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 7, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On December 26, 2007, Dr. John Wilson (GWERD) provided RPM Debra Rossi with technical review comments on the "Pre-Final Design Report for Operable Unit 3, Maryland Sand, Gravel, & Stone Site." The facility is located in Elkton, MD. The comments were abbreviated because the detailed design of the bioventing system, and the subsequent anaerobic bioremediation system, has been deferred until after sediments have been excavated, treated by thermal desorption, and returned to the excavation. Questions were asked, however, concerning air quality monitoring and oxygen transfer. Discussions were offered with respect to the design, operation, and data interpretation of microcosm studies. Other discussions were directed at the processes involved in field-scale applications.
(00-R03-002) (J. Wilson(GWERD)580-436-8534)

Technical Assistance to Region IX: On December 19, 2007, Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Nadia Hollan with review comments on a remedial investigation work plan for OU-3 at the Yerington Mine Site in Yerington, NV. A major concern is that the work plan lacks detailed discussions of the proposed studies and other aspects necessary for a comprehensive review. It was recommended that additional site-specific process information be included in either the work plan or the report of these studies to facilitate an interpretation of the data. In addition to suggesting examples of what site-specific information might be needed, specific comments were provided on a wide variety of issues.
(01-R09-004) (S. Acree(GWERD)580-436-8609)

Taiwan Short Course: A short course on in-situ chemical oxidation (ISCO) was presented to the Taiwan Environmental Protection Administration (EPA) by Dr. Scott Huling (EPA, NRMRL, Ada, OK) and Mr. Rick Lewis (ERM Inc., Boston, MA) in Taipei, Taiwan, December 5-6, 2007. This event was coordinated through the EPA Region 10 (Bernie Zavala, Kathy Veit) and the EPA Office of International Affairs (Dan Thompson, Wash. DC). Dr. Huling and Mr. Lewis met with the Minister of Taiwan EPA (Dr. Feng-Teng Chang) and the Executive Secretary of the Office of Soil and Ground Water Remediation (Mr. Wan-Chu Huang). Two ISCO case studies currently underway in Taiwan were presented and discussed. The 2-day short course included 13 sessions and covered fundamentals, advantages/disadvantages, bench- and pilot-scale studies, oxidant selection, monitoring, health and safety, and case studies. The course was attended by 110 technical staff from the Taiwan EPA, University Professors and Students, and Consultants.
(Misc.) (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 21, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region II: In a continuing technical assistance effort at the Cortese Landfill Superfund Site in Narrowsburg, NY, Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Mark Granger with comments on the applicability of surfactant-enhanced in-situ chemical oxidation (S-ISCO) technology to remediate subsurface NAPL-phase contamination. S-ISCO is a newly developed technology that combines the essentially simultaneous injection of an oxidant (persulfate), an activator for the persulfate oxidant (such as Fe(II)-EDTA), and a surfactant/cosolvent mixture or surfactant (various proprietary formulations). The pros and cons of the merits of the technology were discussed at considerable length. Essentially, the January 2, 2008, comments recommended that further research, field applications, reporting, and critiquing should occur before it can be considered to be a widely accepted emerging technology.
(06-R02-002) (S. Acree(GWERD)580-436-8609)

Technical Assistance to Region III: On January 14, 2008, Dr. Eva Davis (GWERD) provided RPM Debra Rossi with comments on a pre-final design for Operable Unit 3 at the Maryland Sand, Gravel, & Stone Site in Elkton, MD. The comments focused on the proposed ex situ thermal desorption treatment of contaminated soil. Concerns were expressed with respect to the lack of sampling of excavated soil, both with respect to the amount and types of contamination. Another concern was the volatilization of contaminants during excavation. It was suggested that real time monitoring of air concentrations be carried out to ensure that site workers and off site residents are not exposed to unacceptable concentrations of VOCs. Specific comments were offered in a number of areas including the possible presence of NAPL, soil sampling techniques, and the proposed soil "shakedown" test to confirm that the technology can meet soil cleanup standards.
(00-R03-002) (E. Davis(GWERD)580-436-8548)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of February 4, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On January 17, 2008, Dr. John Wilson (GWERD) provided RPM William Ryan with review comments on a contingent remedial work plan for the Bendix Superfund Site in St. Joseph, MI. A number of issues were discussed in detail including sample collection within a slotted auger, well specifications and construction, and decontamination procedures for equipment as well as drilling fluids and purge water. Suggestions were also offered concerning the monitoring program, specifically with regard to sampling frequency and those wells which are proposed for removal from the long-term monitoring schedule. In general, the work plan was found to be technically sound.
(08-R05-001) (J. Wilson(GWERD)580-436-8543)

Technical Assistance to Region IX: In a continuing technical assistance effort at the Montrose Superfund Site in Torrence, CA, Dr. Eva Davis (GWERD) provided RPM Jeff Dhont with a clarification of information presented by Montrose during the meeting held November 14-15, 2007, in San Francisco, CA. In the memo of January 29, 2008, Dr. Davis discussed the viability of steam injection and listed sites where the technology has been successfully used. In addition to commenting on the presentation of thermal case studies, the extrapolation of two-dimensional laboratory experiments to field conditions was discussed along with a review of the pertinent literature.
(95-R09-015) (E. Davis(GWERD)580-436-8548)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of February 11, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On February 7, 2008, Dr. Eva Davis (GWERD) provided RPM Jim Brown with review comments on treatability work plans for thermal enhanced SVE at the Beede Waste Oil Superfund Site in Plaistow, NH. Some general information was provided on thermal remediation technologies to aid in understanding how they differ from SVE alone. A number of issues were discussed in detail including the value of bench-scale testing to provide information on the rates of release of volatile and semivolatile organic compounds from the oil matrix or soil surface. Other comments concerned using cyclic steam injection to increase recovery while conserving energy. Until models have been verified/validated, they should not be relied upon for project design. Alternatively, the experience of reliable vendors could be used, pending a thorough review by EPA technical experts.
(07-R01-003) (E. Davis(GWERD)580-436-8548)

Technical Assistance to Region VI: On January 29 and 30, 2007, Steven Acree and Dr. Randall Ross (GWERD) conducted field tests at the Delatte Metals Superfund Site in Ponchatoula, LA, to characterize the permeability distribution within a permeable reactive barrier (PRB) approximately four years following its installation. The work is in support of an ongoing evaluation of PRB technologies and will be used assessing long-term performance.
(03-R06-001) (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 February 18, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On February 15, 2008, Dr. Richard Wilkin (GWERD) provided RPM Richard Ho with review comments on a Draft Remedial Investigation Report for the Quanta Resources Superfund Site in Edgewater, NJ. The document describes an evaluation of sources, nature and extent, and transport and fate of contaminants in ground water, as well as risks to human health and the environment. Extensive and detailed comments on each of these issues were provided along with suggestions for improving the document and questions regarding some of the stated conclusions.
(07-R02-002) (R. Wilkin(GWERD)580-436-8874)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Su, Chunming and Robert W. Puls (GWERD). "Removal of Added Nitrate in Cotton Burr Compost, Mulch Compost, and Peat: Mechanisms and Potential Use for Groundwater Nitrate Remediation." (2007) Chemosphere 66, 91-98.
(C. Su(GWERD)580-436-8638)

Su, Chunming and Robert W. Puls (GWERD). "Removal of Added Nitrate in the Single, Binary, and Ternary Systems of Cotton Burr Compost, Zerovalent Iron, and Sediment: Implications for Groundwater Nitrate Remediation Using Permeable Reactive Barriers." (2007) Chemosphere 67, 1653-1662.
(C. Su(GWERD)580-436-8638)

Su, Chunming (GWERD). "Utilization of Zero-valent Iron for Arsenic Removal from Groundwater and Wastewater." (2007) Chapter 8, pp. 111-150. In: Irene M.C. Lo, Rao Y. Surampalli, and Keith C.K. Lai (Eds.), Zero-Valent Iron Reactive Materials for Hazardous Waste and Inorganics Removal. American Society of Civil Engineers.
(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 March 3, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On February 26, 2008, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM James Chang with review comments on a model verification pump test simulation comparison at the George AFB in Victorville, CA. Of the 13 aquifer tests evaluated, 10 are poor and unstable. They should not have been used for estimating aquifer parameters and are not useful for model verification. The results of the remaining three wells were useful for identifying areas of the model that should be re-examined. The most significant conclusion is that the model cannot be considered verified. This is not to say that the model is bad, but rather that at this point there are no appropriate data available for model verification. The goal should be to collect such data in the future and to revisit the model input data.
(05-R09-004) (R. Ross(GWERD)580-436-8611)

Technical Assistance to Region IV: During February 12-13, 2008, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided technical support to RPM Galo Jackson regarding in-situ chemical oxidation (ISCO) at the Southern Solvents Superfund Site in Tampa, FL. Their visit to the site was coordinated with the deployment of pilot-scale ISCO. The oxidant injection activities followed a treatability study by Drs. Huling and Pivetz at GWERD where laboratory results were used to design the amount and concentration of oxidant to be injected, and to develop an injection strategy. Direct push technology was used at the site to inject sodium permanganate into PCE contaminated aquifer material 8-35 feet deep. The Alaric Superfund Site was also visited where details of an ISCO strategy were discussed to target the oxidation of a localized pocket of chlorinated VOCs.
(00-R04-005) Southern Solvents S/F Site
(07-R04-004) Alaric S/F Site (S. Huling(GWERD)580-436-8610)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
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Status Report for the Week of March 10, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On March 4, 2008, Dr. John Wilson (GWERD) provided RPM Romuald Roman with review comments of three documents associated with the Ohio River Park Superfund Site in Neville Island, PA. In general, it was found that the behavior of benzene and trichlorophenol contamination in ground water is behaving as expected, and monitored natural attenuation as a remedy meets the expectations of the ROD. Future monitoring plans were discussed and a statistical analysis was provided with respect to the concentrations of benzene meeting the MCL in 30 years of monitoring.
(03-R03-002) (J. Wilson(GWERD)580-436-8534)

Technical Assistance to Region VI: On March 4, 2008, Dr. John Wilson (GWERD) provided RPM Petra Sanchez with comments on a draft of field test plan results report for the North Railroad Avenue Plume in Española, NM. The comments were essentially responses to specific questions dealing with such issues as the addition of electron donors, results of sampling events, interpretation of tracer tests, and a critique of the conclusions and recommendations.
(07-R06-002) (J. Wilson(GWERD)580-436-8534)

Technical Assistance to Region IX: On March 4, 2008, Dr. John Wilson (GWERD) provided RPM Gary Riley with comments on a "Report of Studies to Optimize Current Site Remediation Activities" and "Five-Year Groundwater Status Report" for the Westinghouse Sunnyvale Superfund Site in Sunnyvale, CA. The response focused on four specific questions including MNA as an appropriate remedy to study for the site, ground-water sampling methods and locations, the potential for meeting intended goals, and a proposed plan to abandon some wells. The comments predominantly centered on MNA as a remedial approach with a detailed discussion of its effectiveness on each of the contaminants of concern.
(07-R09-005) (J. Wilson(GWERD)580-436-8534)

Technical Assistance to Region IX: On March 5, 2008, Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPM David Seter with review comments on a remedial investigation work plan for the Yerington Mine Site in Yerington, NV. In general, the issues discussed included the advantages of multi-well pumping tests in evaluating the pump-back system, monitoring well sample collection, additional ground-water characterizations, well locations, field sampling and analysis plans, and geochemical processes affecting release mechanisms. A number of specific issues related to the text were contaminant transport, mineralogical characterization, sequential extraction solutions, borehole locations, and data reporting.
(01-R09-004) (S. Acree(GWERD) 580-436-8609)
(R. Ford(LRPCD) 513-569-7501)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
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Status Report for the Week of March 31, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On March 12, 2008, Dr. Ralph Ludwig (GWERD) provided RPM Craig Zeller with comments on a 2007 Post Removal Action Controls Report for the Former Ashepoo Phosphate/Fertilizer Works Site in Charleston, SC. Issues included the mobility of arsenic in ground water due to the presence of dissolved iron, correlation of iron and arsenic concentrations, reduction of iron concentrations, and the installation of additional monitoring wells to better assess the fate of arsenic and lead at the site.
(99-R04-001) (R. Ludwig(GWERD)580-436-8603)

Technical Assistance to Region VI: On March 25, 2008, Steven Acree (GWERD) and Dr. Daniel Pope (Shaw Env.) provided Rick Ehrhart with current information regarding field screening methods for pentachlorophenol (PCP) useful in making real-time decisions regarding remediation efforts at the Huffman Wood Preserving Brownfields Site in Broken Bow, OK. The comments focused on immunoassay analytical methods to guide proposed remediation activities. In addition to discussions concerning interferences and simplicity of use, recommendations were offered with respect to field applications of the technology. It was suggested that 5-10 percent of the negative samples should be confirmed by fixed laboratory analysis.
(02BF06-001) (S. Acree(GWERD)580-436-8609)

Technical Assistance to OSRTI: On March 10, 2008, Dr. Mary Gonsoulin (GWERD) and Dr. Daniel Pope (Shaw Env.) provided Michael Overbay and Linda Fiedler with review comments of the Interstate Technology & Regulatory Council (ITRC) document titled In Situ Bioremediation of Chlorinated Ethene: DNAPL Source Zones. It was suggested that the overall tone of the document is perhaps more optimistic than the current state of DNAPL bioremediation affairs will support, but various caveats are included so that the reader is at least warned that subsurface DNAPL bioremediation is not yet a cookbook, readily-applied and generally-successful remedial technology. Nevertheless, it seems that DNAPL bioremediation is likely to find a useful place in the professional's remediation toolkit, and this document will help to get the basic information out to the user community. Technical comments included suggestions for revising the Glossary to generalize the definitions, and rewriting various text portions to clarify and expand on technical statements. Editorial comments included suggestions for improving the clarity and evenness of style of the document.
(Misc.) (M. Gonsoulin(GWERD)580-436-8616)

HIGHLIGHTS

National Risk Management Research Laboratory
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Status Report for the Week of April 14, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On March 26, 2008, Dr. Scott Huling (GWERD) provided RPM Joseph Lemay and On-Scene Coordinator Frank Gardner with technical review comments on a proposed in-situ chemical oxidations remedial activity at the Wells G&H Superfund Site in Woburn, MA. There are several technical issues that should be re-evaluated that could result in significant progress in achieving remedial objectives. Issues which are discussed in detail include the need to prepare a conceptual model, effective delivery of the oxidant to the contaminated zones, volume of MnO_4^- solution injected into each well, and the rationale for this round of injection locations.
(05-R01-002) (S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IV: On April 9, 2008, Dr. Eva Davis (GWERD) provided Section Chief David Williams with review comments on documents related to the electric resistance heating (ERH) system to remediate TCE in ground water at the Paducah Gaseous Diffusion Plant in Paducah, KY. General comments were concerned with the results of a ground-water modeling effort, target temperatures, asymptotic TCE recovery, and phasing the implementation of the remediation. Detailed specific comments were provided on a number of issues including the construction phase of the project. Specific concerns were expressed with respect to adherence to normal electrical safety codes.
(07-R04-002) (E. Davis(GWERD)580-436-8548)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Beak, Douglas G., Richard T. Wilkin, Robert G. Ford (GWERD) and Shelly D. Kelly (Argonne Natl. Lab.). "Examination of Arsenic Speciation in Sulfidic Solutions Using X-ray Absorption Spectroscopy." (2008) Environ. Sci. Technol. 42, 1643-1650.

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

HIGHLIGHTS

National Risk Management Research Laboratory
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Status Report for the Week of May 12, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On April 29, 2008, Dr. Ann Keeley (GWERD) provided RPM John Nolen with review comments on a natural attenuation research proposal prepared for the Velsicol Hardeman County Landfill in Toone, TN. Comments on the proposal by Region 4 personnel were also reviewed. A number of technical issues were pointed out which raised questions as to the scope of the proposal. A number of suggestions were offered to improve the clarity of both the proposed project period and budget. It was also suggested that the present proposal be considered a pre-proposal with the GWERD and Regional comments serving a guidelines in developing the final research document.
(08-R04-001) (A. Keeley (GWERD) 580-436-8890)

Community Activities: The 5th Annual Earth Day Water Festival was held at East Central University on April 22, 2008. Co-sponsored by ECU and GWERD, it was a huge success! A steady flow of ECU students visited the display throughout the morning, followed by over 300 area 5th grade students and teachers in the afternoon. All but one class received "Water - Life Depends On It" water bottles, exhausting our current stock. Cherri Adair, Susan Mravik, Steven Acree, Ken Forshay, Curtis Cooper, and Amy Shields provided the hard work and effort required to make this Water Fest one of the most successful.
(Misc.) (R. Ross (GWERD) 580-436-8611)

State Activities: The 7th Annual Oklahoma Science Fest was held on April 24, 2008, at the Oklahoma City Zoo where GWERD's participation helped contribute to its overall success. Approximately 5,600 4th and 5th grade students from around Oklahoma, as well as approximately 1,800 teachers and chaperones were slated to attend the Fest. The students visited 37 activity stations, each focused on different environmental/educational messages. Dr. Randall Ross (GWERD) presented materials related to the vulnerability of ground water and its importance to human health and the environment in the grand scheme of the hydrologic cycle using two physical models (porous media and fractured bedrock).
(Misc.) (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 May 19, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On April 18, 2008, Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPM David Seter with review comments on a direct push ground-water work plan for the Yerington Mine Site in Yerington, NV. Although the proposed investigation is similar to the 1999 study, the increased horizontal and vertical density of sampling locations, as well as the inclusion of samples for uranium, should provide a better basis for assessing contaminant transport in the shallow zone. The proposed investigation in the shallow zone should provide additional information useful in determining appropriate locations for deeper wells within the aquifer system. It was suggested that the plan lacks specific details in a number of areas including the drilling equipment to be used and a discussion of sampling details.
(01-R09-004) (S. Acree (GWERD) 580-436-8609)
(R. Ford (LRPCD) 513-569-7501)

RESEARCH IN PROGRESS - SERDP ISPO

During April 21-25, 2008, EPA and Shaw Environmental performed site characterization activities to investigate a CVOC plume at the Parris Island Marine Corp Recruit Depot (Parris Island, SC). PCE, released into the subsurface during past operations of a dry cleaning facility, resulted in ground-water contamination. Aquifer cores were collected to assess contaminant distribution, characterize microbial activity and content, and for treatability studies to be carried out by Dr. Rick Watts at Washington State University (Pullman, WA). In-situ chemical oxidation will be deployed involving stabilized/unstabilized Fenton oxidation and base/chelated iron activated persulfate oxidation. The field crew consisted of staff from EPA-Ada, OK
(T. Lankford, K. Jewell, K. Jones, and S. Huling), EPA-Cincinnati, OH (P. Clark), and B. Pivetz (Shaw Environmental, Ada, OK). This project was coordinated with EPA Region 4 (Lila Llamas-Koroma), Department of Defense, and the South Carolina Department of Health and Environmental Control.
(S. Huling (GWERD) 580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Rittmann, Bruce E. (Arizona St. Univ., Tempe, AZ), Robert G. Ford (LRPCD), Richard T. Wilkin (GWERD), Jess W. Everett (Rowan Univ., Glassbacon, NJ), and Lonnie Kennedy (Earth Sciences Services, Oklahoma City, OK). Panel Members. (Winter 2007) "Monitored Natural Attenuation Forum: MNA of Metals and Radionuclides." Remediation 18(1): 121-122.
(R. Ford (LRPCD) 513-569-7501)

Wilkin, Richard T. (GWERD). (2007) "Metal Attenuation Processes at Mining Sites." Ground Water Issue. EPA/600/R-07/092. National Risk Management Research Laboratory, Cincinnati, Ohio.
(R. Wilkin (GWERD) 580-436-8874)

Church, Clinton D. (USGS), Richard T. Wilkin (GWERD), Charles N. Alpers (USGS), Robert O. Rye (USGS), and R. Blaine McCleskey (USGS). (2007) "Microbial Sulfate Reduction and Metal Attenuation in pH 4 Acid Mine Water." Geochemical Transactions 8:10 doi:10.1186/1467-4866-8-10.
(R. Wilkin (GWERD (580-436-8874)

HIGHLIGHTS

National Risk Management Research Laboratory
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Status Report for the Week of May 26, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On May 13, 2008, Dr. Richard Wilkin (GWERD) provided Site Assessment Manager Gerardo Millán-Ramos with review comments on the "Annual Monitoring and Demonstration of Compliance Report for 2007" for the Somersworth Landfill Superfund Site in Somersworth, NH. The review focused on the performance of a zerovalent iron/sand permeable reactive barrier (CTW) in treating chlorinated ethenes in ground water. A number of issues were discussed relative to conclusions presented in the report. Performance was questioned based on low concentrations of contaminants entering the barrier. Precipitation and biofouling in the CTW were discussed along with changes in the hydraulic conductivity of the reactive medium through time. Other comments were associated with the geochemistry of the reactive barrier system.
(08-R01-003) (R. Wilkin (GWERD) 580-436-8874)

Technical Assistance to Region VI: On May 8, 2008, Steven Acree (GWERD) and Dr. Daniel Pope (Shaw E&I) traveled to the Huffman Wood Preserving Site in Broken Bow, OK, to meet with EPA Region 6 (RPM Tim Townsend, Richard Ehrhart, Jeanne Schulze, and David Vogler) and Oklahoma DEQ personnel (Donald Hensch) to take soil samples. Soil samples from expected high and low pentachlorophenol concentration locations were taken and shipped to the U.S. EPA Region 6 analytical laboratory for preparation of control standards, which will be used during the TRIAD-approach remedial activities for site soils contaminated with pentachlorophenol above the action level. Discussions included recommendations for implementing the immunoassay-based field analytical procedures, and for locations and installation procedures for monitoring wells.
(08-R06-002) (D. Burden (GWERD) 580-436-8606)

Training to Ohio EPA: On April 30, 2008, GWERD conducted a one day training seminar for the Ohio Environmental Protection Agency (EPA) on the topic of capture zone analysis. The course was attended by 45 scientific staff from Ohio EPA. This training seminar was for project managers and hydrogeologists who work on sites with active pump and treat systems or sites where such systems are in the design phase. The training seminar presented a systematic six-step approach for the evaluation of capture zones generated by pump and treat systems and introduced a new guidance document recently published by EPA's Office of Research and Development and Office of Superfund Remediation and Technology Innovation. The guidance document titled "A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems" is available for downloading at http://www.epa.gov/ada/pubs/reports.html.
(Misc.) (D. Burden (GWERD) 580-436-8606)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
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Status Report for the Week of June 2, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On May 8, 2008, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Joseph Lemay with review comments on a ground-water concentration trend evaluation report for the W.R. Grace and Company Superfund Site in Woburn, MA. It was suggested that one of the extraction wells should not be shut down to assess whether a stagnation zone has developed and prevented the capture and removal of chlorinated volatile organic contaminants (CVOCs). The potential risks and disadvantages are greater than the potential benefits and advantages of performing the operation. It was pointed out that there are alternatives that could be deployed to investigate the presence of a stagnation zone without shutting down the extraction well. In addition to discussing these alternatives, the use of tracer tests was proposed to assess a number of issues including the hydraulic connection between extraction and monitoring wells, and to perform a preliminary evaluation of other remedial technologies.
(08-R01-004) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region III: On May 16, 2008, Dr. John Wilson (GWERD) provided RPM Bernice Pasquini with review comments on a sampling and analysis plan for a bioremediation pilot test site at the Naval Air Station, Joint Reserve Base in Willow Grove, PA. Detailed suggestions were offered with respect to locating the source of the chlorinated solvent contamination including soil gas surveys. Other comments focused on the protocol for conducting simple bench-scale buffering experiments.
(08-R03-001) (J. Wilson (GWERD) 580-436-8534)

Technical Assistance to Region III: In a continuing technical assistance effort at the Maryland Sand, Gravel, & Stone Site in Elkton, MD, Dr. Eva Davis (GWERD) provided RPM Debra Rossi with a review of the final design report. The May 19, 2008, comments recommended that two contingency plans be developed: one for emergency response and another for operational problems. It was also suggested that a table be developed showing the frequency of sampling for the different types of samples that are required. Other suggestions concerned the disposal of treated soil and the response to complaints from neighbors about dust and odors.
(00-R03-002) (E. Davis (GWERD) 580-436-8548)

HIGHLIGHTS

National Risk Management Research Laboratory
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Robert S. Kerr Environmental Research Center

Status Report for the Week of June 23, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On June 6, 2008, Dr. Scott Huling and Steven Acree (GWERD) and Bruce Pivetz (Shaw Env.) provided RPM Joseph Lemay with comments concerning ground-water sampling at the Wells G&H Superfund Site in Woburn, MA. The extensive depth and fractured nature of the monitoring wells presents technical challenges that require specialized equipment and use of detailed ground-water sampling methods and procedures. A two-phased approach may be considered given the objectives of the investigation. Phase 1 involves a low cost, low labor, ground-water sampling effort in which samples are collected at various intervals in the well and the magnitude of contaminant concentrations are measured. However, depth-specific concentrations cannot be quantified using this approach. A Phase II approach would involve more specialized ground-water sample collection methods and equipment, in conjunction with flow measurement in the well.
(08-R01-005) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region III: In a continuing technical assistance effort at the Malvern TCE Superfund Site in Malvern, PA, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Charlie Root with review comments on a "Bioremediation Pilot Test Update." The May 21, 2008, comments pointed out that, although the primary original source compounds PCE and TCE have decreased in concentration, the concentration of daughter products DCE and VC remains significantly above the MCLs. It was also noted that the Accelerated In Situ Biodegradation (AISB) Pilot Test ability to reduce contaminant concentrations depends on the successful continuation of the system including the addition of an electron donor. Many of the specific comments concerned inconsistencies in text and graphic presentations.
(05-R03-002) (A. Keeley (GWERD) 580-436-8890)

HIGHLIGHTS

National Risk Management Research Laboratory
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Status Report for the Week of July 7, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On June 19, 2008, Drs. Ralph Ludwig and Chunming Su (GWERD) provided RPM Trevor Anderson with comments on a "Permit-By-Rule In Situ Chemical Reduction Application" for the Shieldalloy Metallurgical Corporation in Newfield, NJ. In general, the document was found to be technically sound with only a few minor comments offered for consideration. Although the use of zero valent iron (ZVI) for treating Cr(VI) and TCE may not necessarily be the cheapest alternative, it may be the most effective approach for a long-term treatment scenario. A few comments were offered with respect to the results of batch studies, the need to monitor dissolved metals, spacing of well screens, post-treatment core sample analysis, and number of monitoring locations.

(08-R02-002) (R. Ludwig (GWERD) 580-436-8603)
(C. Su (GWERD) 580-436-8638)

Technical Assistance to Region IX: On June 20, 2008, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM James Chang with review comments on a draft ground-water modeling work plan for George Air Force Base OU 3 Site OT069 in Victorville, CA. It was suggested that a 3 dimensional solute transport model may not be required to accomplish the primary objective of the investigation because the source areas are well known and the horizontal concentration gradients clearly decrease downgradient. Several simplified analytical solutions were suggested. Others areas of discussion included estimated clean up time frames, model boundary conditions, and model calibration.

(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 14, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region VI: On June 4, 2008, Steven Acree (GWERD) and Drs. Bruce Pivetz and Milovan Beljin (Shaw Env.) provided RPM Sue Westbrook with review comments concerning an "Interim Measures Implementation Work Plan, Rev. 1" for the El Paso Corporation in Corpus Christi, TX. In general, the proposed remedial design for the RCRA facility is a significant improvement over previous plans. Although most comments were with respect to the design and operation of the ground-water extraction system, significant suggestions were offered concerning the operation and effectiveness of the biotreatment phase of the remediation. Other areas of discussion centered on facets of the proposed modeling study including flow budget analysis, hydraulic gradients, and particle tracking. It was pointed out that extraction wells should not be used in model calibration due to differences in head caused by well efficiency.
(06RC06-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IX: In a continuing technical assistance effort at the Yerington Mine Site in Yerington, NV, Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM David Seter with review comments on a revised "Remedial Investigation Work Plan." The June 20, 2008, comments focused on issues including a characterization of the hydraulic relationship between the pit lake and the alluvial and bedrock flow systems and the prediction of steady-state water quality in the lake. Other issues included pit slope stability and worker safety, hydraulic head measurements and water quality sampling data from existing bedrock wells, and sampling protocols for metals. It was also suggested that project data be provided in an electronic format to allow a more thorough analysis by reviewers.
(01-R09-004) (S. Acree (GWERD) 580-436-8609)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of July 28, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On July 8, 2008, Dr. Scott Huling (GWERD) provided RPM Dick Goehlert with review comments on a preliminary draft ISCO work plan for the Savage Well Superfund Site in Milford, NH. It was suggested that the work plan provide general details of the proposed ISCO activities and a foundation upon which a more comprehensive plan involving greater detail can be provided. A number of issues are discussed in considerable detail including the extent of contamination, oxidant selection, radius of oxidant distribution around injection wells, proper well screen length, and the use of bench-scale treatability tests to determine oxidant demand. It was recommended that a conference call be held to discuss technical issues and exchange information.
(03-R01-004) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region I: On July 17, 2008, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Joseph Lemay with technical review comments on documents pertaining to field activities associated with the most recent injection of sodium permanganate at the Wells G&H Superfund Site in Woburn, MA. The purpose of the comments and recommendations was to help provide guidelines to be considered in the preparation of a work plan and to address technical issues raised in a July 16, 2008, conference call. Issues discussed in detail included the presentation of plan view maps illustrating the distribution of contaminants, methods used for oxidant delivery, estimating the radius of influence (ROI) of oxidant at each injection point, means to minimize hydraulic short circuiting, and ROI monitoring.
(05-R01-002) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region IV: On June 6, 2008, Steven Acree (GWERD) provided RPM Galo Jackson with review comments on the performance of a ground-water recovery and treatment system at the Alaric Superfund Site in Tampa, FL. In the surficial aquifer system, neither potentiometric surface data nor temporal trends in contaminants in wells support a determination that effective plume capture is maintained by the current system. Although ground-water elevation data in the intermediate system indicate that the extraction wells influence ground-water flow, system performance should be evaluated in greater detail before a definite conclusion can be made with respect to containment.
(07-R04-004) (S. Acree (GWERD) 580-436-8609)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of August 25, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On August 7, 2008, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Martin Zeleznik with technical review comments on a scope of work for aquifer remediation at the Tucson International Airport Superfund Site in Tucson, AZ. The proposed work concerns in situ oxidation pilot testing which will lead to a full-scale remedy using potassium permanganate (KP). A number of general comments were addressed using sodium permanganate instead of potassium permanganate, effect of hydrogeologic conditions, monitoring well locations, injection well design, and an improved definition of the targeted zones. Specific comments focused on source area KP pilot testing, dissolved plume KP pilot testing, and the unpredictability of flow patterns.
(08-R09-001) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to the Los Angeles Region Water Quality Control Board: On August 5, 2008, Dr. Ann Keeley (GWERD) provided Engineering Geologist Mohammad Zaidi with information regarding in situ bioremediation of TPH contaminated soil using nutrient amendments. It was pointed out that, in general, petroleum hydrocarbons are easily amenable to aerobic biodegradation simply by adding nitrogen and phosphorus in solution into in situ bioremedial systems. In addition to providing information on the required ratio of nitrogen to phosphorus, the stoichiometry of the process was discussed. It was also suggested that the sequential application of SVE prior to the injection of ammonium nitrate and sodium tripolyphosphate solution would be a reasonable approach at the site in question. Journal references and website locations pertinent to the issue were provided.
(Misc.) (A. Keeley (GWERD) 580-436-8890)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Ludwig, Ralph D., Chunming Su, Tony R. Lee, and Richard T. Wilkin (GWERD), and
Sass, Bruce M. (Battelle) (August 2008) "In Situ Treatment of Cr(VI) Using a Fe(II)-Based Reductant Blend: Long-Term Monitoring and Evaluation." Journal of Environmental Engineering. Vol. 134, No. 8.

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

Faulkner, Barton R. (GWERD). "Bayesian Modeling of the Assimilative Capacity Component of Nutrient Total Maximum Daily Loads." (August 2008) Water Resources Research, 44, W08415, doi:10.1029/2007WR006638.

(B. Faulkner (GWERD) 580-436-8530)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of September 1, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On August 18, 2008, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Mark Granger with comments on a proposed laboratory bench-scale treatability study using site ground water to investigate alkaline-activated persulfate oxidation of contaminants found at the Cortese Landfill Superfund Site in Narrowsburg, NY. It is unclear if the proposed "water only" study is the most appropriate step to take, or whether a soil and water treatability test might be a better use of the funds. It was suggested that the ground water be analyzed prior to the study to assure that the sample contained the required mix and concentrations of contaminants. It was recommended that the test controls have pH adjustment to prevent future questions as to any possible confounding effect when comparing the test condition reactors to the control reactors.
(06-R02-002) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region II: On August 21, 2008, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Luis Negron with review comments on a "Monitored Natural Attenuation Assessment" for the Bristol-Myers Squibb Manufacturing Company Site in Humacao, Puerto Rico. The comments focused on the technical adequacy of the reviewed documents and assessed the need for any additional studies needed to complete the investigation. Detailed suggestions were offered in a number of areas including observed decreasing contaminant concentrations, geochemical conditions, and microbial evidence relating to contamination. It was concluded that data and observations for these lines of evidence indicate that natural attenuation has been occurring although in some areas there is a lack of specific information.
(08-R02-003) (A. Keeley (GWERD) 580-436-8890)

Technical Assistance to Region IX: On August 20, 2008, Dr. Eva Davis (GWERD) provided RPM Jeff Dhont with an evaluation of the adequacy of the assumptions used in the conceptual design of the steam injection remediation system for the full site and the focused treatment area at the Montrose Superfund Site in Torrance, CA. An evaluation of the costs associated with these designs was also provided. Essentially, it was suggested that the conceptual steam injection systems in these cost evaluations are overly aggressive for the remedial objective. Since a Technical Impracticability (TI) Wavier has already been issued, a less aggressive thermal remediation system design and operational approach is likely to meet the objectives more cost effectively. Specific recommendations for more cost-effective systems that will achieve the remedial goals were provided in considerable detail.
(92-R09-015) (E. Davis (GWERD) 580-436-8548)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of September 22, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On September 5, 2008, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Turpin Ballard with review comments on a site-wide ground-water flow model for the Paducah Gaseous Diffusion Plant in Paducah, KY. Although the report presents a well-written synopsis of ongoing modeling efforts at the site, additional efforts may be required to fill data gaps suggested by the modeling results. A number of issues were discussed including the distribution of monitoring points, results of pump tests, importance of water level maps, model calibration, and model limitations.
(07-R04-002) (R. Ross(GWERD)580-436-8611)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Kaushal, Sujay S. (Univ. of Maryland), Peter M. Groffman (Inst. of Ecosystem Studies), Paul M. Mayer (GWERD), Elise A. Striz (formerly GWERD), Edward J. Doheny (USGS), and Arthur J. Gold (Univ. of Rhode Island). "Effects of Stream Restoration on Denitrification in an Urbanizing Watershed." (April 2008) Ecological Society of America: Ecological Applications, 18(3):789-804.
(P. Mayer(GWERD)580-436-8647)

Su, Chunming and Robert W. Puls (GWERD). (2008) "Arsenate and Arsenite Sorption on Magnetite: Relations to Groundwater Arsenic Treatment Using Zerovalent Iron and Natural Attenuation. Water Air Soil Pollution, 193:65-78.
(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 September 29, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On September 11, 2008, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Joseph Lemay and On-Scene Coordinator Frank Gardner with review comments on proposed in-situ chemical oxidation (ISCO) remedial activities at the Wells G&H/Olympia Superfund Site in Woburn, MA. The purpose of the comments and recommendations is to provide guidelines to be considered in the implementation of the work plan with respect to the delivery and distribution of sodium permanganate in the proposed treatment area. Other comments included improvement of the direct push technology used for oxidant delivery, distance between injection points, and dealing with oxidant short circuiting.
(05-R01-002) (S. Huling(GWERD)580-436-8610)

Technical Assistance to Region X: On September 17, 2008, Dr. Richard Wilkin (GWERD) provided Bernie Zavala, Hydrogeologist with comments on a draft work plan for subsurface investigations in the Phosphoric Acid Plant Area at the Simplot Don Plant in Pocatello, ID. The objective of the outlined work plan is to gather data to expand the conceptual site model and to develop ground-water remedies at the site. The review comments focused on the proposed geochemical analyses. A number of issues were discussed including the use of X-ray diffraction techniques for mineral identification, analytical methods, and the importance and proper techniques for determining ground-water temperature.
(08-R10-001) (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 October 6, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region VII: On September 29, 2008, Dr. Scott Huling (GWERD) provided RPM Rob Weber with comments on the "Remedial Design Treatability Study Work Plan" (August 8, 2008) for the Parkview Site OU2 Superfund Site in Grand Island, NE. The purpose of the comments and recommendations is to provide guidelines to be considered in the implementation of the work plan. It was suggested that it is more cost effective to remove volatile contaminants from the unsaturated zone using soil vacuum extraction than the destruction of these compounds using ISCO. Issues discussed in detail included soil and ground-water sampling, as well as bench-scale and pilot-scale tests for the saturated and vadose zones.
(08-R07-001) (S. Huling(GWERD)580-436-8610)

Technical Assistance to Region IX: On September 26, 2008, Dr. Eva Davis and Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Dante Rodriguez with review comments on a "Draft Final Soil and NAPL Feasibility Study" as well as a number of other documents related to the Del Amo Superfund Site in Torrance, CA. A number of issues were discussed in considerable detail including the importance of defining the lateral and vertical extent of NAPL contaminants, comparing possible remedial alternatives, further characterization and remedial design pilot-scale studies, and an analysis of data from the application of active NAPL remedial technologies at similar sites.
(94-R09-006) (E. Davis(GWERD)580-436-8548)
(S. Acree(GWERD)580-436-8609)

Technical Assistance to Region IX: On September 19, 2008, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided Project Manager James Chang with a response to Air Force comments on a June 20, 2008, GWERD review of a draft ground-water modeling work plan for George Air Force Base in Victorville, CA. Essentially, it was agreed that the model could be used for simulating plumes at the site, however, a sub-model should be discretized with a new fine-mesh grid to more accurately represent the geometry of the sources and the plumes. To compensate for uncertainties of the model, it was recommended that an extensive sensitivity analysis be conducted of all flow and transport parameters including boundary conditions.
(05-R09-004) (R. Ross(GWERD)580-436-8611)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Bradford, Scott A. (USDA-ARS), Eran Segal and Wei Zheng (Univ. of CA - Riverside), Qiquan Wang (DE St. Univ.), and Stephen R. Hutchins (GWERD). 2008. "Reuse of Concentrated Animal Feeding Operation Wastewater on Agricultural Lands." Journal of Environmental Quality, 37: S97-S115.
(S. Hutchins(GWERD)580-436-8563)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of October 20, 2008

TECHNICAL ASSISTANCE

Technical Assistance to EPA Office of Solid Waste: On October 15, 2008, Dr. David Burden (GWERD) and Rob Earle and Dr. Noman Ahsanuzzaman (Shaw Env.) provided Dr. Zubair Saleem (EMRAD) with a technical review of the Industrial Waste Evaluation Model (IWEM) Beta Ver. 2.0. The review was conducted by the Center for Subsurface Modeling Support (CSMoS). In general, CSMoS found that the procedures and results obtained are reasonably reliable for the intended use. Issues discussed in detail included model boundary conditions, infiltration rates, model sophistication, and documentation.
(08-R00-001) (D. Burden(GWERD)580-436-8606)

Technical Assistance to Region I: On October 6, 2008, Dr. Richard Wilkin (GWERD) provided RPM Dick Goehlert with review comments on a document titled "Bench-Scale Treatability Report in Support of a Granular Iron Permeable Reactive Barrier Installation at the New Hampshire Ball Bearings Site, Peterborough, New Hampshire." It was suggested that numerous documented studies have shown similar treatability results concerning the contaminants of concern and that the ground-water composition is well suited for the application of PRB technology. It was pointed out that the assumed ground-water velocity will need to be more fully evaluated based on field studies and that the ground-water samples used in the bench-scale tests are representative of site conditions.
(08-R01-006) (R. Wilkin(GWERD)580-436-8874)

Technical Assistance to Region IV: On October 13, 2008, Dr. David Burden (GWERD) and Rob Earle and Dr. Noman Ahsanuzzaman (Shaw Env.) provided Nancy Marsh, environmental engineer, a critique of comments received in response to an original review of documents associated with the reissuance of a Class I Hazardous Waste Injection Permit for the continuation of waste injection from a well located on the property of K.C. Industries (formerly Kaiser Aluminum & Chemical Corporation) near Mulberry, FL. CSMoS' original review noted several items that did not meet specific EPA Region 6 criteria. The current review confirmed that these items are now included and that no further review is needed.
(08RC04-001) (D. Burden(GWERD)580-436-8606)

Technical Assistance to Region IV: On October 15, 2008, Dr. Scott Huling GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Galo Jackson with review comments on the results of the Phase I pilot-scale NaMnO4 injections and subsequent ground-water monitoring events at the Southern Solvents Superfund Site in Tampa, FL. In addition to general comments, a number of specific issues were discussed in detail including the continuation of pilot tests, oxidant mass, soil borings, monitoring wells, injection grid relocation, and oxidant concentrations.
(00-R04-005) (S. Huling(GWERD)580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

He, Y. Thomas (NRC), John T. Wilson and Richard T. Wilkin (GWERD). 2008. "Transformation of Reactive Iron Minerals in a Permeable Reactive Barrier (Biowall) Used to Treat TCE in Groundwater." Environ. Sci. Technol., 42(17): 6690-6696.

(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 October 27, 2008

TECHNICAL ASSISTANCE

Technical Assistance to OSWER: On October 16, 2008, Dr. David Jewett (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided Dr. David Bartenfelder (OSRTI) with a technical review of the Agency's PCB risk assessment guidance document. The PCB Migration to Ground Water working group requested that GWERD's Ground Water Technical Support Center (GWTSC) focus on two issues: (1) the selection of the 100 mg/kg PCB concentration in soil as the trigger value, and (2) the suggested filter size and range of filter sizes (0.2-10 μm). In addition to detailed narratives in these areas, editorial comments and a general impression of the documents were provided.
(09-R00-001) (D. Jewett(GWERD)580-436-8560)

Technical Assistance to Region IX: On October 17, 2008, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Bonnie Arthur with review comments regarding ground-water modeling efforts at the Frontier Fertilizer Superfund Site in Davis, CA. In general, the complex nature of the subsurface is further complicated by seasonal variations in pumping rates from agricultural wells and the impact they have on local and regional water levels. The current model proved useful in organizing available data and identifying data gaps. However, it does not appear that it can fulfill the intended objectives without additional studies and model validation. It was suggested that information regarding the pumping rates of local irrigation wells would be needed to better understand the relationship between the aquifer systems and improve future modeling efforts at the site.
(09-R09-001) (R. Ross(GWERD)580-436-8611)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Forshay, Kenneth J. (GWERD), Pieter T. J. Johnson (Univ. of CO, Boulder), Melanie Stock (Univ. of WI), Carolina Peñalva (IN Univ.), and Stanley I. Dodson (Univ. of WI, Madison). 2008. "Festering Food: Chytridiomycete Pathogen Reduces Quality of Daphnia Host as a Food Resource." Ecology, 89(10) 2692-2699.
(K. Forshay(GWERD)580-436-8912)

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 3, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On October 24, 2008, Drs. Randall Ross (GWERD) and Robert Ford (LRPCD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Byron Mah with review comments on the Technical Memorandum and Five-Year Review Report for the Auburn Road Landfill Superfund Site in Londonderry, NH. It was pointed out that, while a surface cap can control infiltration from precipitation or surface runoff, it will be ineffective in controlling ground-water migration through waste within the saturated zone. It was suggested that a detailed assessment of the three-dimensional hydraulic head distribution in and around the site should be considered to better understand the interactions of ground water and materials within the landfill. Determining the source of arsenic was discussed at length including the possible need to install additional monitoring points.

(09-R01-001 (R. Ross (GWERD) 580-436-8611)
(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region II: On October 26, 2008, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Luis Negron with review comments on the "Revised Draft Report, Natural Attenuation Evaluation, Addendum to the Supplemental RCRA Facility Investigation and Interim Measures Report" for the PPG Discontinued Operations Site in Guayanilla, Puerto Rico. In general, the report was found to be technically sound and presented a significant amount of investigation and analysis information with which to develop a technically reasonable conceptual site model and an assessment of the site. It was also noted that the report includes revisions intended to address earlier technical review comments. A number of specific comments were provided.

(01RC02-001) (A. Keeley (GWERD) 580-436-8890)

FY 2008 GWERD ACTIVITIES

During FY08, there were 63 Superfund Technical Assistance activities at 40 sites, 2 RCRA and 1 Brownfields activities. During FY08, 15 Superfund and 1 RCRA technical assistance requests have been entered into the TSC tracking system. Of these, 11 Superfund and 1 RCRA sites were at new locations. No new Brownfields Sites were added to the tracking system during this period. Ten Miscellaneous Technical Assistance activities were provided. Other miscellaneous assistance included: short course on ISCO was presented to the Taiwan EPA; review comments on two guidelines documents were provided to OSRTI; participated in community Earth Day, State Science Fest activities, and Oklahoma Science and Engineering Fair; performed site characteristic activities at the Parris Island Marine Facility; conducted a Capture Zone Training seminar for the Ohio EPA; provided the City of Los Angeles with information regarding in situ bioremediation of TPH contaminated soil; and provided the Office of Solid Waste with review comments on an Industrial Waste Evaluation Model. The Center for Subsurface Modeling Support (CSMoS) distributed about 19,690 models. In addition, about 191 technical assistance responses have been provided to telephone and e-mail requests.

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

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of November 17, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On November 6, 2008, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Mark Granger with a technical review of the "Cortese Landfill Site Phase II Soil Treatability/Optimization Work Plan." The site located in Narrowsburg, NY, contains soil and ground water contaminated by a mixture of contaminants which are primarily chlorinated solvents. The work plan describes proposed laboratory studies to be conducted on soil from the site to investigate the use of surfactant-enhanced in situ chemical oxidation (S-ISCO) for remediation. Although no major technical issues were identified, a series of minor modifications to the study and questions/issues requiring clarification were noted.
(06-R02-002) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region IV: On November 5, 2008, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM James Smith with review comments regarding ground-water modeling activities at the RCRA Arch Chemical Site in Brandenburg, KY. The current capture zone assessment is based solely on an evaluation of modeling results, however, the reviewed document does not provide sufficient details for a comprehensive review of the model. Furthermore, other lines of evidence for the capture zone analysis were not evaluated. Specifically, no evaluation was presented using appropriate head and concentration data. A link was provided for a recent document published by EPA that should be used as a guideline for the systematic evaluation of capture zone analysis.
(09RC04-001) (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 December 1, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On November 18, 2008, Dr. Randall Ross (GWERD) provided RPM Bonnie Arthur with supplemental comments regarding the evaluation of a ground-water flow model and its application at the Frontier Fertilizer Superfund Site in Davis, CA. The comments augmented a previously written review dated October 17, 2008, as well as reflected positions expressed during a November 13, 2008, conference call. The inability of the ground-water model to simulate observed vertical and horizontal hydraulic gradients limits the utility of the model to evaluate capture associated with the extraction system. As a result, it will be necessary to collect head data more frequently. At this site, the best line of evidence for a capture zone analysis is the evaluation of the hydraulic head data. To this end, a number of detailed recommendations were provided.
(09-R09-001) (R. Ross (GWERD) 580-436-8611)

Technical Assistance to Region VII: On November 21, 2008, Dr. Ann Keeley (GWERD) provided RPM Nancy Swyers with comments regarding a proposed "Hot Spot Pilot Test Work Plan" for the Chemplex Site in Clinton, IA. The report stated that permanganate oxidation would adversely impact the existing microbial population thereby inhibiting reductive dechlorination. As a result, the work plan would consist only of the injection of vegetable oil to enhance bioremediation. It was pointed out that current research indicates that chemical oxidation of chlorinated ground-water contaminants does not destroy the intrinsic microbial population which can serve as a "polishing" or secondary stage of remedial technology. It was suggested that consideration be given to modifying the proposed pilot tests by incorporating a staged treatment scenario including oxidation followed by enhanced bioremediation to gain a better grasp of the efficacy and cost savings involved with this treatment alternative.
(09-R07-001) (A. Keeley (GWERD) 580-436-8890)

Technical Assistance to Region V: In a continuing technical assistance effort at the Chem-Dyne Superfund Site in Hamilton, OH, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env.) provided RPM Lolita Hill with review comments on a "Long Term Monitoring Optimization Plan." The November 26, 2008, comments stated that the proposed locations of additional monitoring wells appear to be appropriate. However, proposed modifications to the current monitoring plan (both frequency and location) are significant and require a closer examination of the historic and the most recent data. A meeting was proposed for early December to discuss this issue along with the installation of pressure transducers in selected wells to monitor the capture zone and evaluate the impact of external hydraulic stresses on the system.
(01-R05-001) (R. Ross (GWERD) 580-435-8611)

HIGHLIGHTS

National Risk Management Research Laboratory
Ground Water and Ecosystem Restoration Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of December 29, 2008

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On December 11, 2008, Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Galo Jackson with comments concerning a phase II remedial investigation (RI) and remedial alternative screening activities at the Alaric Superfund Site in Tampa, FL. In general, the RI report appeared to be technically adequate and contains sufficient information, discussion, and interpretations to characterize conditions at the site and support an initial evaluation of remedial approaches and technologies. The conceptual site model appeared to be technically adequate. The technical memo concerning remedial alternative screening also appeared technically adequate and contained a significant amount of information. Detailed comments and recommendations were provided with respect to a wide variety of technical issues.
(09-R04-002) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region VI: On December 7, 2008, Dr. Ann Keeley (GWERD) and Dr. Daniel Pope (Shaw Env.) provided RPM Nancy Fagan with comments concerning in situ bioremediation of contaminated soil and ground water at the Arkansas General Industries Site in Bald Knob, AR. The comments were directed at considerations that would provide evidence for the applicability of enhanced bioremediation at the site before devoting significant resources for additional investigations. It was suggested that the efficacy of bioremediation be compared with other active remedies in terms of effectiveness and cost. Comments and suggestions were offered in considerable detail with respect to potential problems associated with the site's geochemistry and distribution of DNAPLs.
(09-R06-002) (A. Keeley (GWERD) 580-436-8890)