HIGHLIGHTS

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

Status Report for the Week of January 11, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On November 24, 2009, at the request of RPM James M. DiLorenzo, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env. Contractor) provided review comments on the Addendum II-Hydraulic Pulse Interference Testing of the Slurry Wall at the Containment Area, Olin Chemical Superfund Site, Wilmington, MA. Comments include method modification specifically for the site and boundary conditions. It was suggested that verification and validation of the proposed method be conducted in the vicinity of the gravel equalization window, and a tracer be considered as an additional line of evidence of the integrity of the containment system.
(10-R01-003) (R. Ross (GWERD) 580-436-8611)

Technical Assistance to Region V: On December 7, 2009, at the request of Project Manager Michael Mikulka, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (Shaw Env. Contractor) provided review comments on the Addendum to the Refinement of the Groundwater Flow Model for the A. K. Steel Site, Middletown, OH. It was noted that since the model simulates average steady-state conditions, the importance of the seasonal changes, along with a different extraction regime, cannot be ignored for the model verification. Also, recommendations include specifying which site conditions are considered "typical" and including another data set from a different season as a verification simulation.
(10RC05-001) (R. Ross (GWERD) 580-436-8611)

Technical Assistance to Region I: On December 9, 2009, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Ed Hathaway with review comments for the "ISCO Performance Assessment Report" prepared by Nobis Engineering (September 2009) for the Eastland Woolen Mill Superfund Site in Corinna, Maine. Additionally, other reports were obtained and reviewed to acquire background information on the site and oxidation activities. Comments and recommendations were provided regarding contaminant mass estimates, mass destruction, and post-oxidation contaminant mass remaining as it relates to performance evaluation.
(10-R01-002) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region I: On December 14, 2009, Dr. Eva Davis (GWERD) provided RPM Karen Lumino review comments for the Draft Remedial Design Work Plan for the Solvent Recovery Services of New England (SRSNE) Superfund Site in Southington, CT. It is noted that no action level exceedance plan is included in this work plan, and it is recommended that a community response plan coordinating notification through the local police and/or fire department be included in the document. It is also recommended that the SRSNE Site Group re-evaluate who has the responsibility for ambient air monitoring. Other recommendations include placing thermocouple strings around the treatment area and be monitored at the same frequency as the interior thermocouples, monitoring the mass of contaminants being recovered and treated using a minimum of 3-5 analytical samples of vapor influent per week, and that extraction wells extend the full depth of the overburden.
(10-R01-004) (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 January 19, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On December 11, 2009, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Env.) provided RPM Robenson Joseph with review comments for Feasibility Study, West Florida Natural Gas Company Site, Ocala, Florida, EPA Docket Number: 01-3751-C, July 20, 2009, prepared for Tampa Electric Company and Peoples Gas System by Acadis. Additional historical documents were included, and minimal review was done during this technical review. Recommendations include additional assessment, and possibly site characterization, to assess whether oxidant delivery would be effective and feasible. It is also recommended that an overall assessment of NAPL be conducted. Assuming significant quantities of mobile MGP NAPLs are found to be present at the site, it is recommended that a rigorous NAPL removal program be investigated and implemented.
(10-R04-002) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region IX: On December 15, 2009, at the request of RPMs David Seter and Nadia Holland Burke, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided review comments on the Pumpback Well System Characterization Work Plan Addendum, Rev. 1 for the Yerington Mine Site, Yerington, Nevada. The plan does not mention rehabilitation of the PWS evaporation ponds discussed in the recent inspection report, and it is recommended that this issue be resolved prior to restart of the system. It is recommended that the initial restart of the PWS be phased and monitored using the pressure transducers to allow evaluation of the potential interference between extraction wells. Also, recommendations include performance of slug tests in a representative number of the piezometers to allow direct comparison of the results from both types of tests.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)
(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region IX: On December 15, 2009, at the request of RPMs David Seter and Nadia Holland Burke, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided review comments regarding the Shallow Zone Characterization DSR provided by EPA/ORD transmitted on October 20, 2009, for the Yerington Mine Site, Yerington, Nevada. In general, the revised DSR should delete premature interpretations that are not adequately supported by site-specific data and provide revised tables and figures to address cited discrepancies. It is recommended that some zonal sampling be performed, and that for locations at which zonal sampling is not proposed, the discussion should identify what technical rationale will be implemented. Also, it is recommended that a brief work plan be produced referencing procedures from previously approved documents.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)
(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region IV: On December 21, 2009, Dr. Randall Ross and Mr. Steven Acree (GWERD) provided RPM Michelle Thornton with review comments for the Draft Installation-Wide Groundwater Cleanup Strategy, U.S. Army Garrison-Redstone, Madison County, Alabama. It is recommended that site-specific data be carefully evaluated prior to remedy selections to increase confidence that the proposed remedies will meet expectations, and that data supporting the monitoring network design also be carefully evaluated. Studies performed during the remedial investigation should be designed to test and confirm several assumptions. Recommendations also include conducting dye tracer studies to identify groundwater flowlines and discreet discharge features.
(10-R04-03) (R. Ross (GWERD) 580-436-8611)
(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 February 1, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On December 22, 2009, at the request of RPMs Dick Goehlert and Kevin Heine, Dr. Eva Davis (GWERD) provided review comments on the Scope Outline for GZH-4 and VP-17 Pre-Design Work Plan, South Municipal Water Supply Well Superfund Site. The plan outlines additional characterization work to be completed before proceeding with the remediation system design for the GZH-4 and VP-17 areas at the New Hampshire Ball Bearing facility. It is recommended that a different approach to the pre-design characterization would provide data in a more cost-effective manner. Initial soil cores should be collected from an area of known or suspected DNAPL saturation to confirm that the DNAPL can be detected. Then subsequent soil cores should be placed essentially radially outward from this location. Also, it might be advisable to conduct additional soil sampling in between the two DNAPL areas to determine if the VP-17 area is part of the same source at GZH-4. The presence of DNAPL is better determined by soil cores, and the extent of groundwater contamination is better delineated by wells or vertical profiling.
(10-R01-001) (E. Davis (GWERD) 580-436-8548)

Technical Assistance to Region I: On January 4, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental Inc.) provided RPM Joseph F. LeMay and On-Scene Coordinator Alex Sherrin with review comments for the Fifty-Ninth Progress Report, Administrative Order on Consent for Removal Action, Wells G & H Superfund Site, Olympia Nominee Trust Property, 60 Olympia Avenue, Woburn, Massachusetts, CERCLA Docket #01-2004-0059, September 30, 2009, prepared by GeoInsight, Inc. for U.S. EPA. It is recommended that the strategy of injecting over short intervals separated by intervals without injection be continued. The bottom-up approach was apparently selected by the injection practitioner as a way to minimize oxidant short-circuiting to the surface. Higher pressures may have contributed to the occurrence of short-circuiting, and the decision to switch to a bottom-up rather than a top-down method of injection. It is recommended that the injection pressures be decreased, and the top-down approach used once again to see if that combination can effectively inject oxidant without short-circuiting.
(10-R01-005) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region IV: On January 8, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental Inc.) provided RPM Lila Llamas with review comments for documents prepared by TetraTech NUS, Inc. for Site 27, Marine Corps Recruit Depot, Parris Island, SC. In general, it is recommended that the soil cores extend into the saturated zone. This will provide information to better understand the location of possible sources and distribution patterns. It is recommended that additional ground water and soil sampling locations be designated for the Motor-T area, and that VOCs and pesticides be added to the analytes for ground water samples. Also, it is recommended that samples of the saturated soil be collected a few feet just below the water table as part of the FOV area investigation, and additional soil sampling locations be put in place for the NW corner of the FOV Exposure Area to prevent a data gap in this area.
(10-R04-004) (S. Huling (GWERD) 580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Hwang, Sangchul (Univ. Of Puerto Rico at Mayaguez), Scott G. Huling (GWERD), and Saebom Ko (National Research Council (GWERD)). 2010. “Fenton-like Degradation of MTBE: Effects of Iron Counter Anion and Radical Scavengers.” Chemosphere 78:563-568.

(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 February 8, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On January 12, 2010, at the request of RPM Kevin Heine, Dr. Richard Wilkin and Mr. Steven Acree (GWERD) provided review comments on the PRB Pre-Design Work Plan, South Municipal Water Supply Well Superfund Site, Peterborough, NH. The method proposed for collecting dissolved metals concentrations involves collecting samples, with filtration and preservation at the laboratory prior to analysis. A preferred method would be to filter and preserve the samples in the field, as soon as possible after collection. It is recommended that validation of transducer data include additional manual measurements so that instrument drift can be properly assessed. It is also recommended that the pneumatic slug testing procedures be modified, and that care should be taken to introduce the slug rapidly but with minimal impact.
(10-R01-001) (R. Wilkin (GWERD) 580-436-8874)
(S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region III: On January 22, 2010, Dr. Richard Wilkin and Mr. Steven Acree (GWERD) provided the RPM Ron Davis with review comments for the Performance Monitoring Results for Permeable Reactive Subsurface Barrier for the Arrowhead Plating Site, Montrose, Virginia. It is noted that a broader scale interpretation of hydraulic gradients and potential flow directions could be made if water levels were measured in all site wells, assuming these additional wells are still in existence. It appears that studies designed to determine PRB performance within or immediately adjacent to the PRB, the potential for residual source materials in the subsurface downgradient of some portions of the PRB, and the effects of the cap and PRB system on the groundwater flow field within the PRB may ultimately be needed to better assess PRB performance. It is recommended that at least four quarterly sampling rounds be performed to better assess possible seasonal variability in site conditions prior to initiation of other field investigations. It is also recommended that the quarterly sampling be modified to obtain water levels from all existing wells to aid in evaluating possible temporal variations in the potentiometric surface.
(10-R03-001) (R. Wilkin (GWERD) 580-436-8874)
(S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IX: On January 25, 2010, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPMs David Seter and Nadia Hollan Burke with review comments for the Addendum to Site-Wide QAPP, Domestic Well Monitoring Program for the Yerington Mine Site, Yerington, Nevada. In general, it is recommended that, for clarity, several tables in the plan be expanded to include additional information. It is also recommended that a consistent order of sample collection be established and documented, and that a review be conducted to determine that the acid preservation condition is met for all sampled wells.
(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 February 16, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On February 1, 2010, at the request of RPM Richard Ho, Dr. Richard Wilkin (GWERD) provided review comments on the "Feasibility Study Report, Operable Unit 1, Quanta Resources Superfund Site, Edgewater, N.J." dated December 2009. The document is intended to explore remedial alternative development, evaluation, and remedy selection. Comments mainly focus on sections of the document relating to arsenic contamination in groundwater and application of the permeable reactive barrier technology. It is noted that all of the proposed groundwater Alternatives make use of well established remedial technologies, each with proven track records for successful site cleanup. Some of the Alternatives or aspects of the Alternatives need to be more fully evaluated in order to formulate the most appropriate system design. It is also noted that other methods were omitted as potential groundwater Alternatives.
(10-R02-001) (R. Wilkin (GWERD) 580-436-8874)

Technical Assistance to Region IX: On February 3, 2010, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided RPMs David Seter and Nadia Hollan Burke with review comments for the 2010 Groundwater Monitor Well Work Plan for the Yerington Mine Site, Yerington, Nevada. In general, the proposed locations and depths appear to be adequate for the stated objectives and should supply data needed to better understand groundwater flow and contaminant transport in the northern portion of the site. Recommendations include additional locations for vertical profiling and installation of shallow, intermediate, and deep wells under this work plan. It is also recommended that additional pressure transducers/data loggers be installed in some wells to aid in understanding agricultural impacts.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)
(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region IV: On February 9, 2010, at the request of RPM Robenson Joseph, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental) provided additional review comments and analysis of responses by Arcadis (January 29, 2010) to previous review comments on the "Feasibility Study, West Florida Natural Gas Company Site, Ocala, Florida". It was proposed that additional, more intensive site characterization could be performed to address data gaps and revise the NAPL site conceptual model. Additional site characterization data and subsequently, a refined site conceptual model would help scope the feasibility study and focus remedial activities on specific target areas. It is recommended that a work plan be submitted by Arcadis/TECO describing the proposed site characterization efforts. It is critical to define the areal and vertical distribution of the NAPL to help establish the feasibility and to focus remedial technologies at the site.
(10-R04-002) (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 March 15, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On February 12, 2010, at the request of RPM Catherine Brown, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (contractor to Shaw Environmental, Inc.) provided review comments on the Draft Ground Water Flow Model Update, Phoenix-Goodyear Airport North (PGAN) Site, dated January 15, 2010. Comments were provided to the PGAN Modeling Team. Although the report does not include the final results of the test and the capture zone analyses, it is strongly recommended that all applications of the model be included in the future modeling report. It is suggested that the hydraulic head in the extraction wells not be used in the model calibration statistics but rather be used in a qualitative analysis. The comparison of the observed and simulated vertical head difference between the model layers (Subunits A and C) is important in the model calibration. It is suggested the Modeling Report address the issue of the dry cells due to the limitations of the software (MODFLOW). It is also recommended that the specific yield values be included in the sensitivity analyses.
(10-R09-002) (R. Ross (GWERD) 580-436-8611)

Technical Assistance to Region IX: On February 23, 2010, at the request of RPMs David Seter and Nadia Hollan Burke, Mr. Steven Acree (GWERD) provided review comments on the Pumpback Well System (PWS) Characterization Work Plan Addendum, Rev. 2, Yerington Mine Site, Yerington, Nevada. In general, it appears that the proposed approach for performing hydraulic tests using the PWS will provide sufficient representative data for estimating the variability in shallow aquifer properties along a significant portion of the northern site boundary. It is recommended that the plan include performance of slug tests in a representative number of piezometers, and that pumping be used to increase stress during development in wells with sufficient yield. It is also recommended that water levels be monitored for four days prior to testing instead of one day. For clarity, the plan should be revised to state that the recording frequency for the intermediate wells will be the same as for the shallow wells.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region II: On February 23, 2010, Dr. Richard Wilkin (GWERD) provided RPM Mark Austin with review comments on the "Procedure for evaluating the stratification of arsenic within the Meadow Mat Complex (MMC) at the Martin Aaron Superfund Site, Camden, NJ. Overall, the sample distribution plan, in vertical and horizontal space, seems to be reasonable. If the arsenic concentration data will possibly be used to argue that the MMC is a viable long-term sink and barrier for downward arsenic migration, it may be reasonable and necessary to collect other geochemical data as well, or to at least archive collected samples for future analyses. Consequently, an understanding of other key geochemical properties of the MMC may be necessary.
(10-R02-002) (R. Wilkin (GWERD) 580-436-8874)

Technical Assistance to Region IV: On February 24, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments to RPM Galo Jackson for a report prepared by Geosyntec consultants presenting an overview of site activities involving in-situ chemical oxidation (ISCO) at the Southern Solvents, Inc. Superfund Site, Tampa, FL. Numerous recommendations have been made by Geosyntec regarding future remedial activities at the site. In general, these recommended actions are premature at this point. It is recommended that a critical review and analysis of existing site characterization data and information be conducted to identify hot spot areas. This information can be used to focus additional oxidant injection(s) into specific regions of the aquifer.
(10-R04-006) (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 March 22, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On February 23, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided Mr.Tim Pac, ERM, Inc. with review comments for the "Demonstration of Phytate Stabilization of Hydrogen Peroxide Work Plan (01Jan29_Draft)." The project is a collaboration between EPA GWERD, ERM, and Washington State University, and involves the deployment of in-situ chemical oxidation (ISCO) demonstration of stabilized hydrogen peroxide at the U.S. Marine Corps Recruit Depot, Site 45, at Parris Island, SC. The chemical additive, phytate, will be used to increase hydrogen peroxide persistence and transport. Comments are provided involving several technical issues associated with the deployment of the limited pilot-scale phytate and H_2O_2 injections. It was recommended that contaminated regions of the site (but outside of the cores of the plumes) be considered for deployment of the limited-scale study, that a more aggressive injection design be considered, and that sampling procedures be revised. A more conservative and rigorous monitoring schedule was recommended.
(10-R04-005) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region VII: On March 3, 2010, at the request of RPM Catherine Barrett, Dr. Ralph Ludwig (GWERD) provided review comments on the "Treatability Study Work Plan for Vadose Zone Chromium Contaminated Soil, Ace Services Site, Colby, KS (KEMRON Project #SE0342-001)," dated February 23, 2010. KEMRON proposes aqueous samples be shipped to their facility in Atlanta, GA. Measurements for iron and redox potential will not be very meaningful given that the samples will have been extensively exposed to oxidizing conditions during handling and shipment. It is recommended that results for Cr(VI) on post-treated samples will need to be carefully evaluated against total Cr results to ensure data is properly interpreted. Also, in addition to arsenic, it is suggested that the post-treatment analysis be expanded to include heavy metals.
(10-R07-003) (R. Ludwig (GWERD) 580-436-8603)

Technical Assistance to Region V: On March 4, 2010, at the request of RPM Pamela Molitor, Dr. David Burden (GWERD) and Dr. Dan Pope (Shaw Environmental and Infrastructure, Inc.) provided review comments of the "Revised Remediation Enhancement Plan and 30% Design (Plan)" for the ChemCentral Superfund Site, Wyoming (Grand Rapids), MI. As mentioned in the previous review dated August 24, 2009, the overall proposed bioremediation approach is conceptually sound. However, it is recommended that the implementation proceed with a dynamic and flexible approach, and a relatively dense monitoring network so that data are available to judge system effectiveness and guide adjustments to the approach.
(10-R05-003) (D. Burden (GWERD) 580-436-8606)

Technical Assistance to Region VI: On March 16, 2010, Mr. Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments to RPM Sue Westbrook for the "AOC Interim Measures (IM) Implementation Work Plan, Rev. 3," El Paso Corporation, Corpus Christi, TX. Clarification is recommended in several sections of the report concerning the number of locations being monitored. It is recommended that pressure transducers be installed in additional wells. Also, it is recommended that specifications for sampling frequency, and additional Quarterly Report information be included in the plan.
(10-RC06-001) (S. Acree (GWERD) 580-436-8609)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Bothner, W., J. Benoit, F. Birch, M. Mills, S. Sadkowski, and N. Kinner (Univ. of New Hampshire, Durham, NH), R. Davis (Geophex, Ltd., Raleigh, NC), M. Gonsoulin (GWERD). 2010. "Fractured Characterization." EPA/600/R-10/010.
(M. Gonsoulin (GWERD) 580-436-8616)

HIGHLIGHTS

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

Status Report for the Week of March 29, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On March 16, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments to RPM Joseph Lemay for the "Transition and Long-Term Monitoring Plan, Sustainability Enhancements for Management of Migration Groundwater Treatment System, Resolve, Inc. Superfund Site, North Dartmouth, Massachusetts, February 2010," prepared for the Resolve Site Group (RSG) by Weston Solutions, Inc., AECOM, and Watermark Environmental. The plan presents the monitoring for the start-up and long-term implementation of the full scale sustainability enhancements that are proposed to replace the existing ground water treatment system. In general, the proposed monitoring appears appropriate, although some additional monitoring could be useful.
(10-R01-007) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region IX: On March 17, 2010, at the request of RPMs David Seter and Nadia Hollan Burke, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided review comments for the "Site-Wide Groundwater Monitoring Plan, Rev 1, Yerington Mine Site, Yerington, NV." It is recommended that a consistent order of sample collection be established and documented. It is also recommended that the plan include guidance regarding the depth of the pump intake, and that additional data be included in the report. Other recommendations include a plan for insuring uniform preservation conditions such as pH and sample storage temperature.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)
(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region III: On March 17, 2010, at the request of RPM Rashmi Mathur, Dr. Ann Keeley (GWERD) provided review comments of the "In-Situ Reductive Dechlorination (IRD) Treatability Study Update" provided by Geosyntec Consultants for Operable Unit (OU-1) at the Spectron Superfund Site, Elkton, MD. Four documents were provided. In summary, the design and execution of the microcosm treatability studies has been carried out effectively. As suggested on page 5 of the January 29, 2010, document, the results of these analyses will play an important role in decisions regarding future activities.
(10-R03-003) (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 5, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region VI: On March 22, 2010, Mr. Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments to RPM Sue Westbrook for the "LNAPL Removal System Upgrade Work Plan," El Paso Corporation, Corpus Christi, TX. In general, the proposed upgrade to the LNAPL removal system appears sound. The interpretations of soils, hydrogeologic, and LNAPL data generally appear to be appropriate, and indicate the complex and heterogeneous nature of the subsurface and its effects on LNAPL distribution.
(10-RC06-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region III: On March 26, 2010, at the request of RPM Kelley Chase, Mr. Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments for the "Evaluation of the Use of Monitored Natural Attenuation (MNA) for OU-1", North Penn Area 5 (OU-1) Superfund Site, Colmar, PA. In general, there are significant uncertainties regarding the effectiveness of natural attenuation mechanisms under both current conditions and those that might be expected if groundwater extraction is terminated. Although the PDI report provided much information useful in describing the groundwater flow field and contaminant distribution, there is still significant uncertainty regarding actual capture zones in this heterogeneous, anisotropic fractured rock setting. In summary, it is not clear what may happen if groundwater extraction is stopped and the hydraulic controls on the flux of contaminant mass are ended. The apparent natural attenuation downgradient may not occur to the same degree as it is presumed to now.
(10-R03-002) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IV: On March 29, 2010, at the request of RPM Robert West, Dr. Dan Pope (Shaw Environmental and Infrastructure, Inc.), under the direction of Dr. David Burden (GWERD) provided review comments of existing data and documents for the Rutledge Property Superfund Site, Rock Hill, SC. Documents reviewed included the 2008 Annual Report, 2009 Annual Report, Second Five Year Review Report Addendum, and several memos from William O'Steen, an EPA Region 4 scientist. In the 2008 annual ground water report, the PRPs requested stopping the pump and treat system in order to monitor the site for a possible Monitored Natural Attenuation (MNA) remedy. Geochemical/microbiological processes may be occurring that could help to control contaminant migration, therefore MNA could be useful as part of the Site remedy. However, Site conditions are not well defined. Providing the data to adequately evaluate natural attenuation processes, and design/operate a performance monitoring system for a MNA remedy, could be time consuming, difficult and expensive. Alternative remedies have proven usefulness for treatment of the Site contaminants, but would have implementability problems at the Site. The current P&T system, perhaps with some enhancements, may be most cost-effective.
(10-R04-007) (D. Burden (GWERD) 580-436-8606)

COMMUNITY OUTREACH

On March 26, 2010, the following individuals served as judges at the 2010 Oklahoma State Science and Engineering Fair at East Central University: Special Award Judges: Dr. Ann Keeley and Mr. Tim Canfield (GWERD); Category Judges: Dr. Ann Keeley, Mr. Joe Williams, Dr John Wilson, Mr. Tim Canfield (GWERD), and Dr. Dennis Fine and Dr. Charles Beall (Shaw Environmental and Infrastructure, Inc.).

HIGHLIGHTS

National Risk Management Research Laboratory
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TECHNICAL ASSISTANCE

Technical Assistance to Region III: On March 31, 2010, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Kelley A. Chase for the *Superfund Program Region 3, Proposed Plan, North Penn Area Five Superfund Site (Operable Unit 2), Colmar and Hatfield Township, Pennsylvania, September 2008*. In very general terms, an in-situ enhanced bioremediation approach such as described in the Proposed Plan does have the potential to lead to biodegradation of contaminant mass and lowering of contaminant concentrations to a significant degree. Negative factors include the apparent lack of naturally occurring destructive natural attenuation mechanisms (i.e., biodegradation) at the site. Positive factors are that the proposed in-situ bioremediation would be conducted in the overburden (avoiding some problematic issues that might occur in fractured bedrock) and that the site conditions appear to be amenable to a large number of substrate injection locations (presumably closely spaced, to help ensure reagent delivery).
(10-R03-002) (A. Keeley (GWERD) 580-436-8890)

Technical Assistance to Region IX: On April 12, 2010, at the request of RPM David Seter, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided review comments for the Agricultural Fields Characterization Work Plan, Yerington Mine Site, Yerington, Nevada. The proposed locations for borings/wells to be installed under this work plan appear to be appropriate to fill data gaps in this area of the site. The plan discusses use of a borehole flowmeter to identify the relative contributions of water to the well from different aquifer zones under pumping conditions. It is strongly recommended that the test objectives be expanded to explicitly include estimation of the distribution of hydraulic conductivity of aquifer materials screened by the well. Comments relating to technical issues include technical discussions prior to shipment and/or initiating several of the analytical procedures (including determination of TOC and uranium isotopes), and clarification of methods being used for sub-sampling core solids.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)
(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region IX: On April 12, 2010, at the request of Mr. Richard Freitas, Mr. Rob Earle (Shaw Environmental and Infrastructure, Inc.), under the direction of Dr. David Burden (GWERD), of EPA's Ground Water Technical Support Center and the Center for Subsurface Modeling Support (CSMoS), provided a technical review of the computer program Operations Data Analysis (ODA), Ver. 1.07. ODA is a simple program that contains a mathematical (curve matching) procedure for estimating formation hydraulic properties (in particular Transmissivity and Storativity) around the borehole of an industrial well (either pumping or injection). The idea behind developing ODA was to find a way to avoid interrupting regular pump operations for a period of time sufficient to perform a controlled well test. The model code is simple to run and requires a very basic ASCII text file for the input data. However, it is recommended that great care be taken in selecting the pertinent time intervals, setting up the modeling runs, and interpreting the results. It is also recommended that the user manual include a discussion of the theory, and one or two illustrated step-by-step examples for the user.
(10-R09-005) (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 7, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On May 17, 2010, Mr. Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Karen Lumino for the Draft Design Report and Operation, Maintenance, and Monitoring Plan (OMMP), Pine Street Canal Superfund Site, Burlington, Vermont. The proposed construction methods and approach appear to be appropriate. They appear conventional, and there does not appear to be any aspects that may be uncertain or innovative (such as was the case with the previously proposed horizontal barrier) or that would prevent moving forward. The dredging elevation control and verification discussed in the draft Design Report appear acceptable. Other concerns that have been previously expressed regarding the innovative horizontal permeable NAPL recovery layer are either moot or have been addressed, in general. In numerous places, the draft Design Report states that the geocomposite that will be placed between the existing sand cap and the amended cap will facilitate NAPL access to a larger portion of the RCM. It is recommended that some attention be paid to this issue, for example, monitoring the edges of the amended cap area.
(10-R01-009) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IX: On May 17, 2010, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided review comments to RPMs David Seter and Nadia Hollan Burke for the 2010 Groundwater Monitor Well Work Plan, Rev. 1, Yerington Mine Site, Yerington, Nevada. For the purpose of examining "total" chemical concentrations in sampled solids, it is recommended that EPA Method 3051A be used to obtain acid-extractable metals from site soils. It is recommended that the proposed methods for "Alkalinity" and "Total Organic Carbon" be reconsidered. While both listed methods have been applied for the determination of these parameters in solid matrices, neither of these methods provide a direct measure of the inorganic carbon (carbonate) or the organic carbon content of soils. It is recommended that uranium isotopes be measured in the acid extracts from application of EPA Method 3051A to sampled soils/aquifer solids. It is recommended that matrix spikes employing reagent grade sodium biphosphate in solid form be employed to confirm the accuracy of Method EPA 365.3-MOD for the determination of the phosphorous/phosphate content of sampled soils/aquifer solids.
(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 June 14, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region VII: On May 20, 2010, Dr. Ralph Ludwig (GWERD) provided review comments to RPM Lisa Gotto for the document "Corrective Measures Implementation Work Plan" for the Exline Leasing, Inc. Facility in Salina, Kansas, dated March 2010. Dr. Ludwig concluded the overall strategy for addressing Cr(VI) contamination at the site appeared sound. There was not a great amount of technical information provided in the work plan to comment on. Much of the work plan addressed excavation activities, how the excavated soils will be tested, how limits of excavation will be established, and how the soils will be ultimately disposed of. The decision to excavate shallow contaminated soils and treat deeper less accessible soils in situ appeared reasonable. The three candidate reducing agents to be considered for in situ application are appropriate. Only limited information regarding the bench-scale treatability study was provided in the work plan. It is conceivable there may ultimately be disagreement on how the bench-scale studies were conducted and interpreted.
(10RC07-001) (R. Ludwig (GWERD) 580-436-8603)

Technical Assistance to Region III: On May 23, 2010, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments to RPM Kelley A. Chase on follow-up questions (April 27, 2010) on Comment 5 of the GWERD initial technical review which was submitted on March 31, 2010, on the Superfund Program Region 3, Proposed Plan, North Penn Area Five Superfund Site (Operable Unit 2), Colmar and Hatfield Township, Pennsylvania, September 2008 (the Proposed Plan), prepared by USEPA for Operable Unit 2 (OU-2) of the North Penn Area Five Superfund Site, Colmar, PA (the site).
(10-R03-002) (A. Keeley (GWERD) 580-436-8890)

Technical Assistance to Region II: On May 26 – 28, 2010, Region 2 hosted two public workshops on ground-water cleanup technologies at the DuPont Pompton Lakes Works Site, Pompton Lakes, New Jersey. Mr. Steven Acree (GWERD) and Drs. Bruce Pivetz and Daniel Pope (Shaw Environmental and Infrastructure, Inc.) from the RSKERC were in attendance to answer community questions related to potential technologies that will be tested on contamination in the plume area of Pompton Lakes. Enhanced anaerobic bioremediation and chemical oxidation are two of the cleanup technologies that will be tested in the future to see how effective they are at reducing the mass of contaminants within the ground water contaminant plume. The technologies were evaluated and presented in the January 2010 report "Remedial Technology Evaluation for Off-Site Groundwater Contamination".
(10RC02-002) (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 June 21, 2010

TECHNOLOGY TRANSFER

The 2010 National Association of Remedial Project Managers (NARPM) Annual Training Program was held May 24 through May 28 in Arlington, Virginia. The GWERD scientists who participated in the meeting included: Drs. David Burden, Ann Keeley, Scott Huling, and Michael Brooks. During the meeting, the Technical Support Program (TSP), Forums, Ground Water, Federal Facilities, and Engineering Forums, along with the Contaminated Sediment Forum, were hosts of various sessions and conducted their business meetings.

Drs. Ann Keeley, Scott Huling, and Michael Brooks technical contributions to the NARPM were as follows. On Tuesday, May 25th, 1:30 to 5:00 pm, researchers from the National Institute of Environmental Health Sciences (NIEHS) Superfund Research Program (SRP) and EPA Ground Water and Ecosystem Restoration Research discussed recent findings in the area of DNAPL characterization and remediation in a session entitled "DNAPL Superfund Research Program Presentations." The instructors of the session included: Michael Brooks (GWERD), Mark Brusseau (University of Arizona), Upal Ghosh (University of Maryland), Heather Henry (NIEHS), Cass Miller (University of North Carolina), and Danny Reible (University of Texas).

On Thursday, May 27th, 9:00 to 10:30 am, the "Chemical Oxidation" panel session was conducted to focus on specific In-Situ Chemical Oxidation (ISCO) issues that included case studies, lectures, and audience participation/discussion. Scott Huling (GWERD) and Raji Josiam (EPA Region 6) served as the moderators. Jim Harrington (NY State Department of Environmental Conservation), Scott Huling, and Raji Josiam served as the panelist for the session.

On Thursday, May 27th, 1:30 to 5:00 pm, Ann Keeley presented a new training course entitled "The Use of Molecular Measurement Tools in Ground Water Research." This half-day training provided RPMs and other site managers information on the use of molecular and genomic techniques, in providing new approaches to soil and ground water investigations by reducing the inherent parameter variability of more traditional approaches in bench and pilot-scale investigations and full scale applications. Case studies were offered so that those attending the session could better understand, coordinate, and carry out molecular tools as part of site cleanup strategies. Kristine Koch (EPA Region 10) served as the moderator of this session which was classified under the Technology and Contaminant Specific-Topic.

(Misc.) (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 July 5, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region X: On June 25, 2010, Dr. Randall Ross (GWERD) and Dr. Milovan Beljin (contractor for Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Kira Lynch for specific portions of FMC's Response to Comments Draft Supplemental Feasibility Study Report (March 2010), Eastern Michaud Flats, FMC OU Superfund Site, Pocatello, Idaho. Most of the FMC responses to previous comments were adequately addressed, especially with respect to the specific comments. EPA maintains that the FMC groundwater model, due to the lack of site-specific data and the lack of data for the Simplot property, cannot be used as a predictor of cleanup times. EPA acknowledges the FMC effort to acquire site-specific data, particularly for the flow model. However, due to the geochemical complexity of the solute transport processes of arsenic and phosphorous in groundwater, more site-specific data will be needed. Before the best remediation alternative is selected, a set of criteria for comparing the alternatives must be clearly established. Further discussion is needed to explain the procedure for evaluating the results.
(10-R10-001) (R. Ross (GWERD) 580-436-8611)

Technical Assistance to Region I: On June 28, 2010, Dr. Scott Huling (GWERD), Dr. Bruce Pivetz (Shaw Environmental & Infrastructure, Inc.), and Dr. Milovan Beljin (contractor for Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Joseph LeMay for the "*Areas 2,3 & 4 Enhancement Work Plan*", *W.R Grace and Co., Conn. Property (Woburn, MA),* May 3, 2010, prepared by GeoTrans, Inc. The plan presents the details regarding the capture of VOCs in the shallow bedrock and overburden in the area of extraction well RW22 and to enhance capture given the limited transmissivity of the unconsolidated deposits in the area. Recommendations include the collection of additional data while drilling new boreholes, and that the efficiency of the newly drilled well be reported either as a specific discharge of the well or, if possible, through a more elaborate step-test procedure.
(10-R01-010) (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 July 19, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region VII: On June 29, 2010, Dr. Ann Keeley (GWERD) provided review comments to RPM Nancy Swyers for the "Hot Spot Pilot Test 6-Month Progress Report" prepared for the Chemplex Site in Clinton, IA, dated May 2010. This document provides a summary of activities to assess the viability of an in situ treatment technology to address areas of elevated (hot spots) PCE concentrations. Five wells were used to inject vegetable oil and one was used for the injection of permanganate. It should be pointed out that about 75% of the data included in the report reflected remedial progress only after a little more than three months after injection began. The remainder of the data was collected 6 months after injection began which is also early in many cases. At this point there does not seem to be any concrete conclusions that can be taken from the monitoring well information. It would be helpful if additional information could be obtained with respect to the comparison of vegetable oil and permanganate remediation alternatives.
(10-R07-001) (A. Keeley (GWERD) 580-436-8890)

Technical Assistance to Region II: On June 29, 2010, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Luis Negron on the *Sampling and Analysis Work Plan for Additional Data Collection in Support of the Groundwater Remedy Selection* (the SAWP), May 2010, for the PPG Discontinued Operations Site, Guayanilla, Puerto Rico (the site), prepared by AECOM for PPG Industries, Inc. The SAWP (a) provides a more thorough evaluation of the existing data in support of natural attenuation (NA) mechanisms at the Site, (b) identifies any data gaps in the existing data, and (c) outlines a plan for additional sample collection to fill the identified data gaps. The review evaluated (a) the graphical and statistical analysis and resulting interpretations and conclusions in the report, (b) the potential data gaps, and (c) the proposed plan for additional sample collection.
(10RC02-001) (A. Keeley (GWERD) 580-436-8890)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Kaushal, Sujay S. (Univ. of Maryland), Michael L. Pace, (Univ. of Virginia), Peter M. Groffman (Cary Institute of Ecosystems Studies, Millbrook, NY), Lawrence E. Band (Univ. of North Carolina), Kenneth T. Belt (USDA, Baltimore, MD), Paul M. Mayer (GWERD), Claire Welty (Univ. of Maryland). 2010. "Land Use and Climate Variability Amplify Contaminant Pulses." **Eos.** Vol. 91, No. 25, pages 221-228.
(Paul Mayer (GWERD) 580-436-8647)

Azadpour-Keeley, Ann (GWERD), Michael J. Barcelona (Western Michigan Univ., Kalamazoo, MI), Kathleen Duncan and Joseph M. Sulfita (Univ. of Oklahoma). 2009. "The Use of Molecular and Genomic Techniques Applied to Microbial Diversity, Community Structure, and Activities at DNAPL and Metal Contaminated Sites." Environmental Research Brief. EPA/600/R-09/103. National Risk Management Research Laboratory, Cincinnati, Ohio.
(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 July 26, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region VI: On July 15, 2010, Mr. Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Sue Westbrook for the Facility Investigation (FI) Report and the Corrective Measures Study (CMS), El Paso Corporation, Corpus Christi, Texas. The review focused on the technical adequacy of the documents and identification of any additional studies needed to support the evaluations. The FI report appears technically adequate. The interpretations and conclusions appear appropriate, and are, in general, technically valid for the relatively limited amount of data and the variability expected for a large and complex site. The CMS states that on-going and proposed remedial activities for the site have been put forth in previous site documents. It states that a purpose for the CMS is to document these remedial actions rather than evaluate them. It is suggested that the monitoring system be reviewed annually and modified, as needed, to determine system performance based on conditions observed during the remediation program.
(10RC06-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IV: On July 16, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Galo Jackson on the preliminary cost estimate for the Phase 3 ISCO injection activities at the Southern Solvents, Inc., Superfund Site (OU1), Tampa, Hillsborough County, Florida, prepared by Jim Langenbach (Geosyntec) and Ernie Mott-Smith (Black & Veatch Special Projects Corp.) transmitted by e-mail on June 28, 2010. It appears that a critical review of the existing contaminant and oxidant distribution and the associated lithology that impacts the distribution of these solutes has not been performed. Such a review is required to serve as the technical basis for the preliminary design and cost estimate. It is recommended that the basis for some of the proposed activities and associated costs be identified.
(10-R04-006) (S. Huling (GWERD) 580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Lee, Tony R. and Richard T. Wilkin (GWERD). 2010. "Iron hydroxy carbonate formation in zerovalent iron permeable reactive barriers: Characterization and evaluation of phase stability". Journal of Contaminant Hydrology 16:47-57.

(T. Lee (GWERD) 580-436-8748)

HIGHLIGHTS
National Risk Management Research Laboratory
Ground Water and Ecosystems Restoration Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of August 9, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On July 27, 2010, Mr. Steven Acree (GWERD) and Dr. Bruce Pivetz (Shaw Environmental & Infrastructure, Inc.) provided review comments to RPM Karen Lumino for the Draft Site Operations Plan for the Pine Street Canal Superfund Site, Burlington, Vermont. The review revealed no major concerns with the proposals. It is recommended that the proposed panel layout diagram indicate the staggered overlaps of the Reactive Core Mat panels. Also, it may be prudent to address the possible presence of a honeybee yard (and relocate if necessary), which was discovered in a 2008 site visit.
(10-R01-009) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region VI: On August 2, 2010, Dr. Richard Wilkin (GWERD) provided review comments to Lisa Price, Grants Mineral Belt Coordinator, for the Geochemical Analysis and Interpretation of Ground Water Data Collected as Part of the Anaconda Company Bluewater Uranium Mill Site Investigation and San Mateo Creek Site Legacy Uranium Sites Investigation, dated May 2010. The sampling and analysis activities discussed in the document were conducted to better understand the impacts of legacy uranium mining and milling activities on regional groundwater systems. The report also provides recommendations for future work to fill in identified data gaps regarding the hydrogeology and geochemistry of the Bluewater Mill Site and the San Mateo Creek basin. It is recommended that the next stage of this work focus on the development of a hydrogeologic model.
(10-R06-002)(10-R06-003) (R. Wilkin (GWERD) 580-436-8874)

Technical Assistance to Region IV: On August 5, 2010, at the request of Mr. John Kroske, Dr. Noman Ahsanuzzaman and Mr. Rob Earle (Shaw Environmental and Infrastructure, Inc.), under the direction of Dr. David Burden (GWERD), of EPA's Ground Water Technical Support Center and the Center for Subsurface Modeling Support (CSMoS), provided a technical review of the ground-water flow model and associated documents for the former Northrop Grumman Systems Corporation Facility located in Stuart, FL. This simple 3-layer MODFLOW saturated, steady-state ground-water flow model was originally constructed by Geraghty & Miller in 1990 using MODELCAD as the MODFLOW preprocessor. The model grid was refined by Arcadis in 2001. Specifically, the ground-water flow model was reviewed with emphasis on model inputs, assumptions, output, error analysis / sensitivity analysis, and flow direction under drought / non-drought conditions. The adequacy of the model was also evaluated to predict the ground water flow directions in the south plume area.
(10RC04-001) (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 August 16, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On August 6, 2010, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided review comments to RPMs Jere Johnson and David Seter for the Aquifer Solids Testing Work Plan for the Yerington Mine Site, Yerington, NV. In general, the work plan provides a consolidated and well thought out approach to testing of aquifer solids for use in evaluating contaminant transport and fate. Most of the following suggested modifications have already been incorporated into the 2010 Groundwater Monitor Well Work Plan, Rev. 2 and the Agricultural Fields Characterization Work Plan, Rev. 2. It is recommended that the Aquifer Solids Testing Work Plan be revised to reflect the modifications in those plans.

(10-R09-001) (S. Acree (GWERD) 580-436-8609)
(R. Ford (LRPCD) 513-569-7501)

Technical Assistance to Region III: On August 11, 2010, Dr. Dan Pope (Shaw Environmental & Infrastructure, Inc.) under the direction of Dr. David Burden (GWERD) provided review comments to RPM Mitch Cron, for the document *Responses To PRPs' Responses To EPA Comments On The Groundwater Remedial Investigation Addendum Report, Central Chemical Corporation Site, Hagerstown, Maryland* ("Responses"; document filename *RTC on PRPs' Responses on GW RI Addendum.pdf*). The Responses document indicates that "This document was prepared by HydroGeoLogic, Inc. (HGL) to respond to the Potentially Responsible Parties' (PRPs') responses to review comments prepared by the U.S. Environmental Protection Agency (EPA) on the PRPs' Groundwater Remedial Investigation (RI) Addendum Report prepared by the URS Corporation (URS) in March 2009." The Responses document was reviewed, and other site-related documents were used as sources of information to facilitate the review. Comments were provided relating to the following issues: 1) remediation strategy, 2) extent of plume and adequacy of delineation, and 3) risk to irrigation receptors.

(10-R03-004) (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 August 30, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On August 19, 2010, Dr. Dan Pope (Shaw Environmental & Infrastructure, Inc.) under the direction of Dr. David Burden (GWERD) provided review comments to Ronald Murawski, Region 5, for the PRP's Response to EPA's Review of the Vandale Junkyard Superfund Site in Washington County, Ohio. In general, the comments from the previous review (the review of the *Monitored Natural Attenuation Efficacy Evaluation Report*, sent to David Burden (GWERD) on October 21, 2009) still pertain. There appears to be source material remaining at the Site, which provides for a steady flow of contaminants into the ground water. Some reductive dechlorination is taking place, as evidenced by the appearance of daughter products in well samples. However, the parent products in the well samples are not sufficient (in mass) to produce the daughter products found in the same well samples, so it appears that much if not all of the production of daughter products is taking place at some upgradient location not directly sampled by the existing wells. It is true that overall contaminant mass could be decreasing, even if contaminant concentrations at some sampling points are increasing (over the short term). So, as was discussed in the previous review, the answer to the question as to whether Monitored Natural Attenuation (MNA) is succeeding at the Site depends on the definition of MNA success.
(10-R05-001) (D. Burden (GWERD) 580-436-8606)

Technical Assistance to Region IX: On August 30, 2010, Mr. Steven Acree (GWERD), Dr. Randall Ross (GWERD), Dr. Dan Pope (Shaw Environmental and Infrastructure, Inc.) and Dr. Milovan Beljin (consultant for Shaw) provided review comments to RPM Bonnie Arthur for the Capture Zone Analysis and Monitoring Natural Attenuation Effectiveness for Frontier Fertilizer Superfund Site. The document provides an analysis of the effectiveness of the current extraction system in regards to capture of contaminated groundwater. The potential effectiveness of natural attenuation processes in attenuating concentrations of contaminants not captured by the extraction system is also discussed. Capture system effectiveness at the Frontier Fertilizer SF site was evaluated by comparing the target capture zone to the delineated capture zone following the methodology described in "A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems" (EPA, 2008). Capture zone analysis is often done without the use of numerical models. In the case of the Frontier Fertilizer site, a groundwater model was used to predict whether the existing pump-and-treat system captures the plumes. The conclusion of the capture zone analysis is that the current extraction system does not appear to fully capture the contaminant plume under the current conditions.
(10-R09-007) (S. Acree (GWERD) 580-436-8609)
(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 September 13, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On September 2, 2010, Dr. Dan Pope (Shaw Environmental & Infrastructure, Inc.) under the direction of Dr. David Burden (GWERD) provided technical review comments to RPM Pamela Moliter of the 90% design report (*Aerobic Remediation Enhancement Plan, 90% Design (July 2010) Prepared By Innovative Engineering Solutions Inc.;* "Report") for the aerobic bioenhancement of the remedy for Univar's Wyoming (Grand Rapids), Michigan site (the former ChemCentral Site (Site)). The Site consists of soil and ground water contaminated with numerous contaminants, including petroleum hydrocarbons and chlorinated solvents. Previous remedial efforts include ground-water extraction followed by air stripping with carbon adsorption capture to remove volatile contaminants. The Plan proposes aerobic bioremediation for treatment of contaminated ground water. The original bioremediation plan proposed implementing sequential aerobic/anaerobic conditions in the plume in order to provide for continued degradation of the chlorinated VOCs under anaerobic conditions. Now that only aerobic bioremediation is proposed, the fate of the chlorinated VOCs should be discussed.
(10-R05-002) (D. Burden (GWERD) 580-436-8606)

Technical Assistance to Region IV: On September 7, 2010, Dr. Randall Ross (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments to RPM Galo Jackson for the *Draft Pilot Test Work Plan, Caustic Brine Pool (CBP) In-situ Treatment, LCP Chemicals Site (the site), Brunswick, GA,* July 2010 (the work plan), prepared by CH2M HILL for Honeywell International Inc. The work plan discussed results of preliminary bench-scale treatability tests and presented details for a proposed field pilot test of CO_2 injection to address the CBP at the site. Fracturing would be used to help distribute the CO_2 into the CBP. The pilot-scale study was proposed to confirm the potential of the technology and to collect data for planning full-scale implementation. The specific focus of the technical review was to evaluate if the proposed pilot test activities are appropriate and sufficient to provide the information to make a decision on moving to full-scale application of CO_2 injection, and that the pilot test activities will not have any adverse effects on the current situation.
(10-R04-009) (R. Ross (GWERD) 580-436-8611)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Huang, Junqi (GWERD), John A. Christ (USAF Academy, Denver, Colorado), and Mark N. Goltz (Air Force Institute of Technology, Wright-Patterson AFB, Ohio). 2010. "Analytical solutions for efficient interpretation of single-well push-pull tracer tests". Water Resources Research Vol. 46, W08538, pages 1-16.
(Junqi Huang (GWERD) 580-436-8915)

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 27, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On September 9, 2010, Mr. Steven Acree (GWERD) provided technical review comments to RPM Jere Johnson for the Proposed Locations for Additional Electronic Water Level Monitoring, Yerington Mine Site, Yerington, Nevada. The proposed locations for deployment of pressure transducers/data loggers and the revised data acquisition frequency appeared to be appropriate.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IX: On September 10, 2010, Mr. Steven Acree (GWERD) provided technical review comments to RPM Jere Johnson for the Summary of Information Needs to Evaluate Agricultural Water Management Practices and Proposed Locations for Electronic Surface Water Level Monitoring, Yerington Mine Site, Yerington, Nevada. The proposed locations for deployment of pressure transducers/data loggers with associated staff gauges in West Campbell Ditch and Wabuska Drain appear to be appropriate subject to revision during the site visit to be conducted this fall. It will likely be desirable to install a second pressure transducer/staff gauge at a location north of the irrigated fields. This additional location will be scoped during the site visit. Also, the summary of information needs appeared to adequately reflect data needed during the remedial investigation.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IV: On September 20, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided review comments to RPM Robenson Joseph of an assessment of the potential use of in-situ chemical oxidation (ISCO) at the West Florida Natural Gas Company Site, Ocala, Florida. There are several significant limitations in the deployment of ISCO at this site. Oxidant delivery and sufficient contact between oxidant and contaminant (i.e., immobilized MGP NAPL) using conventional injection technologies appears marginally feasible. Energy intensive soil mixing technologies could be used to deliver the oxidant into the subsurface and would achieve greater mixing and contact between oxidant and contaminated aquifer material and soil. However, there are depth limitations in the deployment of this delivery technique which may limit the vertical influence of the remedy.
(10-R04-002) (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 October 4, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On September 28, 2010, Mr. Steven Acree (GWERD) and Dr. Robert Ford (LRPCD) provided technical review comments to RPM Jere Johnson for the Aquifer Solids Testing Work Plan, Rev. 1, Yerington Mine Site, Yerington, Nevada. The revised plan was fully responsive to the comments that were provided. Only two relatively minor items were noted during this final review.
(10-R09-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region V: On September 28, 2010, Dr. Dan Pope (Shaw Environmental & Infrastructure, Inc.) under the direction of Dr. David Burden (GWERD) provided technical review comments to RPM Ronald Murawski regarding the USEPA Comments on the Engineering Management, Inc. (EMI) March 19, 2010 Letter to U.S. EPA on Additional Source Investigation; Vandale Junkyard Superfund Site, Washington County, Ohio. In general, the combined comments seem to capture major points relating to the situation and progress at the Site, and so no changes are suggested. The comments addressed problems concerning the nature of the contaminant source, and the nature of the attenuation processes which remove dissolved contaminants and, eventually, may remove the source. Therefore, it would be useful to put forth reasonable efforts to more clearly delineate the nature of the source, and the nature of the various hydrological, geochemical, and biological processes which affect source dissolution/release and contaminant attenuation.
(10-R05-001) (D. Burden (GWERD) 580-436-8606)

Technical Assistance to Region III: On October 4, 2010, Dr. Scott Huling (GWERD) provided to RPM Laura Johnson an assessment of monitoring dissolved ozone in ground water for the Fike/Artel Superfund Site, Nitro, West Virginia. Review comments were provided of a memorandum to Mike Miller and Warren Smull (De Maximis Co. from Dick Brown (ERM) (File number: 0110243; September 2, 2010) entitled, "Ozone Testing in Performance Wells". Overall, given the uncertainties and interferences associated with the ozone (O_3) measurements, and the complexities in site conditions, the data are inconclusive regarding O_3 distribution. It appears that the subsurface conditions are highly reduced causing the rapid reaction of dissolved ozone. Rapid reaction and depletion of O_3 would significantly limit the O_3 residence time and detection in ground water.
(11-R03-001) (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 November 8, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On October 13, 2010, Dr. Scott Huling (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided technical review comments to RPM Joseph LeMay for the *Additional Examination of Pumping Rates, Management of Migration Remedy, ReSolve, Inc. Superfund Site, North Dartmouth, Massachusetts (September, 2010)* prepared for the ReSolve Site Group (RSG) by ENSR/AECOM. The plan presents proposed strategies for reducing pumping rates of the existing ground-water treatment system. Five strategies are proposed including trials 4, 4B, 4C, and 4F that result in flow reductions from the existing 48 gpm to 30, 35, 38, and 33, respectively. Decreasing the flow from 48 to 30 gpm proposed in trial 4 involves too great of an initial change in flow reduction. In general, it would be better and more conservative to document the response of the system (i.e., ground water quality in monitoring wells) after a small change in pumping rates. Assuming acceptable results, other modifications to the treatment system could be deployed for process optimization and sustainability improvements. The capital costs associated with the construction of the anaerobic bioreactor (ABR) are likely correlated with the design flow into the ABR. This may partially contribute to the desire of the RSG to address the new flow design up front. It is recommended that performance evaluation of the pump and treat system be based on observed trends in contaminant concentrations measured in extraction and/or monitoring wells in conjunction with a capture analysis. This data and information can be used to assess whether the pumping rates are acceptable and whether any additional modifications to the modified extraction system are needed to meet the treatment objectives. This general approach is a hybrid of empirical and technical evaluations that effectively guided the existing pump and treat system to its present configuration.

(11-R01-001) (S. Huling (GWERD) 580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Davis, Eva L. (GWERD). 2010. "Control of Subsurface Contaminant Migration by Vertical Engineered Barriers."

EPA/600/F-10/017.

Shen, H. (U.S. Dept. of Energy, Los Alamos National Laboratory, Los Alamos, New Mexico), C. J. Adair, and J. T. Wilson (GWERD). 2010. "Long-Term Capacity of Plant Mulch to Remediate Trichloroethylene in Groundwater." Journal of Environmental Engineering.

136(10):1054-1062.

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 29, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On November 5, 2010, Mr. Steven Acree (GWERD) provided technical review comments to RPMs David Seter and Jere Johnson for the Summary of PWS Aquifer Testing, Yerington Mine Site, Yerington, Nevada. In general, it appears that the aquifer tests performed at the Pumpback Well System (PWS) were conducted in accordance with the approved work plan. The data presented in this document should be adequate for use in the evaluation of the potential PWS capture zones. As at many sites, the aquifer test data and subsequent analyses indicate that there is uncertainty in the most appropriate values for hydraulic conductivity/transmissivity for use in subsequent projections of potential capture zones. Therefore, capture zone evaluations performed using these data should incorporate an uncertainty analysis to project possible ranges in the size of the capture zones that may be produced by these wells. The document included a comparison of slug test results obtained during the Second –Step Hydrogeologic Framework Assessment with the PWS pumping test results. During the remedial investigation, it is recommended that slug tests be performed in the piezometers installed adjacent to the PWS extraction wells in order to allow direct comparison of the results from both types of tests.
(11-R09-001) (S. Acree (GWERD) 580-436-8609)

Technical Assistance to Region IV: On November 29, 2010, Dr. Ralph Ludwig (GWERD) provided technical review comments to RPM Craig Zeller on the *Ash Leaching Test Results* - Kingston Ash Recovery Project Non-Time-Critical Removal Action for the River System, TVA-Kingston Coal Ash Site, Roane County, Tennessee prepared by Jacobs for the Tennessee Valley Authority dated October 26, 2010. The leaching tests were conducted to determine whether planned deposition of lime-treated ash over untreated ash at the site might mobilize arsenic and selenium associated with the iron mineral fraction of untreated coal ash. The Method 1313 batch tests (involving varying pH) clearly indicate that an increase in pH can increase the mobilization of arsenic in the coal ash. The Method 1316 batch tests (involving varying liquid to solid ratios) suggest that mobilization of arsenic occurs more in the presence of untreated water than in the presence of lime leachate. The Method 1314 column test results indicate that lime leachate does temporarily increase mobilization of arsenic in the coal ash presumably due to the higher pH. The Method 1316 test results for arsenic are inconsistent with both the Method 1314 column test results and the Method 1313 batch test results. Method 1314 likely best represents data trends that will be observed in the field in response to lime leachate coming into contact with untreated coal ash residing in the saturated zone.
(11-R04-002) (R. Ludwig (GWERD) 580-436-8603)

HIGHLIGHTS

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

Status Report for the Week of December 20, 2010

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On December 10, 2010, Dr. Scott Huling (GWERD) provided comments to RPM Laura Johnson for the report entitled, "Treatability – KU Resources, Nitro, WV (Oct. 20, 2010)" prepared by Redox Tech LLC, for the Fike/Artel Superfund Site, Nitro, West Virginia. Similar to the previous ozone (O_3) bench- and pilot-scale treatability studies conducted at this site, there is significant uncertainty associated with both the treatability study results, and the proposed pilot study. There are several issues associated with the quality of the aqueous samples that were collected and analyzed in the laboratory study, and there will be significant challenge in differentiating between oxidative and dilution effects in the pilot study. Comments and recommendations were provided that identified these technical issues and may provide insight regarding the potential feasibility of in-situ chemical oxidation at the site.
(11-R03-001) (S. Huling (GWERD) 580-436-8610)

Technical Assistance to Region II: On December 11, 2010, Dr. Ann Keeley (GWERD) and Dr. Bruce Pivetz (Shaw Environmental and Infrastructure, Inc.) provided technical review comments to RPM Kevin Willis on the Applicability of Utilizing Ground-Water Forensics at the 150 Fulton Avenue, OU2 Site, Nassau County, New York, to determine the applicability of utilizing ground-water dating and forensics to locate the source(s) of TCE contamination in OU2 observed rather deep in the aquifer and to determine responsible parties. The following site related documents were reviewed for background information. These included (1) *Remedial Investigation Report, 150 Fulton Avenue, Garden City Park, NY* (RI Report), August 2005, prepared for Genesco Inc. by Environmental Resources Management, and (2) *Records Search and Hydrogeologic Evaluation - FINAL (Task 2)* (Records search), September 8, 2009, prepared for New York State Department of Environmental Conservation by MACTEC Engineering and Consulting. It should be noted that it was not intended to conduct a detailed review of site conditions based on the above mentioned documents or to actually conduct some environmental forensics techniques on site-specific data. Rather it was intended to conduct a technical and additional literature review to provide initial general comments on the applicability of environmental forensics for use at the site.
(11-R02-001) (A. Keeley (GWERD) 580-436-8890)