February 17-19, 2009, Dr. Ralph Ludwig (GWERD) participated in a site visit at the Former Brunswick Wood Preserving Site in Brunswick, GA. Meetings were held with Region 4 RPM Brian Farrier, Ed Bates from NRMRL-Cincinnati, and Region 4 contractor personnel to assess ongoing remedial activities and to discuss proposed ChemOx pilot studies. Ground water has been impacted by creosote and pentachlorophenol over many years of operation. Slurry walls are being built around two large source areas and residual contamination outside the slurry walls will be treated. Efforts are being made to more accurately delineate contamination outside the slurry walls using membrane interface probe technology (MIP). MIP data collected thus far, however, have proven difficult to interpret and suggest its utility may be of limited value at wood preserving sites. In situ chemical oxidation treatment using permanganate is being proposed for addressing the residual contamination and one or more pilot studies will be conducted to establish its feasibility. Discussions were held regarding the potential locations of the pilot studies and the information that would need to be acquired to properly design and conduct the studies.

(09-R04-005)

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

Technical Assistance to Region IX: On January 28, 2009, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Herb Levine technical review comments on the evaluation of remedial alternatives and a pilot test work plan for the Raytheon Corporation Superfund Site in Mountain View, CA. General comments concerned a recommended procedure for backfilling exploratory borings, the doubtful necessity of injecting a chelated metal catalyst into the subsurface, contaminants of concern and their amenability for oxidation by Fenton-driven remediation, advantages and disadvantages of different oxidants in ISCO applications, and possible health risks due to the volatilization of VOCs during ISOC remediation activities.

(09-R09-008)

(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 March 23, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On March 17, 2009, Dr. Eva Davis, Steven Acree, and Dr. Rick Wilkin (GWERD), and Drs. Noman Ahsanuzzaman and Daniel Pope (Shaw Env.) provided RPM Dick Goehlert with review comments on a “Draft Groundwater Feasibility Study” for the South Municipal Water Supply Well Superfund Site in Peterborough, NH. In general, it was agreed that thermal remediation is an appropriate source control and emulsified vegetable oil and/or a permeable reactive barrier may be beneficial to provide plume treatment. Concerns were expressed, however, about the calibration and validation of modeling activities that were used to help evaluate the remedial options, and the extent and type of site characterization that has been performed. Other issues included potential interferences between the different remedial technologies to be applied to different areas of the site as well as the proposed sequence for implementation of the technologies.

(09-R01-002)

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

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

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

Technical Assistance to Region II: On March 11, 2009, Dr. Richard Wilkin (GWERD) provide RPM Richard Ho with the results of analytical work on ground-water and soil collected from the Quanta Resources Superfund Site in Edgewater, NJ. The objectives of the work were to provide arsenic speciation analyses on ground-water split samples and analyses of element partitioning in solid samples using a wet chemical, sequential extraction procedure (SEP). Detailed comments were provided relating to the analytical procedures followed as well as an interpretation of the results.

(09-R02-001)

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

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Kan, Eunsung (NRC) and Scott G. Huling (GWERD). 2009. “Effects of Temperature and Acidic Pre-Treatment on Fenton-Driven Oxidation of MTBE-Spent Granular Activated Carbon.” *Environ. Sci. Technol.* 43(5), 1493-1499.

(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 March 30, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IX: On March 27, 2009, Dr. Randall Ross (GWERD) and Dr. Daniel Pope (Shaw. Env.) provided RPM James Chang with comments on the potential use of an in situ bioreactor to treat contaminated ground water at George Air Force Base in Victorville, CA. In general, the proposed approach appears reasonable based on established chemical and biological principles. Specifically, the biologically-based anaerobic, reductive dechlorination, and abiotic degradation by chemical reactions with iron sulfides should result in the degradation of chlorinated solvents dissolved in ground water.

(09-R09-003)

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

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Ludwig, Ralph D. (GWERD), David J. A. Smyth, David W. Blowes, Laura E. Spink (Univ. of Waterloo), Richard T. Wilkin, David G. Jewett (GWERD), and Christopher J. Weisener (Univ. of Windsor). 2009. "Treatment of Arsenic, Heavy Metals, and Acidity Using a Mixed ZVI-Compost PRB. *Environ. Sci. Technol.* 43(6):1970-1976.

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

Wilkin, Richard T., Steven D. Acree, Randall R. Ross (GWERD), Douglas G. Beak (CSIRO Australia), and Tony R. Lee (GWERD). 2009. "Performance of a Zerovalent Iron Reactive Barrier for the Treatment of Arsenic in Groundwater: Part 1. Hydrogeochemical Studies." *Journal of Contaminant Hydrogeology* 106:1-14.

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

Beak, Douglas G. (CSIRO Australia), and Richard T. Wilkin (GWERD). 2009. "Performance of a Zerovalent Iron Reactive Barrier for the Treatment of Arsenic in Groundwater: Part 2. Geochemical Modeling and Solid Phase Studies." *Journal of Contaminant Hydrogeology* 106:15-28.

(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 6, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region VII: On April 1, 2009, Dr. Ann Keeley (GWERD) provided RPM Lisa Gotto with review comments on a proposed “Natural Attenuation Summary Report” for the Hydrite Chemical Company RCRA Site in Waterloo, IA. It was pointed out that the site activities thus far have been very well done including the conceptual model, bioattenuation screening, ground-water flow investigations, and field sampling and analyses. Ongoing and future work will investigate the efficacy of MNA based on remediation rates and the distance to the property line.

(09RC07-001)

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

## **COMMUNITY OUTREACH**

On March 27, 2009, the following individuals served as judges at the 2009 Oklahoma State Science and Engineering Fair at East Central University: Special Award Judge: Dr. Ann Keeley (GWERD); Category Judges: Dr. John T. Wilson, Dr. Mary Gonsoulin, Mr. Joe Williams (GWERD), Dr. Mike Barcelona (NRC), and Dr. Dennis Fine (Shaw Envr.); Special Award / Category Judges: Dr. Michael Roberts and Mr. Tim Canfield (GWERD); Teams Judge: Dr. Charles Beal (Shaw Envr.).

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Mayer, Paul M. (GWERD), Levica M. Smith (ECU), Robert G. Ford (LRPCD), Dustin C. Watterson (ECU), Marshall D. McCutchen (GWERD), and Mark R. Ryan (Univ. of MO). 2009. “Nest Construction by a Ground-Nesting Bird Represents a Potential Trade-Off Between Egg Crypticity and Thermoregulation.” *Oecologia* 159:893-901.

(P. Mayer (GWERD) 580-346-8647)





# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystem Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of April 13, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region VI: On March 30, 2009, Steven Acree and Dr. Richard Wilkin (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Richard Mayer with comments on a “Well Screen Analysis Report” for the Los Alamos National Laboratory in Los Alamos, NM, with emphasis on the evaluation of the effects of drilling additives on the collection of representative samples from wells installed under a hydrogeologic characterization program. It was noted that factors other than the effects of drilling additives (screen length, position within the vertical section, location with respect to contaminant source areas, ground-water sampling methods, etc.) may have a greater impact on whether ground-water samples are suitable for the purpose of early detection of contaminant releases or migration. In addition to providing detailed suggestions regarding the report’s findings, recommendations were suggested to reduce uncertainty in areas including upgradient well installations, laboratory investigations, and field studies.

(09RC06-001)

(S. Acree (GWERD) 580-436-8609)  
(R. Wilkin (GWERD) 580-436-8874)

Technical Assistance to Region VI: During April 7-8, 2009, Steven Acree and Dr. Richard Wilkin (GWERD) traveled to Santa Fe, NM, to present the results of a review of a “Well Screen Analysis Report,” prepared for the Los Alamos National Laboratory, to the Northern Mexico Citizen’s Advisory Board. The report categorized the impacts of previous well drilling practices on data obtained from the affected wells. Among other findings, the review highlighted the need for laboratory and field studies to validate key aspects of the conceptual model used in the well assessment.

(09RC06-001)

(S. Acree (GWERD) 580-436-8609)  
(R. Wilkin (GWERD) 580-436-8874)

Technical Assistance to Region VII: On April 9, 2009, Dr. Ann Keeley (GWERD) and Dr. Michael Barcelona (NRC) provided RPM Nancy Swyers with review comments regarding a “Hot Spot Pilot Test Work Plan” prepared for the Chemplex Site in Clinton, IA. The comments focused on the introduction of reactive media into a fractured dolomite aquifer contaminated by chlorinated VOCs and other contaminants. Although it was suggested that it makes sense to try KMnO<sub>4</sub>, it will be valuable to include a control well for the injection point. Concerns were expressed about the injection of soybean oil because of possible emulsion stability problems and aquifer fracture blockage. It was suggested that these problems be addressed before the initiation of injection.

(09-R07-001)

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of April 27, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region VII: On April 20, 2009, Dr. Ann Keeley (GWERD) provided RPM Lisa Gotto with review comments on a “Monitored Natural Attenuation Summary Report” for the Hydrite Chemical Company RCRA Site in Waterloo, IA. It was suggested that much of the document has sufficient merit to be published in the scientific literature as an MNA synopsis. It would also be an excellent guide for other PRPs working with the Region in this area because of its in-depth coverage of MNA evaluation alternatives and logical approach. The material presented includes the most recent innovations in ground-water remedial evaluation technology resulting in concise presentations and conclusions that can be accepted with few reservations.

(09RC07-001)

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

Technical Assistance to Region IX: On April 20, 2009, Steven Acree (GWERD) and Dr. Daniel Pope (Shaw Env.) provided RPM Bonnie Arthur with comments on a preliminary evaluation of monitoring needs with respect to MNA at the Frontier Fertilizer Superfund Site in Davis, CA. It was pointed out that the patterns of ground-water flow are complex and, therefore, it may be difficult to develop a coherent conceptual model of contaminant transport. In addition, the evaluation of MNA will be difficult because the contaminants of interest have not been widely studied in terms of natural attenuation processes. In such cases, it is particularly important to have strong corroborating evidence for the efficacy of natural attenuation processes such as appropriate geochemistry and the production of daughter products. An extensive list of the relevant literature was provided with emphasis on the effectiveness of MNA on the specific contaminants of concern at the site.

(09-R09-001)

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

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Wilson, John T. (GWERD), Kenneth Banks (Dynamac Corp.), Robert C. Earle (Shaw Env.), Yongtian He (NRC), Tomasz Kuder (Univ. of Okla.), and Cheri Adair (GWERD). (2008) “Natural Attenuation of the Lead Scavengers 1,2-Dibromoethane (EDB) and 1,2-Dichloroethane (1,2-DCA) at Motor Fuel Release Sites and Implications for Risk Management.” EPA Publication. EPA 600/R-08/107. National Risk Management Research Laboratory, Cincinnati, Ohio.

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

Hunkeler, Daniel (Univ. of Neuchâtel, Switzerland), Rainer U. Meckenstock (Inst. of Groundwater Ecol., Germany), Barbara Sherwood Lollar (Univ. of Toronto, Canada), Torsten C. Schmidt (Univ. of Duisburg-Essen, Germany), and John T. Wilson (GWERD). (2008) “A Guide for Assessing Biodegradation and Source Identification of Organic Ground Water Contaminants using Compound Specific Isotope Analysis (CSIA).” EPA Publication. EPA 600/R-08/148. National Risk Management Research Laboratory, Cincinnati, Ohio.

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

Lu, Xiaoxia (Peking Univ., China), John T. Wilson (GWERD), and Donald H. Kampbell (GWERD, Retired). (2009) “Comparison of an Assay for Dehalococcoides DNA and a Microcosm Study in Predicting Reductive Dechlorination of Chlorinated Ethenes in the Field.” *Environmental Pollution* 157:809-815.

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of May 11, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On April 21, 2009, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Felicia Barnett with review comments on documents related to the U.S. Marine Corps Base, Camp Lejeune, NC. The review focused on the accuracy and precision of the reconstruction of historical levels of contaminants in drinking water for the purpose of estimating human exposure. Although the request was specific to proposed work related to the Hadnot Point/Holcomb Boulevard (HPHB) areas of the Base, the Tarawa Terrace (TT) area reports were also reviewed. It was suggested that the work at the TT area is impressive, sound, and scientifically defensible because of the primary source of contamination. The premise should not be extended to the HPHB area, however, because the contaminant sources are numerous and more complex. Review comments were provided in considerable detail with respect to a wide variety of human exposure issues.

(09-R04-003)

(R. Ross (GWERD) 580-435-8611)

Technical Assistance to Region VI: On April 22, 2009, Steven Acree (GWERD) attended a meeting in Dallas, TX, to discuss site characterization studies proposed under a Facility Investigation Work Plan for the El Paso Merchant Energy-Petroleum Company Site in Corpus Christi, TX. Topics of discussion included supporting evidence for the current hydrogeologic conceptual model and the installation of additional wells and piezometers to define the extent of subsurface contamination. Also attending the meeting were Region 6 RPM Sue Westbrook and representatives from EL Paso Merchant Energy-Petroleum Company and their consultants.

(09RC06-002)

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

Technical Assistance to Region IX: On April 24, 2009, Dr. David Burden (GWERD) and Rob Earle and Dr. Noman Ahsanuzzaman (Shaw Env.) provided RPM Herb Levine with a technical review of a flow model for the Newmark Groundwater Contamination Superfund Site in San Bernardino, CA. A detailed discussion of the model setup, calibration and verification was presented. Although there was a general agreement with the modeling concept, it was recommended that additional effort be given to calibrating stream boundaries, especially during the wet seasons. Data gaps at the source area should also be filled where only six wells are available.

(09-R09-007)

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



***HIGHLIGHTS***  
National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of May 18, 2009

**TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On May 7, 2009, Dr. Eva Davis (GWERD) provided RPM Turpin Ballard with comments on an interim remedial action plan involving electrical resistance heating for volatile organic contamination at the Paducah Gaseous Diffusion Plant in Paducah, KY. An issue of concern was the training of operators and having individuals on site who are qualified to operate the system. Other issues included inadequate sampling with respect to contaminant extraction and maintaining hydraulic control. Also questioned was the lack of interlocks between above-ground treatment systems and the electrodes to ensure that heating is terminated when the extraction systems are down. Each of these concerns was discussed in detail.

(09-R04-006)

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

Technical Assistance to Region X: On May 12, 2009, Dr. Richard Wilkin (GWERD) provided Ed Moreen, Coeur d'Alene Field Office, with a technical review of geochemical issues relating to contaminant behavior in the proposed East Mission Flats (EMF) Repository in Kootenai County, ID. The review focused on the potential for metals contained in the waste materials to be leached, mobilized, and to potentially degrade the quality of ground water underlying the site. The results of ground-water monitoring, hydrologic assessments, geochemical evaluations, and redox status scenarios were discussed in considerable detail. It was suggested, based on the conclusions of these investigations, that concerns about the potential for metals mobilization, while not to be discounted, do not warrant additional testing and assessment. It was also noted that a monitoring program is in place to track any changes in ground-water quality through time along with evaluation options that would be triggered in the event of unanticipated changes in quality.

(09-R10-001)

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of May 25, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On May 22, 2009, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Turpin Ballard with comments on a ground-water flow and contaminant transport model for the Paducah Gaseous Diffusion Plant Site in Paducah, KY. An issue of concern was the distribution of monitoring points which allow an understanding of the interactions between ground water and surface water. Other issues included the determination of hydraulic conductivity, soil bulk density, and other parameters, as well as ground-water recharge from a relatively large discharge pond.

(09-R04-006)

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

Technical Assistance to Region IV: On May 19, 2009, Dr. David Burden (GWERD) and Mr. Rob Earle and Dr. Noman Ahsanuzzaman (Shaw Env.) provided RPM Turpin Ballard with review comments on a document titled “Groundwater Modeling for the Defense Depot Memphis, TN Superfund Site.” The objective of the modeling study was to investigate potential water quality impacts to the Memphis Sand Aquifer from vertical transport of VOC contaminants through the overlying fluvial aquifers. Since a major concern is the location of the window that connects the fluvial aquifer with the Memphis Sand Aquifer, it was recommended that a thorough investigation be conducted to isolate the hole in the clay layer. Other comments discussed the natural attenuation of PCE and TCE, proper selection and calibration of contaminant transport models, and biodegradation rates.

(09-R04-007)

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

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Striz, Elise A. (formerly GWERD) and Paul M. Mayer (GWERD). 2008. “Assessment of Near-Stream Ground Water-Surface Water Interaction (GSI) of a Degraded Stream before Restoration.” EPA Publication. EPA/600/R-07/058. National Risk Management Research Laboratory, Cincinnati, Ohio.

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



***HIGHLIGHTS***  
National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of June 8, 2009

**TECHNICAL ASSISTANCE**

Technical Assistance to Region VI: During June 1- 4, 2009, Steve Acree, Dr. Rick Wilkin, Tony Lee, and Tim Lankford (GWERD) continued monitoring the geochemical and hydraulic performance of a permeable reactive barrier (PRB) at the Delatte Metals Superfund Site in Ponchatoula, LA. In support of an ongoing evaluation of PRB technologies, GWERD conducted ground-water sampling and characterization of the organic-based PRB. The information will be used to aid in evaluating the long-term performance of the current PRB and provide data for projecting the effectiveness of similar installations at other sites.

(09-R06-005)

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

Technical Assistance to Region X: On May 27, 2009, Dr. Richard Wilkin (GWERD) provided RPM Kira Lynch with review comments on a document titled “Draft Technical Report No. 1” on subsurface investigations at the Simplot Don Plant in Pocatello, ID. The objective of the described work is to gather data to expand the conceptual site model and to develop ground-water remedial alternatives. The focus of the review comments concerned a better understanding of the distribution and behavior of contaminants in the subsurface through geochemical modeling and batch tests. Comments were also offered with respect to the presentation of findings including ground-water plume maps and cross-sectional contaminant distribution diagrams.

(09-R10-002)

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

**SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Schnaar, Gregory (OGWDW) and Dominic C. DiGiulio (GWERD). 2009. “Computation Modeling of the Geologic Sequestration of Carbon Dioxide.” *Vadose Zone Journal* 8:1-15.

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

Huling, Scott G. (GWERD), Eunsung Kan (United Arab Emirates Univ.), and Caleb Wingo (ECU). 2009. “Fenton-Driven Regeneration of MTBE-Spent Granular Activated Carbon-Effects of Particle Size and Iron Amendment Procedures.” *Applied Catalysis B: Environmental* 89:651-658.

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



***HIGHLIGHTS***  
National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of June 22, 2009

**TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On June 8, 2009, Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Karen Lumino with review comments on a draft design report for the Pine Street Canal Superfund Site in Burlington, VT. In general, the draft design appears to include sufficient engineering and geotechnical details on the conventional aspects of the amended cap design and implementation. Given that the design is innovative and essentially untested for the combination of horizontal permeable NAPL collection layer and removal system, it was recommended that continued emphases be placed on these issues with robust monitoring. Detailed comments focused on construction details including the placement of the barrier, collection piping, and proposed extraction methods.

(09-R01-004)

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

Technical Assistance to Region III: On June 17, 2009, Dr. David Burden (GWERD) and Dr. Daniel Pope (Shaw Env.) provided RPM Mitch Cron with a technical review of the “Groundwater Investigation Addendum Report” for the Central Chemical Corporation Superfund Site in Hagerstown, MD. The reviewer was requested to evaluate what in-situ treatment options may be applicable at the site based on the ground-water contaminants, geology, and plume characteristics so that treatability studies can be performed as soon as practicable. Generally, the comments centered on the limited site characterization information including contaminant sources, plume definition, models used to evaluate plume behavior, and hydrogeology. It was noted that site contaminants have a wide variety of physical, chemical, and biochemical properties which are highly varied in their susceptibility to various remedial technologies. A number of possible remedial approaches were discussed along with their potential efficacy with respect to the site's contaminants.

(09-R03-002)

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of June 29, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region II: On June 23, 2009, Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Mark Granger with a review of a laboratory treatability study work plan for the Cortese Landfill Superfund Site in Narrowsburg, NY. Techniques to assure that collected samples are representative of site ground water were discussed and suggestions were made concerning numerous methods of air stripping with respect to the final project design.

(09-R02-002)

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

Technical Assistance to Region V: At the request of RPM Lolita Hill, Dr. Randall Ross and Steven Acree (GWERD) participated in subsurface investigations at the Chem-Dyne Superfund Site in Hamilton, OH, during June 17-19, 2009. Multiple pressure transducers were deployed in selected wells to provide hydraulic head data which will be used to evaluate the impact of river stage and local pumping on capture zones associated with selected extraction wells operating at the site. It is anticipated that additional assistance will be provided in the review of data and documents describing the results of remedial performance monitoring.

(09-R05-001)

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

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

Technical Assistance to Region IX: On June 19, 2009, Dr. Eva Davis (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Dante Rodriguez with review comments on a number of documents pertinent to remedial alternatives at the Del Amo Superfund Site in Los Angeles, CA. Areas of concern focused on the proposed oxidants and dosages as well as the consumption of oxidants during subsequent injections. The effectiveness of the proposed use of enhanced bioremediation in areas between the oxidant injection wells was discussed along with a suggestion that further proof-of-concept will require additional information during the design phase.

(09-R09-006)

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

Technical Assistance to Region IX: On June 22, 2009, Dr. Eva Davis (GWERD) provided RPM Dante Rodriguez with comments on a "LNAPL Characterization Work Plan" for the Del Amo Superfund Site in Los Angeles, CA. Concern was expressed about the use of the proposed screening tool for LNAPL delineation because it does not react to the chemical of concern, but to an impurity in the LNAPL. Concern was also expressed about the type of drilling to obtain soil cores because NAPL delineation is more difficult with the small diameter cores that would be obtained.

(09-R09-006)

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





# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of July 13, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region VI: On June 30, 2009, at the request of RPM Sue Westbrook, Steven Acree (GWERD) attended a meeting in Dallas, TX, to discuss a proposed containment system for the El Paso Merchant Energy-Petroleum Company Site in Corpus Christi, TX. Also attending were representatives from the Company and their consultants. Topics of discussion included supporting evidence for a revised hydrogeologic conceptual model and a revision of the proposed containment and performance monitoring systems.

(09RC06-002)

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

Technical Assistance to Region VII: On July 6, 2009, Dr. Ann Keeley (GWERD) provided RPM Lisa Gotto with comments on specific questions concerning the proposed application of MNA at the Hydrite Chemical Company RCRA Site in Waterloo, IA. Issues discussed included the information needed to design and locate additional monitoring wells, contaminant source area investigations, and problems associated with inherent variability of monitoring results in terms of evaluating the efficacy of MNA. Information was provided about the use of MNA at other fractured sites around the country and the need to establish a fallback strategy in the event MNA fails to meet remediation goals. The use of geochemical parameters, daughter products, and molecular technology tools was discussed as a means to reduce the variability of monitoring results.

(09RC07-001)

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

Technical Assistance to Region X: On June 29, 2009, Dr. Richard Wilkin (GWERD) provided RPM Anne Dailey with a review of a technical memorandum concerning the evaluation of pH adjustment to reduce metals loading to the South Fork Coeur d'Alene River in the Bunker Hill Box, Coeur d'Alene River Basin, ID. The site selected for evaluation is a region where ground water contains elevated levels of dissolved zinc and cadmium. The plan calls for the implementation of a PRB either by the injection of a liquid alkaline reagent or trenching and filling with limestone. Steps to evaluate the effectiveness of the PRB, including geochemical modeling, lab-based column testing, and field plot testing, were discussed in detail as was a section on projected costs.

(09-R10-001)

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of July 27, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: During July 13-16, 2009, Mr. Steven Acree and Dr. Randall Ross (GWERD) visited the Fort Devens Superfund Site in Devens, MA, in support of ongoing sediments research where the GWERD personnel continued the characterization of ground/surface water interactions at the Red Cove study site. Specifically, ground-water elevations in wells surrounding the Red Cove and in lake bed piezometers were measured to determine hydraulic gradients, and sediment temperature data loggers were redeployed to better define potential areas of ground-water discharge to the cove.

(05-R01-001)

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

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

Technical Assistance to Region IX: On July 10, 2009, Mr. Steven Acree and Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Stephen Tyahla with review comments on the “Carson Regional Groundwater Group Model Development Report” for Carson, CA. The focus of the review was the modeling approach, conceptual model, and numerical model setup. Model input data, calibration results, sensitivity analysis and predictive results will be reviewed later when the outputs of the model runs become available. Issues discussed include data collection, model domain and boundary conditions, problems associated with existing vertical hydraulic gradients and the reverse of flow directions in the different aquifers.

(09RC09-001)

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

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

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Paul, Cynthia J. (GWERD), Robert G. Ford (LRPCD), and Richard T. Wilkin (GWERD). 2009. “Assessing the selectivity of extractant solutions for recovering labile arsenic associated with iron (hydr)oxides and sulfides in sediments.” *Geoderma* 152:137-144.

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of September 14, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On July 29, 2009, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided input in the preparation of a document titled “White Paper on Phytate Stabilization” concerning the use of *in-situ* chemical oxidation at the Parris Island Marine Corp Depot, Site 45 (Beaufort, SC). Collaborators on this project include Washington State University and ERM. The purpose of the white paper is to describe the approach and procedures associated with the injection of phytate stabilized hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) into the subsurface at the former dry cleaning site. The co-injection of phytate and H<sub>2</sub>O<sub>2</sub> is expected to result in a decline in the rate of reaction of H<sub>2</sub>O<sub>2</sub> and enhance the transport distance of the oxidant through the subsurface. Details were discussed regarding the location of the pilot-scale demonstration, injection design, monitoring locations and parameters, and other various deployment strategies. The EPA RPM is Lila Llamas-Koromas.

(09-R04-010)

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

Technical Assistance to Region IV: On August 4, 2009, Dr. Eva Davis (GWERD) provided RPM Jon Bornholm with review comments on a memo providing conceptual costs for DNAPL remedial technologies at the Cape Fear Wood Preserving Site in Cumberland County, NC. Brief comments were provided on the remediation technologies included in the memo, which were *in-situ* (bio)geochemical stabilization, surfactant enhanced *in-situ* chemical oxidation and modified Fenton’s reagent ISCO, slurry trench cut-off walls, and thermal technologies of steam injection and thermal conductive heating. Based on experience and the outcome of remediation activities at other creosote and coal tar contaminated sites, it was determined that thermal remediation will provide the greatest contaminant mass reduction and the greatest reduction in the overall time frame for remediation at this site.

(09-R04-008)

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

Technical Assistance to Region IX: In a continuing technical assistance effort at the Yerington Mine Site in Yerington, NV, Mr. Steven Acree (GWERD) provided RPM Nadia Hollan Burke with comments on a document titled “Anaconda Evaporation Ponds Removal Action Characterization Data Summary Report” on July 24, 2009. In general, the results of these investigations provide much useful information; however, care should be exercised in the interpretation of results, particularly with respect to vadose zone modeling and ground-water grab sampling. Issues discussed in detail included recharge estimates, capping the ponds with mine tailings, risk management, need for additional monitoring wells, and sampling procedures.

(09-R09-002)

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of September 21, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On August 7, 2009, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Lila Llamas-Korammas with review comments regarding LNAPL and DDT delineation efforts at the Parris Island Marine Corp Depot, Site 27 (Beaufort, SC). Issues discussed in detail were the proposed sampling plan including the grid layout along with additional sample locations, collection of aquifer cores, sampling approach, and techniques to screen or measure LNAPL and DDT. Several issues were presented for consideration with respect to complexities associated with LNAPL and DDT contaminant fate and transport, site characterization and data interpretation, and a refinement of the site conceptual model.

(09-R04-009)

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

Technical Assistance to Region V: On August 5, 2009, the Center for Subsurface Modeling Support (CSMoS) provided RPM Timothy Drexler with technical review comments on a numerical ground-water flow model which is part of a remedial investigation report for the Town of Pines, IN. Dr. David Burden (GWERD) and Mr. Rob Earle (Shaw Env.) pointed out the importance of sensitivity analysis along with the model development, calibration, simulations, and interpretations. Other issues included methods of obtaining hydraulic conductivity estimates and the importance of water balance determinations if transport modeling is performed. The possible need for solute transport modeling to evaluate dispersion was suggested.

(09-R05-002)

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

Technical Assistance to Region IX: On August 11, 2009, Mr. Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Nadia Hollan Burke with responses to earlier comments regarding the "Draft Process Areas (OU-3) Remedial Investigation Work Plan" for the Yerington Mine Site in Yerington, NV. The issue of most concern involved the depth of site characterization. It was pointed out that to understand the contaminant distribution and fate in both the saturated and unsaturated zones, it is necessary to conduct characterization to the full depth of contaminant's presence in areas where historical site operations resulted in significant contaminant releases as well as areas that are most likely to serve as continuing sources for ground-water contamination. Other issues included the importance of geochemical controls on contaminant behavior, activities at a truck stop that may have contributed to contamination, monitoring parameters, and screen lengths in monitoring wells.

(09-R09-002)

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

Technical Assistance to Region IX: During August 18-20, 2009, Mr. Steven Acree and Dr. Rick Wilkin traveled to Paso Robles, CA, at the request of RPM James Sickles, to provide assistance in evaluating remedial options at the Klau/Buena Vista Mine Site. Activities included field reconnaissance to choose locations for further characterization of surface mineralogy and evaluation of locations for the installation of ground-water monitoring wells. It is expected that additional assistance will be required for the review of remedial investigation work plans and reports.

(09-R09-004)

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

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of September 28, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IV: On September 21, 2009, Mr. Steven Acree and Dr. Eva Davis (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Galo Jackson with technical review comments on a feasibility study (FS) for the Alaric, Inc. Superfund Site in Tampa, FL. In general, the screening analysis and conclusions/recommendations in the FS appear to be reasonable, thorough, and technically appropriate. Issues discussed in detail included methods used in calculating contaminant masses, soil contaminant contour volumes, and contaminated media zones. Thermal remediation comments focused on the evaluation of available technologies, extending treatment to the surficial aquifer, estimated treatment costs, and period of treatment with respect to reaching MCLs.

(09-R04-002)

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

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

Technical Assistance to Region V: On August 24, 2009, Dr. David Burden (GWERD) and Dr. Daniel Pope (Shaw Env.) provided RPM Pamela Molitor with comments on conceptual remediation plan for the former ChemCentral Site in Grand Rapids, WY, where the soil and ground water are contaminated with petroleum hydrocarbons and chlorinated solvents. The plan proposes aerobic and anaerobic bioremediation of ground water. Because it is difficult to adequately and uniformly distribute reagents (oxygen, molwhey, etc.) in the subsurface, the design and operation of the injection systems are critical to remediation success. It may be desirable to perform a detailed performance monitoring sampling event using push-probe sampling points to verify that all areas of the plumes (aerobic and anaerobic) are being remediated. In addition to the distribution of reagents, injection-well fouling and problems associated with the possible presence of NAPLs were discussed.

(09-R05-003)

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

Technical Assistance to Region VII: On August 27, 2009, Dr. David Burden (GWERD) and Dr. Daniel Pope (Shaw Env.) provided RPM Diana Engeman with comments regarding the Peoples Natural Gas Site in Dubuque, IA. The site is a former manufactured gas plant site with extensive ground-water contamination including (NAPL) coal tar and BTEX. A ROD amendment is proposed to implement a Technical Impracticability (TI) waiver over much of the site. The comments centered on the lack of stability of the contaminant plume as well as plume control. Other comments were directed at source area NAPLs and treatment alternatives.

(09-R07-002)

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

Technical Assistance to Region X: On September 10, 2009, Dr. Richard Wilkin (GWERD) provided RPM Kira Lynch with review comments on the "Draft Technical Memorandum: Supplemental Data Analysis Phosphoric Acid Plant Area" prepared for the Simplot Don Plant in Pocatello, ID. The comments primarily concerned the report's conclusion that the mobility of phosphorus analytes depends on the migration of acidic processing liquids in the unsaturated zone and low pH conditions of ground water. In general, the conclusions and recommendations were found to be reasonable. Issues of discussion included the selection of sampling locations, and pH/arsenic transport relationships.

(09-R10-002)

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of October 5, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region II: On September 25, 2009, Dr. Richard Wilkin (GWERD) provided RPM Richard Ho with review comments on a supplemental remedial investigation report (SRI) for the Quanta Resources Superfund Site in Edgewater, NJ, where arsenic geochemistry is exceedingly complex. Overall, the SRI deals with these matters with a background that is up to date with the present state-of-the-science and nothing being proposed relating to the collected data is outside the standard way of interpreting arsenic behavior in the environment. One specific point was that much of the discussion and interpretation regarding the “historic fill” is speculative and not especially helpful to a successful site cleanup as it is not possible to recognize the multiple cycles of arsenic mobilization and attenuation that have no doubt occurred at the site over many decades.

(09-R02-001)

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

Technical Assistance to Region V: On August 28, 2009, Dr. David Burden (GWERD) and Dr. Daniel Pope (Shaw Env.) provided RPM Pamela Molitor with a review of the Michigan Department of Environmental Quality (MDEQ) comments on a proposed remediation plan for the former ChemCentral Site in Grand Rapids, WY. In general, the MDEQ comments are well taken and should be used to guide further activities at the site. In particular, the comments about the extent of the site characterization (e.g., source area, both vertical and horizontal) and performance monitoring (e.g., in response to changed ground-water flow directions due to remedial activities) should be carefully considered.

(09-R05-003)

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

Technical Assistance to Region VII: On September 30, 2009, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Brad Vann with comments on three reports dealing with the Parkview Well OU2 Superfund Site in Grand Island, NE. The reports present an intermediate-level development of the remedial design for one source area and two ground-water plumes contaminated by a variety of chlorinated solvent compounds. The review included critical analyses as well as recommendations regarding the fate and transport of ground-water contaminants, remedial options/alternatives, ISCO, and monitoring strategies and requirements.

(09-R07-003)

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

## **SCIENTIFIC AND TECHNICAL PUBLICATIONS**

Wilson, James A. and Jennifer L. Parsons (Okla. St. Univ.) and Eric E. Jorgensen (GWERD). 2009. “Protein Nutrition of Southern Plains Small Mammals: Immune Response to Variation in Maternal and Offspring Dietary Nitrogen.” *Physiological and Biochemical Zoology* 82(2):170-180.

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



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of October 26, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region IX: On October 13, 2009, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPM David Seter with review comments on a “Pumpback Well System (PWS) Characterization Work Plan Addendum” for the Yerington Mine Site in Yerington, NV. Although it is appropriate to begin piezometer installation as soon as possible, it was recommended that the proposed pump tests be scheduled after the irrigation season to reduce the possibility of interference from other hydraulic stresses. It was also suggested that the PWS capture zone delineation by analytical modeling be supported by other lines of evidence including an examination of downgradient changes in chemical concentrations and potentiometric surfaces. Other comments concerned borehole drilling and piezometer construction, aquifer testing, capture zone analysis, and a data summary report.

(10-R09-001)

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

(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region IX: On October 20, 2009, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPM David Seter with review comments on a “Shallow Zone Characterization Data Summary Report (DSR)” for the Yerington Mine Site in Yerington, NV. It was noted that the investigations appear to have been successful in significantly advancing an understanding of conditions in the shallow portion of the aquifer. The results provided a strong basis for more informed and focused investigations under the site-wide ground-water remedial investigation. The possibility of continuing sources of ground-water contamination was discussed along with the need to address data gaps. A graph was prepared comparing uranium, sodium, and sulfate concentration in shallow ground water.

(10-R09-001)

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

(R. Ford (LRPCD) 513-569-7501)



***HIGHLIGHTS***  
National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of November 2, 2009

**TECHNICAL ASSISTANCE**

Technical Assistance to Region I: During October 26-28, 2009, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD), in support of ongoing sediments research, continued the characterization of ground water/surface water interactions at the Red Cove study site at the Fort Devens Superfund Site in Devens, MA. Specifically, ground-water elevations in wells surrounding the cove were measured and data from pressure transducers/data loggers deployed throughout the well network were recovered to allow detailed evaluations of temporal trends in hydraulic gradients.

(05-R01-001)

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

(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region II: On October 29, 2009, Dr. Ann Keeley (GWERD) provided RPM Luis Negron with a response to comments concerning an October 26, 2008, review of a “Revised Draft Natural Evaluation Addendum to the Supplemental RCRA Facility Investigation and Interim Measures Report” for the PPG Discontinued Operations Site in Guayanilla, Puerto Rico. The issues of major concern included providing statistical proof that natural attenuation is occurring, contaminant transport and fate modeling parameters, potential degradation pathways, plume mass calculations, and ecological impact evaluation (Guayanilla Bay). Responses to those comments, dated August 2009, are concise, professionally presented, and acceptable by any measure. Alterations of the text, correction of typographical errors, and the revision of tables fully address the earlier technical comments. It was suggested that the request for a time extension for the submittal of the Sampling and Analysis Work Plan be provided.

(01RC02-001)

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





# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of November 16, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region I: On November 2, 2009, Dr. Richard Wilkin (GWERD) and Mr. Steven Acree (GWERD) provided RPM Dick Goehlert with review comments and suggestions on the preliminary scope outline for the permeable reactive barrier pre-design work plan for the South Municipal Water Supply Superfund Site in Peterborough, NH. It is suggested that pressure transducers/data loggers be deployed to monitor aquifer response to the cessation of pumping. Also, that both filtered and unfiltered ground water samples be included in the analytical suite, and that specification of well development procedures be included in the subsequent work plan. It is also recommended that a minimum of two sets of slug tests be performed using different displacements, and a description of the proposed slug test methods be provided in the work plan.  
(10-R01-001) (R. Wilkin (GWERD) 580-436-8874)  
(S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IV: On November 2, 2009, Dr. Eva Davis (GWERD) provided RPM Jon Bornholm with review comments concerning the field sampling plan (revision 1) for the Cape Fear Superfund Site, Fayetteville, NC. The field sampling plan includes a three phase investigation. This review focused on the proposed TarGOST investigation. It is recommended that planning should include a list of the remedial technologies to be evaluated, the data needs to evaluate each of the technologies, a comparison of the data at hand for the site that meets these needs, and the data gaps to be filled by the sampling effort. Comments were also offered with respect to the presentation of findings including locations for all wells, recent PAH data for those wells, and identifying areas where creosote was discharged to the surface.  
(10-R04-001) (E. Davis (GWERD) 580-436-8548)

Technical Assistance to Region VI: On November 4-5, 2009, at the request of RPM Sue Westbrook, Steven Acree (GWERD) attended a meeting in Corpus Christi, TX, to discuss characterization studies being conducted under the Facility Investigation at the El Paso Merchant Energy-Petroleum Company Site in Corpus Christi, TX. Also attending were representatives from the Company and their consultants. Topics of discussion included supporting evidence for the current hydrogeologic conceptual model and the enhanced knowledge of contaminant distribution obtained during the current investigation. A site visit was conducted to observe the installation of the sheet pile wall to be used as part of the remedial system.  
(09RC06-002) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IX: During November 1-5, 2009, at the request of RPM Catherine Brown, Randall Ross (GWERD) and Milovan Beljin (Shaw Contractor) attended meetings in Tempe, AZ, and Avondale, AZ, to discuss ongoing activities at the Phoenix Goodyear Airport (PGA) North Superfund Site. On November 2, a meeting was conducted to discuss locations for PGA North Year 4 well locations. On November 3, a meeting was held to discuss ongoing modeling activities at the PGA North Site. It was determined that efforts should focus primarily on calibrating the ground water flow model with particle tracking to evaluate recent changes in the local flow field. It was also recommended that the current fate and transport model be run for two scenarios. On November 4, the PGA North Quarterly Meeting was held to discuss ongoing and future activities at the site. A site visit by Drs. Ross and Beljin followed the meeting.  
(10-R09-002) (R. Ross (GWERD) 580-436-8611)



# ***HIGHLIGHTS***

**National Risk Management Research Laboratory  
Ground Water and Ecosystems Restoration Division  
Robert S. Kerr Environmental Research Center  
Status Report for the Week of November 30, 2009**

## **TECHNICAL ASSISTANCE**

Technical Assistance to Region VII: On November 6, 2009, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Brad Vann with feedback on the response to comments provided on November 3, 2009, by Gary Felkner (Black and Veatch, Special Projects Corp. ((BVSPC)) for the Parkview Well Site Operable Unit 2, Grand Island, NE. This review confirms original comments and recommendations with minor modifications. It is recommended that BVSPC investigate various options associated with the thermal activation of persulfate. It is also recommended that the results of the bench test be used to guide the oxidant dosage used in a pilot study, and that a detailed description of the oxidant injection plan and design be presented.

(10-R07-002)

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

Technical Assistance to Region IX: On November 9, 2009, Dr. Eva Davis (GWERD) provided RPM Carolyn D'Almedia review comments for the Draft Dense Non-Aqueous Phase Liquid (DNAPL) Feasibility Study (FS) for the Montrose Superfund Site, Los Angeles, CA. In general, the FS does not present a valid, unbiased evaluation of the remedial options available to address the chlorobenzene DNAPL which currently exists in the subsurface beneath the former Montrose Chemical Corporation facility. The Draft FS contains many technically incorrect or unsupported statements about the potential for the various remedial alternatives to recover chlorobenzene (and DDT) and protect the environment and the public.

(10-R09-004)

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

Technical Assistance to Region V: On November 11, 2009, at the request of RPM Michael Mikulka, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env. contractor) provided review comments on the Revised Approach for MDA-33S Containment and Treatment System for the A.K. Steel Site, Middletown, OH. It is suggested that a horizontal drain system would be better suited for satisfying the objectives at this site. Also, information should be provided with respect to monitoring the performance of the proposed capture system.

(10RC05-001)

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

Technical Assistance to Region VII: On November 13, 2009, Dr. Ann Keeley provided RPM Nancy Swyers review comments regarding "Hot Spot Pilot Test Field Activities Summary" prepared for the Chemplex Site in Clinton, IA. The report details information on activities to assess the viability of an in situ treatment technology to address areas of elevated (hot spots) PCE concentrations.

(10-R07-001)

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