H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of January 7, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On December 27, 2001, Dr. Ann Keeley (SPRD) and Drs. Jerome Cruz and Mingyu Wang (ManTech) provided RPM Dick Goehlert with a summary review of a draft modeling report for the Savage Well Municipal Water Supply Superfund Site in Milford, NH. Comments were also provided with respect to a consultantís response to earlier EPA and USGS comments on the report. In general, the earlier EPA and USGS comments had been adequately addressed in the final report. Specific comments were offered in a number of areas including the need to justify the boundary conditions and parameters for ground-water flow and PCE transport modeling, the inclusion of water table maps, USGS and USGS/EPA model comparisons, and the importance of sensitivity analyses in determining crucial modeling parameters.
(00-R01-003) (A. Keeley(SPRD)580-436-8890)

Technical Assistance to Region II: On December 18, 2001, Dr. Scott Huling (SPRD) provided RPM Farnaz Saghafi with a summary of technical issues concerning the Chemical Leaman Tank Line Superfund Site in Bridgeport, NJ, which were discussed during a December 10, 2001, meeting in the Region 2 Office. The comments focused on the potential feasibility of using in-situ Fenton oxidation to remediate TCE contaminated sediments at the site. Detailed suggestions were offered on a number of issues including the operation of the reactor during oxidation, determination of feasibility, field-scale simulation, capture and quantification of volatiles, and post-oxidation soil samples.
(00-R02-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region IX: On September 28, 2001, RPM Bonnie Arthur requested technical assistance with respect to modeling and mines/ground-water interactions at the Yerington Mine - Anaconda Copper Co. Site in Yerington, NV. On December 18, 2001, Dr. David Jewett (SPRD) provided comments related to the proposed statement of work (SOW) and Hydropunch work plan. With respect to the SOW, the issues which were discussed included the need for firm project objectives and a conceptual site model. Comments concerning the Hydropunch work plan focused on project objectives, ground-water capture zones, water-level and water-quality trends, and ground-water sampling locations.
(01-R09-004) (D. Jewett(SPRD)580-436-8560)

Technical Assistance to Region IX: On December 27, 2001, Dr. David Jewett (SPRD) provided RPM Rachel Loftin with a technical review of a draft remedial investigation report for Operable Unit 1 at the Sulphur Bank Mercury Mine Superfund Site in Clearlake Oaks, CA. In addition to commenting on the format of the document, a plethora of detailed remarks were offered on a variety of subjects including the need to identify analytical methods, discrepancies in reported data, dissolved mercury flux calculation, and mercury concentrations in leach test results.
(97-R09-006) (D. Jewett(SPRD)580-436-8560)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Jorgensen, E.E. (SPRD) and S.J. Tunnell (East Central Univ.). ìThe Effectiveness of Quadrats for Measuring Vascular Plant Diversity.î Texas Journal of Science 53:365-368. 2001.

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

Faulkner, B.R. (SPRD) and W.G. Lyon (ManTech). ìA Probabilistic Model for Predicting Attenuation of Viruses During Percolation in Unsaturated Natural Barriers.î Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract H41B-0281, 2001.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of January 21, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On January 14, 2002, Dr. Ralph Ludwig (SPRD) provided RPM Craig Zeller with review comments on a draft feasibility report for the Macalloy Corporation Site in Charleston, SC. In general, the report adequately presented the different options for treating Cr(VI) impacted ground water. Comments were offered concerning the role of a no-action alternative as a component of any selected remedial action, the potential use of a hydrogen release compound (HRC), microbiologically mediated redox manipulation, and the estimated cost for the chemical reductant option.
(01-R04-008) (R. Ludwig(SPRD)580-436-8603)

Technical Assistance to Region IV: On January 17, 2002, Dr. Ann Keeley (SPRD) and Dr. Daniel Pope and Mark Paddack (Dynamac) provided RPM Jon Bornholm with comments concerning an evaluation of natural attenuation processes in a draft Remedial Investigation for the Hamilton Beach/Proctor Silex Facility in Southern Pines, NC. Specifically, the review focused on questions relating to the biodegradation evaluation process to determine whether sufficient information had been collected to evaluate monitored natural attenuation (MNA) and if the collected data had been interpreted appropriately. In general, it was suggested that insufficient data had been provided to evaluate MNA as a potential part of the site remedy. Detailed comments were provided concerning the steps required to demonstrate the effectiveness of MNA including the necessity of establishing remedial goals, installation of transect monitoring wells to define the plume in three dimensions, monitoring parameters, and data interpretation.
(02-R04-001) (A. Keeley(SPRD)580-436-8890)

Technical Assistance to Region V: On January 11, 2002, Steven Acree (SPRD) and Dr. Hai Shen and Steve Yarbrough (Dynamac) provided RPM Mike Ribordy with comments concerning an Engineering/Cost Analysis and RI/FS documents prepared for the Sauget Area 1 Superfund Site in Sauget, IL. Specifically, the comments focused on the potential migration of DNAPLs and the assessment of remedial options. In general, it was suggested that the studies were not sufficient to adequately address the distribution and potential mobility of DNAPLs under current and future conditions, and that the evaluation of remedial options should be expanded to include the benefits and costs associated with more aggressive source removal activities.
(02-R05-001) (S. Acree(SPRD)580-436-8609)

Technical Assistance to Region V: On January 14, 2002, Dr. David Jewett (SPRD) and Drs. Jerome Cruz and Mingyu Wang (ManTech) provided RPM Lolita Hill with a review of a consultantís response to November 26, 2001, EPA and Ohio Environmental Protection Agency (OEPA) comments on modeling analysis of ground-water flow patterns for the Chem-Dyne Superfund Site in Hamilton, OH. In several instances, the brief explanation provided in the response letter addressed the EPA and OEPA concerns by providing the reasoning behind modeling decisions. It was pointed out that supporting evidence justifying the model development such as grid size and spacing, boundary conditions, and parameterization is essential for a reviewer to evaluate model design and output.
(01-R05-001) (D. Jewett(SRD)580-436-8560)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Wilken, R.T., R.W. Puls, and G.W. Sewell (SPRD). ìAccumulation Rate of Microbial Biomass at Two Permeable Reactive Barrier Sites.î EOS Trans. AGU, 82(47), Fall Meeting Supplement, Abstract H22A-0347, 2001.
(R. Wilken(SPRD)580-436-8874)

Wilken, R.T., M.S. McNeil, C.J. Adair, and J.T. Wilson (SPRD). ìField Measurement of Dissolved Oxygen: A Comparison of Methods.î Ground Water Monitoring and Remediation, Vol. 21: 124-132, 2001.
(R. Wilken(SPRD)580-436-8874)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of January 28, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On January 18, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided technical review comments on a draft memorandum from RPM Joseph Lemay concerning a pilot field-scale phytoremediation study at the Resolve Superfund Site in Dartmouth, MA. General comments addressed sampling frequencies during dormant and growth periods, microcosm experiments, volatile losses from preferential pathways, transpiration of VOCs from leaves, and QA/QC sampling and analysis procedures. Detailed specific comments were offered in a number of areas.
(01-R01-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region V: On January 22, 2002, Steven Acree (SPRD) and Dr. Hai Shen, Mark Paddack, and Steve Yarbrough (Dynamac) provided RPM Mike Ribordy with a technical review of the RI/FS Support Sampling Plan/ Field Sampling Plan for the Sauget Area 2 Superfund Site in Sauget, IL. The review focused on issues related to the adequacy of the proposed site characterization, particularly with respect to NAPLs within the landfill. In general, little data regarding the nature and distribution of contaminant source material within the landfill will be collected under the plan. Such information, including the physical phases and properties of the contaminants, will be required if source reduction efforts are contemplated.
(02-R05-001) (S. Acree(SPRD)580-436-8609)

Technical Assistance to Region IX: During January 14-17, 2002, Dr. David Jewett (SPRD) traveled to the Region 9 Office in San Francisco, CA, to attend an RI/FS review meeting for the Sulphur Bank Mercury Mine Superfund Site in Clearlake Oaks, CA. The majority of the discussion focused on project concerns raised by the Elem Colony representatives which included OU1 versus OU2 designations and plans, risk assessment and cultural issues, and remedial strategies.
(97-R09-006) (D. Jewett(SPRD)580-436-8560)

TECHNICAL PRESENTATIONS

Scientists (Drs. Dominic DiGiulio, Scott Huling, and Lynn Wood) from EPA NRMRL, (Ada, OK) made oral presentations at the National RCRA Conference (January 15-18, 2002). Dr. DiGiulio outlined ongoing and proposed research at NRMRL and NERL to support risk assessment and reduction related to vapor intrusion. Dr. Hulingís presentation was titled ìIn-Situ Fenton Oxidation: Theory and Practical Considerationsî where he discussed the fundamental chemistry of Fenton oxidation, limitations of the technology, bench-scale testing and field-scale applications. Dr. Woodís presentation titled ìEnhanced Source Removal Using In-Situ Chemical Flushingî was given in the Dense Nonaqueous Phase Liquid Source Remediation Session. The conference was held in Washington, D.C. at the Hyatt Regency Capitol Hill with over 1250 people registered to attend.

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Wilson, Barbara H., Hai Shen, and Dan Pope (Dynamac) and Steve Schmelling (SPRD). ìCost of MTBE Remediation.î Symposium Paper. Bioremediation of MTBE, Alcohols, and Ethers, International In Situ and On-Site Bioremediation Symposium (6th:2001:San Diego, Calif.) Battelle Press, Columbus, OH.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of February 11, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On February 5, 2002, Dr. David Burden (SPRD) and Dr. Hai Shen and Steve Yarbrough (Dynamac) provided Special Environmental Projects Coordinator Kyle Rogers with review comments concerning a Remedial Action Plan for the South Kinnickinnie Avenue Brownfields Site in Milwaukee, WI. The preferred remedial option consists of the excavation of source material for off-site disposal, institutional and engineering controls, and incorporating Monitored Natural Attenuation (MNA) for ground water remediation. The excavation plan followed by institutional and engineering controls appeared to be appropriate, however, there were major concerns with MNA as a remedy due to the potential presence of DNAPLs in the aquifer. It was suggested that the known source area should be excavated, additional institutional and engineering controls be considered, and enhanced biodegradation be performed to remediate contaminated ground water. (02BF05-001) (D. Burden(SPRD)580-436-8606)

SPRD RESEARCH PROGRAM REVIEW

During February 4-7, 2002, the SPRD Branch Chiefs, Acting Director, and Science Research Council conducted an in-house review of the SPRD research program which was focused on both ongoing and planned projects. The February 4-5 period was devoted to ecosystem and drinking water research while the February 6-7 period addressed waste related research. Ben Blaney, NRMRLís ALD for Waste Related Research, participated in the program on February 6 and 7. The review gave SPRD managers an update on the status of the Divisionís entire research program and will help them to more effectively manage and represent the SPRD in the FY 04 planning process. The program review also provided an opportunity for the technical staff to become more aware of their coworkersí activities. Eighteen projects were presented in the Drinking Water & Ecosystem Restoration Research Area and twenty-four projects were reviewed in the Waste Program Research Area.

(S. Schmelling(SPRD)580-436-8540)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of March 4, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: During February 6-7, 2002, Dr. David Jewett (SPRD) attended a technical meeting in Atlanta, GA, to discuss modeling efforts at MacDill Air Force Base in Tampa, FL. Others attending the meeting including representatives from EPA Region 4, US Army Corps of Engineers, MacDill AFB, and contractors. Issues discussed included the site conceptual model, ground-water cleanup target levels for the modeling effort, base-wide water level monitoring plan, ground-water flow model calibration, identification of contaminant fate and transport parameters, and the development of a solute fate and transport model to address potential remedial scenarios.
(01-R04-003) (D. Jewett(SPRD)580-436-8560)

Technical Assistance to Region VIII: On February 13, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Jim Harris with review comments and recommendations on documents related to odors emanating from the land treatment unit at the Montana Pole Superfund Site in Butte, MT. A number of issues were discussed including the concentration of identified contaminants and their odor thresholds, unidentified compounds including intermediate degradation products, soil conditions that can affect the production and transport of odor-causing compounds, and climate factors. Comments were also offered with respect to sampling and analysis, and chemical testing.
(02-R08-001) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Office of Solid Waste: On February 21, 2002, Dr. Randall Ross and Steve Acree (SPRD) provided Zubair Saleem (OSW) with a final literature search database for heterogeneous hydraulic conductivities and fracture environments. The information contained data on the spatial variability of hydraulic conductivity in both the horizontal and vertical directions which will be used to generate hydraulic conductivity random fields to simulate natural heterogeneity and prepare a compilation of statistical information using Monte-Carlo simulations. The results of the literature search also included a compilation of data on fracture properties in different hydrogeologic environments. This information will also be used to prepare a compilation of statistical information using Monte-Carlo simulations.
(Misc.) (R. Ross(SPRD)580-436-8611)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Huling, Scott G. (SPRD), and Bruce Pivetz and Rick Stransky (ManTech). ìTerminal Electron Acceptor Mass Balance: Light Nonaqueous Phase Liquids and Natural Attenuation.î Journal of Environmental Engineering. March 2002.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of March 11, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On March 1, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Farnaz Saghafi with comments concerning a supplemental bench-scale test work plan for the Chemical Leaman Tank Lines Superfund Site in Bridgeport, NJ. In general, the proposed methods were found to be greatly improved over earlier versions and should facilitate a more accurate assessment of chemical oxidation. Several detailed comments and recommendations were offered to further improve the quality of the testing methods. The areas considered included the offgas collection system, preliminary tests, soil loading, catalyst reagent injection, hydrogen peroxide demand, and effects on metals.
(00-R02-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region IX: In a continuing technical assistance effort at the Del Monte (Oahu Plantation) Superfund Site in Kunia, HI, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Janet Rosati with a technical review of documents associated with phytoremediation studies at the site. The February 27, 2002, comments addressed a number of issues including treatment system soil samples, perched ground-water extraction and phytoremediation irrigation, field technology demonstration modifications, field crop residues sampling, perched water-level measurements, bench-scale air monitoring results, plant metabolism studies, and mass balance calculations.
(98-R09-001) (S. Huling(SPRD)580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Weaver, James W. (NERL, Athens), John T. Wilson (SPRD), and Jong Soo Cho (Environmental Strategies Applications). ìNatural Attenuation of MTBE.î Symposium Paper. AVT-Foundation on Soil and Groundwater. Vinstedcentre, Denmark. March 7-8, 2000.
(J. Wilson(SPRD)580-436-8534)

Su, Chunming (ManTech) and Robert W. Puls (SPRD). ìArsenate and Arsenite Removal by Zero-Valent Iron: Effects of Phosphate, Silicate, Carbonate, Borate, Sulfate, Chromate, Molybdate, and Nitrate Relative to Choride.î Environmental Science and Technology. Vol. 35, No. 22. 2001.
(R. Cosby(SPRD)580-436-8512)

Durant, Neal D., P. Srinivasan, Charles R. Faust, Daniel K. Burnell, and Katrina L. Klein (GeoTrans, Inc.) and David S. Burden (SPRD). ìA GIS Technique for Estimating Natural Attenuation Rates and Mass Balances.î Symposium Paper. Battelleís Sixth International Symposium on In Situ and On Site Bioremediation. San Diego, CA. June 4-7, 2001. Natural Attenuation of Environmental Contaminants. Vol. 6(2).
(D. Burden(SPRD)580-436-8606)

Wilkin, Richard T., Ralph D. Ludwig, and Robert G. Ford (SPRD). ìWorkshop on Monitoring Oxidation-Reduction Processes for Ground-Water Restoration.î EPA Report. EPA/600/R-02/002.
(R. Wilkin(SPRD)580-436-8874)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of March 18, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On March 8, 2002, Dr. Ralph Ludwig (SPRD) provided RPM Bill Joyner with comments concerning a draft remedial alternative screening technical memorandum for the Columbia Nitrogen Site in Charleston, SC. Although it was suggested that the report did a good job of identifying and presenting the candidate alternatives for the site, detailed comments were offered with respect to the addition of ferrous iron as an indirect contaminant of concern, capping options, and the difficulty of monitoring a proposed funnel and gate PRB.
(00-R04-003) (R. Ludwig(SPRD)580-436-8603)

Technical Assistance to Region IV: In a continuing technical assistance effort at the Southern Solvents Site in Tampa, FL, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz and Colin Basye (ManTech) provided RPM Galo Jackson with comments on a pre-final design report. The March 13, 2002, review stated that the report adequately summarized the technical information obtained to date about the site, and the proposed remedial actions were sufficient for proceeding with the final remedial design. Detailed comments were provided in a number of areas including the site history, hydrology, nature and extent of contamination in the soil and ground water, and the project description.
(00-R04-005) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region IX: On March 6, 2002, Drs. Scott Huling, Dominic DiGiulio, and Eva Davis (SPRD), and Dr. Bruce Pivetz and Colin Basye (ManTech) provided RPM Michael Wolfram with review comments on a pre-proposal memorandum outlining a thermal sparging technology for Williams Air Force Base in Phoenix, AZ. In general, the sparging aspects of the proposed technology in the saturated zone raised the greatest amount of technical uncertainty and concern. The technology, as proposed, appeared to be predominantly applicable to the unsaturated zone where it has the potential to be most effective and should be further evaluated. Regarding the saturated zone, where a large volume of LNAPLs currently exists, there appeared to be some notable limitations. Clarification was requested regarding applications in both the saturated and unsaturated zones.
(98-R09-003) (S. Huling(SPRD)580-435-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Paul, Cynthia J. (SPRD). ìSodium Dithionite Injections Used for Chromium Reduction.î Ground Water Currents, Dec. 2001. Issue 42.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of April 1, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On March 13, 2002, Dr. Randall Ross (SPRD) and Dr. Michael Barcelona (Dynamac Consultant) provided RPM Annie Godfrey with a review of the ìGroundwater RI Addendum Reportî for the LCP Chemicals Site in Brunswick, GA. The comments addressed three issues including contaminant migration, appropriate remedial activities, and additional data needs. The site represents a unique monitoring and remedial action challenge due to the varied chemical contaminants including fuel hydrocarbons, metallic and metalloid elements, and caustic brine residues. It was suggested that careful consideration be given to both the monitoring strategy and remedial decision making since efforts to investigate or remediate one problem could exacerbate the risks posed by other problems.
(02-R04-002) (R. Ross(SPRD)580-436-8611)

Technical Assistance to Region II: On March 28, 2002, Dr. Ann Keeley (SPRD) provided RPM Bob Morse with review comments on a report assessing the natural remediation of ground water at the Maywood Chemical Company Site in Maywood, NJ. In general, the document provided a reasonable basis for the development of a Monitored Natural Attenuation (MNA) Feasibility Study. The importance of a contingency plan and the selection of a trigger point to activate that plan was discussed along with problems associated with the statistical demonstration of effective MNA due to the limited number of monitoring wells within the plumes. It was suggested that information gained during the MNA program will play an important role in evaluating the remediation of ground water. Copies of Dr. Keeleyís recent publications on MNA in GWMR were provided.
(02-R02-002) (A. Keeley(SPRD)580-436-8890)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Ludwig, Ralph D. (SPRD), Rick G. McGregor, and David W. Blowes (Univ. of Waterloo), Shawn G. Benner (Stanford Univ.), and Keith Mountjoy (Conor Pacific Environ. Tech.). ìA Permeable Reactive Barrier for Treatment of Heavy Metals.î Ground Water. 40(1), 2002.
(J. Jones(SPRD)580-436-8593)

Filley, T.R. (Purdue Univ.), K.H. Freeman (Penn St. Univ.), R.T. Wilkin (SPRD), and P.G. Hatcher (Ohio St. Univ.). ìBiogeochemical Controls on Reaction of Sedimentary Organic Matter and Aqueous Sulfides of Mud Lake, Florida.î Geochimica et Cosmochimica Acta. Vol. 66, 2002.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of April 8, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: A meeting was held on March 22, 2002, at the EPA Region 1 Office in Boston to discuss a proposed bio-filter phytobed design at the Resolve Superfund Site in North Dartmouth, MA. Participants in the meeting included Joseph Lemay of EPA Region 1, Dr. Scott Huling (SPRD), Dr. Bruce Pivetz (ManTech), and representatives of the Massachusetts Department of Environmental Protection, ENSR, Phytokinetics, Louisiana State University, Queens University, and the Washington Group. The primary discussion focused on the monitoring system that would be used during a three-year pilot study to assess the performance of bio-filter phytobeds. Results of the pilot-scale treatability study at 0.1 gpm will be used to investigate the potential feasibility of the beds to treat contaminated water from the existing pump-and-treat system at 50 gpm. Specifically, a set of monitoring parameters and frequencies were established to quantify the major contaminant fate-and-transport mechanisms including influent/effluent, biodegradation, accumulation in the trees and soil, volatilization, and transpiration. Given this information, a mass balance of contaminants will be used to assess losses from the system, potential exposure pathways, and treatment performance.
(01-R01-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region IV: During March 12-14, 2002, Dr. Ralph Ludwig, Dr. David Jewett, and Frank Beck (SPRD), Pat Clark (Cincinnati EPA), and Chunming Su (ManTech) installed monitoring wells and collected ground-water samples to be used in the evaluation of permeable reactive barrier technology and contaminant fate issues at the Columbia Nitrogen Site in Charleston, SC. At the site, low pH ground water containing heavy metals, arsenic, and ferrous iron is currently entering and adversely impacting an adjacent sensitive tidal marsh. Ground-water samples were also collected as part of a protocol development for collecting and submitting water samples for arsenic speciation.
(00-R04-003) (R. Ludwig(SPRD)580-436-8603)

Technical Assistance to Region IV: On March 13, 2002, Dr. Ralph Ludwig, Dr. David Jewett, and Frank Beck (SPRD), Pat Clark (Cincinnati EPA), and Chunming Su (ManTech) monitored ground water as a part of a 95-day performance evaluation of a pilot study at the Macalloy Corporation Site in Charleston, SC. The pilot study was initiated in November 2001 involving the injection of a ferrous sulfate based reductant solution into the subsurface to treat both dissolved and solid phase hexavalent chromium in a source area. A compilation of geochemical data over several monitoring rounds will allow an assessment of the performance of the treatment process.
(01-R04-008) (R. Ludwig(SPRD)580-436-8603)

Technical Assistance to Region IX: On April 1, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz and Colin Basye (ManTech) provided RPM Eric Yunker with a technical review of the ìCooper Drum Company Remedial Investigation/Feasibility Study Report.î The site is located in Los Angeles, CA. In general, the information provided did not provide for the selection of a clear, decisive set of remedial treatment options. There are potential limitations and advantages with each technology as well as combination of technologies. It was suggested that a treatment train approach to site remediation appears to be a viable option where an aggressive source area technology can be used in conjunction with other remedial alternatives in less contaminated areas. Detailed comments were provided concerning a number of remedial alternatives including enhanced bioremediation, air stripping, chemical oxidation and Monitored Natural Attenuation (MNA).
(02-R09-002) (S. Huling(SPRD)580-436-8610)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of April 22, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On April 16, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Joseph Lemay with comments on a summary of notes taken on March 22, 2002, at the EPA Region 1 Office in Boston during a meeting to discuss a proposed bio-filter phytobed design at the Resolve Superfund Site in North Dartmouth, MA. Issues discussed included sampling of the treatment system, frequency and distribution of core sampling, and cores collected for microcosm studies.
(01-R01-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region V: On April 10, 2002, Dr. David Jewett (SPRD) participated in a technical review meeting to discuss numerical modeling at the Chem-Dyne Superfund Site in Hamilton, OH. Also in attendance were representatives from EPA Region 5, Ohio EPA, Chem-Dyne Trust, and consultants. Issues discussed included past comments and responses to the ground-water flow model, resolving federal and state agency concerns, and future direction of the modeling effort. A tour of the site was also conducted.
(01-R05-001) (D. Jewett(SPRD)580-436-8560)

Technical Assistance to Region VI: On March 28, 2002, Drs. Stephen Hutchins and Elise Striz (SPRD) met with Carl Wills and Dale Selgraft (EPA Region 6 Enforcement Division) at the Seaboard swine CAFO located in Fairview, OK. This facility is the focus of an intensive field study by SPRD personnel, as well as one of five facilities selected for enforcement actions by EPA Region 6. SPRD researchers assisted with conducting a complete survey of all of the facility lagoons and approximately 20 new on-site monitoring wells that Seaboard had installed to address concerns of ground-water contamination by nitrate. In addition, water levels were obtained from all of the wells at the facility. These efforts were repeated for all of SPRDís off-site wells. This was the first opportunity for SPRD researchers to gain access to the entire facility, and this information will provide a complete synoptic sampling to allow Dr. Striz to construct a ground-water model for the site. On April 2, 2002, Drs. Hutchins and Striz met with EPA Region 6 personnel in Dallas, TX, to provide a briefing on SPRDís work to date regarding site characterization at this facility and obtain additional information from the Region provided by Seaboard under enforcement orders. This and other information will be used by the Region to help prepare for a subsequent meeting with Seaboard to determine what additional site characterization steps will be needed. SPRD is continuing to work closely with the Region to define the subsurface hydrology at the site, characterize sources, recommend additional characterization steps for Seaboard to undertake, and help develop recommendations for remediation and/or land management alternatives.
(02RC06-001) (S. Hutchins(SPRD)580-436-8563)

Technical Assistance to Region IX: On April 16, 2002, Dr. David Jewett (SPRD) participated in a technical work group for the Yerington Mine Site in Carson City, NV. Other participants included EPA Region 9, EPA NRMRL-Cincinnati, BLM, USFWS, BP/ARCO, Walker River Paiute Tribe, and consultants. Issues discussed included the site SOW, proposed work plans for specific mine units, the 2001 ground-water pumpback system annual report, and review of data collected by various members of the work group.
(01-R09-004) (D. Jewett(SPRD)580-436-8560)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of April 29, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On April 22, 2002, Steven Acree and Dr. Eva Davis (SPRD) and Dr. Bruce Pivetz and Colin Basye (ManTech) provided RPM Jeff Dhont with comments concerning work plans at the Montrose Superfund Site in Torrance, CA. The work plans consisted of a six-phase heating laboratory test, field sampling, reconnaissance DNAPL assessment, and DNAPL extraction treatability test. In general, extraction tests using conventional pumping technologies and reconnaissance to better define the extent of DNAPL contamination may provide information necessary to address some of the identified data gaps. However, it appears unlikely that the laboratory studies proposed for the evaluation of six-phase heating technology will provide sufficient information to justify the effort and expense involved.
(95-R09-015) (S. Acree(SPRD)580-436-8609)(E. Davis(SPRD)580-436-8548)

Technical Assistance to Region X: On April 17, 2001, Dr. Randall Ross (SPRD) provided Ed Jones (Washington State Department of Ecology) with comments on a "Draft Hydraulic Control Interim Measures Work Plan" for the Philip Services Corporation Georgetown Facility in Seattle, WA. The differences between physical and hydraulic containment for the proposed slurry wall were discussed as well as the possibility of the degradation of wall properties by NAPLs, or other contained contaminants, and the resulting migration of fluids out of the system. Also discussed was a sampling program that would be appropriate to assure that the slurry wall would be adequately keyed into a low permeability underlying unit.
(02RC10-001) (R. Ross(SPRD)580-436-8611)

RESEARCH IN PROGRESS

A research project is being initiated with the Air Force Center of Environmental Excellence at Brooks AFB to identify processes that control natural attenuation at CAH solvent spill sites. A historical data base will be obtained on concentrations of chlorinated solvents and their transformation products in ground water from source areas of a large number of Air Force base plumes. The data base information, supplemented by some field site characterization studies, should elucidate what conditions allow complete natural biological degradation of trichloroethene to ethene while in some plumes dechlorination stops at cis-dichloroethene.

Emphasis will be placed on the presence of dissolved hydrogen in plume water and of a known dechlorination bacteria, Dehalococcoides, in plume core material.

(D. Kampbell(SPRD)580-436-8564)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

An, Youn-Joo (ORISE), Don H. Kampbell (SPRD), and Mary E. McGill (ECU). "Toxicity of Methyl tert-Butyl Ether to Seeding Growth." Environmental Toxicology and Chemistry, Vol. 21, No. 8. July, 2002.

(D. Kampbell(SPRD)580-436-8564)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of May 6, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On May 1, 2002, Steven Acree (SPRD) and Dr. Hai Shen and Mark Paddack (Dynamac) provided RPM Mike Ribordy with review comments on a focused feasibility study for the Sauget Area 2 Superfund Site in Sauget, IL. In general, the effectiveness of hydraulic capture and the ability to monitor remedy performance will be enhanced by the incorporation of a proposed physical barrier. Suggestions were offered with respect to the monitoring plan to increase confidence in evaluating the performance of the system. Other comments concerned sampling to determine the presence of NAPLs and a refinement of the current ground-water flow model.
(02-R05-001) (S. Acree(SPRD580-436-8609)

Technical Assistance to Region VII: On May 1, 2002, Dr. Ralph Ludwig (SPRD) provided RPM Mary Peterson with comments on a bedrock investigation work plan for the Chemical Commodities Inc. Site in Olathe, KS. It appeared that the proposed approach for investigations of VOC contamination in bedrock are appropriate. The number and location of bedrock monitoring wells was questioned in terms of their ability to determine the lateral migration of contaminants.
(01-R07-001) (R. Ludwig(SPRD)580-436-8603)

Technical Assistance to Region IX: On April 30, 2002, Dr. David Jewett (SPRD) provided RPM Bonnie Arthur with a review of a document titled ì2001 Annual Monitoring and Operation Summary, Pumpback Well System, Yerington, Nevadaî which was prepared for the Yerington Mine Site. Concerns were expressed about the use of water-level data from pumpback wells to determine ground-water flow direction and the combination of water-quality data from different hydrostratigraphic units. Additional comments addressed the thickness of vertical migration barrier clays, pumping wells in the vicinity of the site, hydraulic conductivity estimates, efficiency of pumping wells, and the limited number of monitoring points.
(01-R09-004) (D. Jewett(SPRD)580-436-8560)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Hantush, Mohamed M. (SPRD) and Miguel A. Marinı (U.C. Davis). ì Analytical Modeling of the Influence of Denitrifying Sediments on Nitrate Transport in Aquifers with Sloping Beds.î Water Resources Research. Vol. 37, (12). December 2001.

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

Hantush, Mohamed M. (SPRD), Morihiro Harada (Meijo Univ. Tenpaku, Japan), and Miguel A. Marinı (U.C. Davis). ìOn the Hydraulics of Stream Flow Routing with Bank Storage.î Journal of Hydrologic Engineering. Vol. 7, (1). January 2002.

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

Hantush, Mohamed M. (SPRD), Rao S. Govindaraju (Purdue Univ.), and Miguel A. Marinı (U.C. Davis). ìScreening Model for Volatile Pollutants in Duel Porosity Soils.î Journal of Hydrology. Vol. 260. January 2002.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of May 27, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On May 21, 2002, Drs. Scott Huling and Randall Ross (SPRD) and Dr. Bruce Pivetz and Colin Basye (ManTech) provided RPM Karen Lumino with technical review comments on a feasibility study plan for the Solvents Recovery Service of New England Superfund Site in Southington, CT. A major concern related to the adequacy of the proposed soil sampling effort in characterizing the subsurface due to the heterogeneous nature of the porous media and the spatial distribution of DNAPLs. A number of suggestions were offered as investigative tools for the project.
(99-R01-004) (S. Huling(SPRD)580-436-8610)

RESEARCH IN PROGRESS

SPRD researchers just completed three weeks of field work designed to provide additional site characterization at a CAFO facility (Fairview Nursery Complex) in northwestern Oklahoma. This facility is the focus of an intensive field study by SPRD personnel on the effects of a swine CAFO operation on ground-water quality. High nitrate levels in SPRD wells on private land located immediately downgradient of the spray waste application area had already been documented. The additional site characterization was required to better define geologic profiles and investigate the potential for ground-water contamination from leaking swine effluent lagoons as well as the potential for impacts to adjacent wetlands. Four new sets of cluster monitoring wells and an additional shallow well adjacent to an existing cluster were installed and will be included in SPRDís quarterly sampling profile. In addition, continuous cores were taken from ground surface to the redbeds in three locations to evaluate changes in the thickness of an interstitial clay layer and the lower sand formation. Data from these cores will also be correlated with electrical conductivity (EC) logs, obtained at the same locations, to facilitate the interpretation of EC logs at other locations around the site. To complete this data set, EC logs were obtained for all of the monitoring wells, as well as several new locations adjacent to the wetlands. Ground-water samples were also taken at different depths in each of these new locations to determine whether nitrate transport to the wetlands is occurring. Finally, several quarts of aquifer material for microcosm studies were obtained from shallow and deep locations both upgradient and downgradient of the spray application area to evaluate the potential for in-situ denitrification. USGS personnel, under an existing IAG with SPRD, surveyed all site work locations, and this information will be included in the GIS database for this field site. All of these data will be used to better define ground-water flow and nitrate transport at the site, as well as the potential for impacts to the wetlands through ground-water discharge.

(S. Hutchins(SPRD)580-436-8563)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Faulkner, B.R. (SPRD). ìJava Classes for Nonprocedural Variogram Modeling.î Computers & Geosciences. 28(3), 2002.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of June 17, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On May 29, 2002, Dr. David Burden (SPRD) and Dr. Hai Shen, Tom Sunderland, and Steve Yarbrough (Dynamac) provided Environmental Scientist William OíSteen with a technical review of the report ìEvaluation of the Source of Dioxins and Furans Detected in Private Water-Supply Wells and Evaluation of the Soil Remedial Goals for Ground-Water Protection.î The report was prepared for the Koppers Company Superfund Site in Morrisville, NC. The review focused on the potential source of dioxin and furan contaminants, and the threat to ground water from these contaminants which are present in capped Fire Pond sediments.
(02-R04-004) (D. Burden(SPRD)580-436-8606)

Technical Assistance to Region V: On June 13, 2002, Steven Acree (SPRD) provided RPM Mike Ribordy with comments concerning the Feasibility Study-Source Area Remedial Options for the Sauget Area 1 Superfund Site in Sauget, IL. The DNAPL recovery technologies discussed included pumping wells, extraction of aqueous leachate and NAPL at the downgradient boundary of the waste matrix, and extraction of aqueous leachate and NAPL within the matrix. Also discussed was the use of NAPL removal technologies through an existing landfill cap.
(02-R05-001) (S. Acree(SPRD)580-436-8609)

Technical Assistance to Region IX: On May 31, 2002, Steven Acree (SPRD), Dr. Bruce Pivetz and Colin Bayse (ManTech), and Dr. Milovan Beljin (Beljin & Associates through Dynamac) provided RPM Nadia Hollan with review comments on an effectiveness report for Operable Unit No. 1 at the Motorola 52nd Street Superfund Site in Phoenix, AR. In general, several lines of evidence and analyses indicate that a significant degree of capture of the contaminated ground-water plume has been achieved. However, the available data are insufficient to support definitive conclusions regarding the adequacy of the extraction systems to completely contain contaminant migration. Detailed comments were offered regarding the creation of ground-water elevation maps, the need for additional monitoring points, and plume capture in bedrock.
(01-R09-002) (S. Acree(SPRD)580-436-8609)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Wilkin, Richard T., Robert W. Puls, and Guy W. Sewell (SPRD). ìLong-Term Performance of Permeable Reactive Barriers Using Zero-Valent Iron: An Evaluation at Two Sites.î EPA Environmental Research Brief. EPA/600/S-02/001.

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

Faulkner, Barton R. (SPRD). ìJava Classes for Nonprocedural Variogram Modeling.î Computers & Geosciences. Vol. 28. May 1, 2002.

(J. Williams(SPRD)580-436-8561)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of July 1, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On June 24, 2002, Dr. Ann Keeley (SPRD) and Dr. Hai Shen (Dynamac) provided RPM Jennifer Chan with reviews of a number of documents related to source characterization, and soil and ground-water studies at the Dover Gas Light Company Site in Dover, DL. Specifically, the review comments focused on remedial alternatives for PCE, BTEX, and PAHs, as well as an evaluation of the impact of Fentonís Reagent application with respect to these contaminants. In addition to pointing out specific problems associated with the application of Fentonís Reagent technology, it was suggested that six-phase soil heating (SPSH) should be further evaluated as a potential remedial option in future feasibility studies.
(99-R03-003) (A. Keeley(SPRD)580-436-8890)

Technical Assistance to Region III: On June 20, 2002, Dr. David Jewett (SPRD) and Drs. Jin-Song Chen and Ron Drake (Dynamac) provided RPM Debra Rossi with the results of a modeling analysis of VOC fate and transport at the Maryland Sand, Gravel, and Stone Superfund Site in Elkton, MD. A one-dimensional analytical model (VFLUX) was used to simulate VOC leaching from a source area to the underlying water table, and a two-dimensional numerical model (HYDRUS 2D) was used to simulate VOC fate and transport through the vadose and saturated zones to downgradient observation points. Several remedial scenarios were modeled in the study.
(00-R03-002) (D. Jewett(SPRD)580-436-8560)

Technical Assistance to Region VII: On June 21, 2002, Dr. Scott Huling (SPRD) provided Mrs. Mary Daily (Kansas Bureau of Environmental Remediation) with technical comments concerning a bench-scale test report on the feasibility of applying Fentonís Reagent technology at the Garvey Elevators - 4th and Carey Site in Hutchinson, KS. In general, the results of the study were found to be inconclusive regarding the extent of degradation of contaminants due to the lack of control during the bench test. Detailed comments were offered with respect to ground-water sample testing procedures and mass balance evaluation. It was recommended that a major revision of the work plan be developed.
(02-R07-001) (S. Huling(SPRD)580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Ford, Robert G. (SPRD). ìRates of Hydrous Ferric Oxide Crystallization and the Influence on Coprecipitated Arsenate.î Environmental Science & Technology.
36(11), 2002. (R. Ford(SPRD)580-436-8872)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of August 5, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IV: On July 9, 2002, Dr. Mary Gonsoulin (SPRD) and Drs. Daniel Pope and Mark Paddack (Dynamac) provided RPM Jon Bornholm with a review of a response to earlier EPA technical comments for the Aberdeen Pesticide Superfund Dump Site in Aberdeen, NC. In general, it was determined that the well coverage of the site was meager with limited horizontal and vertical plume delineation. It was suggested that it would be problematic to make ground-water conclusions based on the limited data and that predictions of future plume behavior should be considered to be highly uncertain. Detailed comments were offered with respect to modeling results, ground-water tracer studies, confidence intervals for attenuation rate constants, and the migration of contaminants into surface water.
(99-R04-004) (M. Gonsoulin(SPRD)580-435-8616)

Technical Assistance to Region IX: On July 8, 2002, Dr. David Jewett (SPRD) provided RPM Bonnie Arthur with review comments concerning a draft conceptual site model for the Yerington Mine Site in Yerington, NV. The model provides a good start at describing the source areas, migration pathways, and end-point receptors associated with metals fate and transport. It will play an important role in evaluating and prioritizing characterization and remediation activities, developing data quality objectives and remedial goals, defining source areas, and assessing potential remedial alternatives. Specific comments were made with regard to potential sources of contaminants, pumped ground-water storage, and characterizing subsurface geochemistry.
(01-R09-004) (D. Jewett(SPRD)580-436-8560)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Jorgensen, Eric E., Timothy J. Canfield, and Paul M. Mayer (SPRD). ìResearch Needs in Riparian Buffer Restoration.î EPA Issue Paper. EPA/600/S-02/002.
(E. Jorgensen(SPRD)580-436-8545)

Jorgensen, Eric E. (SPRD). ìOpportunities in Nitrogen Management Research: Improving Applications for Proven Technologies and Identifying New Tools for Managing Nitrogen Flux and Input in Ecosystems.î EPA Issue Paper. EPA/600/S-02/003.
(E. Jorgensen(SPRD)580-436-8545)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of August 26, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On August 20, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Joseph Lemay with review comments on a July 2002 ìBio-Filter/ Phytobed Pilot Field Study Sampling and Analysis Plan (SAP)î prepared for the ReSolve Superfund Site in Dartmouth, MA. In general, the SAP appeared sufficiently complete to enable the field study to begin. Two significant items were identified that require resolution prior to field sampling including ìredoxî parameter analyses and the locations of air samplers. Comments were offered in specific areas of plant uptake and transpiration, collection and measurement procedures, root biomass determination, and microcosm studies.
(01-R01-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region I: In a continuing technical assistance effort at the Dover Municipal Landfill Superfund Site in Dover, NH, Dr. Randall Ross (SPRD) and Dr. Milovan Beljin (Dynamac Consultant) provided RPM Darryl Luce with comments on a draft revised ground-water model summary. The August 20, 2002, review generally reflected SPRD suggestions made during an August 8, 2002, meeting in Concord, NH. Detailed comments were offered with respect to the suggested use of an updated version of MODFLOW, model area and grid, boundary conditions, model parameters, and calibration and sensitivity analysis.
(02-R01-006) (R. Ross(SPRD)580-436-8611)

Technical Assistance to Region IX: On August 12, 2002, Steven Acree (SPRD) and Dr. Hai Shen and Mark Paddack (Dynamac) provided Laura Young (Hawaii Dept. of Health) with comments concerning a pilot-scale study of in-situ bioremediation technologies at the GASCO Benzene Site, Honolulu, HI. Although the pilot study is not without merit and may result in some degree of contaminant removal, it is possible that the technology may not be applicable for all contaminants of concern including benzene. Other issues discussed were the effective rate of remediation, possible presence of NAPLs, other health-risk contaminants, and the development of indicators of success and decision criteria/time frames for termination or expansion of the study.
(02RC09-001) (S. Acree(SPRD)580-436-8609)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Kampbell. Don H. (SPRD). ìField Sampling & QA/QC Techniques.î Air Force Center for Environmental Excellence Cleanup Technology Workshop, 4-7 March 2002, San Antonia, TX.
(D. Kampbell(SPRD)580-436-8564)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of September 9, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region IX: On August 22, 2002, Dr. David Jewett (SPRD) attended a technical work group meeting in Carson City, NV, concerning the Yerington Mine - Anaconda Copper Co. Site in Yerington, NV. Also attending the meeting were representatives from U.S. EPA Region 9, U.S. EPA NRMRL-Cincinnati, Nevada DEP, BLM, USFWS, ARCO, Lyon Co., Yerington Paiute Tribe, and consultants for the agencies and other parties involved. Issues discussed included time line and submission of site work plans, conceptual site model development, water quality results, site newsletter and public relations, and planning for an upcoming stakeholders meeting.
(01-R09-004) (D. Jewett(SPRD)580-436-8560)

Technical Assistance to Region IX: On September 5, 2002, Steven Acree (SPRD) provided Project Manager Carmen Santos with comments concerning cost estimates for plume capture monitoring at the BKK Landfill in West Covina, CA. In general, the monitoring philosophy used to produce the cost estimates relied heavily on analyses of ground water samples from extraction wells. It was suggested that monitoring of extraction wells to the exclusion of downgradient monitoring wells will provide little information which is useful in evaluating contaminant capture. Detailed comments were provided concerning the monitoring well system, sampling frequency, and an investigation into the possible presence of DNAPLs.
(98RC09-001)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Jorgensen, E.E. (SPRD). ìSmall Mammals: Consequences of Stochastic Data Variation for Modeling Indicators of Habitat Suitability for a Well-Studied Resource.î Ecological Indicators. 2002. 1:313-321.
(E. Jorgensen(SPRD)580-436-8545)

Bachman, L. Joseph (USGS, Baltimore, MD), David E. Krantz (USGS, Dover, DE) and Johnkarl Bˆhlke (USGS, Reston, VA). ìHydrogeologic Framework, Ground-Water Geochemistry, and Assessment of Nitrogen Yield from Base Flow in Two Agricultural Watersheds, Kent County, Maryland.î Project Report. EPA-600/R-02/008.
(M. Hantush(SPRD)513-569-7089)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of September 16, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On September 6, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Farnaz Saghafi with review comments on a supplemental bench-scale test work plan for the Chemical Leaman Tank Lines, Inc. Site in Bridgeport, NJ. General comments included the effect of contaminant concentration on the assessment of treatment performance, and the effect of scale on treatment efficiency and the required dosage of chemical oxidant reagents. Specific comments addressed a number of issues including background chloride test, oxidant injection volumes and recovery, offgas collection volumes, oxidant demand, and ketone formation.
(00-R02-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region VI: On September 3, 2002, Drs. Randall Ross and Scott Huling (SPRD) and Bob Cohen (GeoTrans, Dynamac) provided Gregory Lyssy with review comments on a document entitled ìStrategies for Characterizing DNAPL Contaminationî prepared by the Interstate Technology and Regulatory Council. In general, it was suggested that the document required a thorough review by a technical editor due to errors and redundancy. It was suggested that the audience for the document be defined. Although the text does not provide new information to an informed reader, it may be useful to those having no prior knowledge in the area. Many detailed comments were offered both with respect to technical issues as well as the documentís syntax.
(Misc.) (R. Ross(SPRD)580-436-8611)(S. Huling)

Technical Assistance to Region IX: On September 6, 2002, Steven Acree and Dr. Eva Davis (SPRD) provided RPM Kathleen Salyer with comments concerning alternative DNAPL assessment techniques at the Montrose Superfund Site in Torrance, CA. Issues discussed in detail included the need to develop a correlation between lithologies and DNAPL distributions as well as sampling methods and locations.
(95-R09-015) (S. Acree(SPRD)580-436-8609)(E. Davis(SPRD)580-436-8548)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

An, Youn-Joo (ORISE), and Don H. Kampbell and Mike L. Cook (SPRD). ìCo-Occurrence of MTBE and Benzene, Toluene, Ethylbenzene, and Xylene Compounds at Marinas in a Large Reservoir.î Journal of Environmental Engineering. September 2002.
(D. Kampbell(SPRD)580-436-8564)

Beck, Frank P. Jr. (SPRD), Patrick J. Clark (NRMRL, Cincinnati), and Robert W. Puls (SPRD). ìDirect Push Methods for Locating and Collecting Cores of Aquifer Sediment and Zero-Valent Iron from a Permeable Reactive Barrier.î Ground Water Monitoring and Remediation. Summer 2002.
(R. Puls(SPRD)580-436-8543)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of October 7, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On September 18, 2002, Dr. Randall Ross (SPRD) and Mark Paddack (Dynamac) provided Geologist Bernice Pasquini with review comments concerning a document titled ìSummary Report on the Groundwater Quality in the Southern Martinsburg Shale Region, Letterkenny Army Depot, Chambersburg, Pennsylvania.î The comments focused on whether the ground-water sampling methodology employed at the site collected VOC samples representative of the fractured rock aquifer. In addition to discussing the use of low-flow sampling techniques and electromagnetic flowmeter surveys, several topics were suggested for consideration when sampling in fractured bedrock wells.

(02-R03-003) (R. Ross(SPRD)580-436-8611)

RESEARCH IN PROGRESS

SPRD researchers recently teamed with both Drinking Water and RCRA Enforcement personnel from EPA Region VI to conduct site characterization activities at the land application and hard-hose application areas of the Fairview Swine Nursery in northwestern Oklahoma. This facility is the focus of an intensive field study by SPRD personnel on the effects of a swine CAFO operation on ground-water quality, and is one of five facilities under enforcement actions by EPA Region VI. SPRDís research, up until this point, had been severely hampered by the lack of information in these areas and instead has had to rely on information obtained from wells, cores, electrical conductivity logs, and Geoprobe points upgradient and downgradient of the site. This had limited the development of an adequate hydrologic model for the site, essential for determining ground-water impacts. Collaboration with EPA Region VI personnel allowed access directly to the land application areas to obtain this necessary information. EPA Region VI personnel and contractors obtained Geoprobe water samples from many locations in and around these areas for routine water quality parameters. SPRD personnel and contractors obtained continuous core information at three on-site locations to define lithology and provide material for microcosm studies, and conducted electrical conductivity logging and ground-water sampling at several other on-site locations to help define lithology and provide samples for nitrogen, oxygen, deuterium, and sulfur isotope analyses. In addition, SPRD personnel obtained ground-water samples along a transect just upgradient of an off-site wetlands for isotopic analyses to help determine the source of high levels in the ground water. All of these data will be used to better define ground-water flow and nitrate transport at the site, as well as the potential for impacts to the wetlands through ground-water discharge.

(S. Hutchins(SPRD)580-436-8563)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of October 14, 2002

FY 2002 SPRD ACTIVITIES

During FY02, there were 63 Superfund **Technical Assistance** activities at 37 sites and 4 RCRA activities at 4 sites. There were 22 Superfund and 4 RCRA requests for assistance entered into the Technical Support Center tracking system during FY02. Of these, 12 Superfund and 4 RCRA sites were at new locations. One Brownfields Site was added to the review system. Two **Miscellaneous Technical Assistance** activities have been provided to the Office of Solid Waste and Region VI. These involved the development of a database for heterogeneous hydraulic conductivities in fractured environments, and review comments on a document titled ìStrategies for Characterizing DNAPL Contamination.î The Center for Subsurface Modeling Support **(CSMoS)** has distributed about 13,662 models and about 531 technical assistance responses have been provided to telephone and E-Mail requests. The Subsurface Remediation Information Center **(SRIC)** has provided 1,031 SPRD publications in response to 338 requests to all levels of government, private consultants, industry, educational institutions, and foreign countries. There were forty **Publications** in scientific journals, EPA Research reports, briefing documents, and issue papers.

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

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Faulkner, Barton R. (SPRD) and William G. Lyon (ManTech). ìPredicting Attenuation of Viruses in Percolating Water.î In Global Solutions for Urban Drainage, Proceedings of the American Society of Civil Engineers 9th International Conference on Urban Drainage. 2002.

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

Chattopadhyay, Devamiat and Sandip Chattopadhyay (Battelle), William G. Lyon (ManTech), and John T. Wilson (SPRD). ìEffect of Surfactants on the Survival and Sorption of Viruses.î Environmental Science and Technology. 2002.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of October 28, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region III: On October 16, 2002, Dr. David Burden (SPRD) and Dr. Jin-Song Chen (Dynamac) provided RPM Debra Rossi with a technical review of the calibration of a ground-water model for the Army Creek Landfill in New Castle County, DE. In general, the approach to model calibration seemed reasonable. Two issues of concern were the use of residual statistics in observed/simulated water elevations, and systematic errors in ground-water levels predicted in 1998 and 2002. The predictive simulation and evaluation of various pumping scenarios was reasonable.
(01-R03-002) (D. Burden(SPRD)580-436-8606)

Technical Assistance to Region V: On October 17, 2002, Dr. David Jewett (SPRD) and Abu Noman Ahsanuzzaman and Dr. Mingyu Wang (ManTech) provided RPM Lolita Hill with review comments on the 2001 Annual Report for the Chem-Dyne Superfund Site in Hamilton, OH. Although the report summarized surface and ground-water levels and water quality data, presented pump-and-treat performance, described compliance with ground-water protection criteria, and outlined monitoring plans for 2002, it lacked data interpretation as presented in previous annual reports. Detailed comments were offered with respect to pump-and-treat performance, water quality data, and compliance point monitoring.
(01-R05-001) (D. Jewett(SPRD)580-436-8560)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Powell, Robert M. and Patricia D. Powell (Powell & Associates), and Robert W. Puls (SPRD). ìEconomic Analysis of the Implementation of Permeable Reactive Barriers for Remediation of Contaminated Ground water.î EPA Report. EPA600/R-02/034

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

An, Youn-Joo (Oak Ridge Research Associateship Program), Donald H. Kampbell (SPRD), and Mary E. McGill (McNair Scholars). ìToxicity of Methyl-*tert* Butyl Ether (MTBE) to Plants (*Avena sativa, Zea mays, Triticum aestivum, and Lactuca sativa*). Environmental Toxicology & Chemistry Vol.21, #8. July 2002.

(D. Kampbell(SPRD)580-436-8564)

Beck, Frank P. Jr. (SPRD), Patrick Clark (NRMRL, Cincinnati), Robert Ford (SPRD), and Victor Murray (ManTech). ìUsing GIS to Map the Depth to Sediment in a Pond.î Proceedings, Ground Water/Surface Water Interactions: AWRA American Water Resources Association, 2002 Summer Specialty Conference, July 1-3, 2002, Keystone, CO.

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

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of November 4, 2002

RESEARCH IN PROGRESS

Under a work assignment funded by NRMRLís Endocrine Disrupting Chemicals (EDC) Team, an SPRD Standard Operating Procedure was developed for the identification and quantitative analysis of natural and synthetic estrogens in ground water and complex waste (e.g., swine effluent) at levels ranging from nanogram to sub-nanogram per liter. The method involves solid phase extraction (SPE), double derivatization, and negative ion chemical ionization/mass spectrometry (GC/MS), and is specific for estradiol, estriol, estrone, and ethinyl estradiol. Development of this SOP has been a difficult and complex task, especially in regard to the complications with swine waste samples. The method has been revised extensively several times, as new problems have arisen and have been addressed. For example, pre-screening of samples with enzyme-linked immunosorbent assay (ELISA) was investigated but not included in the final SOP - this was due to the necessity of incorporating deuterated standards into samples prior to extraction to account for matrix interferences, which would provide positive interferences for ELISA. ELISA may still prove useful for screening relatively clean samples, but it is not exclusively specific. ELISA has its own share of interference problems, and GC/MS confirmation would require re-extraction to provide proper quality control. This SOP (RSKSOP-253) has been reviewed internally, and has been used to analyze wastewater samples from several swine CAFO sites in Oklahoma. NRMRLís EDC Team has provided additional funding for continued work with this method, and proposed tasks include assessing matrix effects from several types of matrices (ground water, surface water, swine waste, dairy waste, etc.) for estradiol using ELISA with concomitant validation by GC/MS, evaluation of preservation techniques and storage effects, and analyses of environmental samples.

(S. Hutchins(SPRD580-436-8563)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Misra, M., R.K. Mehta, and P. Lan (Univ. of Nevada, Reno). ìRemediation of Radium from Contaminated Soil.î EPA Report. EPA/600/R-01/099.

(M. Gonsoulin/J. Jones(SPRD)580-436-8616/8593)

Kampbell, Don H. and Mike L. Cook (SPRD) and Youn-Joo An (ORISE). ìCo-Occurrence of Methyl tert-Butyl Ether (MTBE) and BTEX Compounds at Marinas in a Large Reservoir.î Journal of Environmental Engineering. Special Issue: MTBE & Gasoline Oxygenates; Ex Situ and In Situ Treatment. Vol. 128, #9. Sept. 2002.

(D. Kampbell(SPRD)580-436-8564)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of November 18, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On October 29, 2002, Dr. David Burden (SPRD) and Norman Ahsanuzzaman (ManTech) provided RPM Sharon Hayes with technical comments concerning a ground-water flow modeling report at the Nyanza Superfund Site in Ashland, MA. The purpose of the model is to predict the potential impact on remediation activities at the site resulting from land development and storm water detention schemes on abutting property. A number of issues were discussed including model selection, boundary conditions, selection of monitoring wells for data input, model calibration, and estimation of recharge rates.
(02-R01-007) (D. Burden(SPRD)580-436-8606)

Technical Assistance to Region VI: On November 15, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz and Colin Basye (ManTech) provided RPM Ernest Franke with technical review comments on a supplemental remedial investigation report for the Industrial Transformer/Sol Lynn Superfund Site in Houston, TX. In general, the report appeared to be a well-written summary of the extensive additional site characterization which had been conducted. Detailed comments were offered in areas including the possibility that additional characterizations may not be warranted unless driven by specific needs of proposed remedial activities, the potential for DNAPLs in the vicinity, natural attenuation parameters, ground-water flow direction, and ground-water chemistry sampling parameters.
(99-R06-002) (S. Huling(SPRD)580-436-8610)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Lien, Hsing-Lung (NRC) and Richard Wilkin (SPRD). ìReductive Activation of Dioxygen for Degradation of Methyl *tert*-Butyl Ether by Bifunctional Aluminum.î Environmental Science & Technology, v.36, n. 20. 2002.
(R. Wilkin(SPRD)580-436-8874)

Paul, C.J. (SPRD), F.A. Khan (Office of Pesticides), and R.W. Puls (SPRD). ì*In Situ* Reduction of Chromium-Contaminated Groundwater, Soils, and Sediments by Sodium Dithionite.î *In* Handbook of Groundwater Remediation Using Permeable Reactive Barriers, Applications to Radionuclides, Trace Metals, and Nutrients. D.L. Naftz, S.J. Morrison, J.A. Davis, and C.C. Fuller (Eds.). 2002. Academic Press, San Diego, pp 465-493.
(C. Paul(SPRD)580-436-8556)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of November 25, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region II: On November 20, 2002, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Farnaz Saghafi with a review of a revised supplemental bench-scale test work plan for the Chemical Leaman Tank Lines Inc. Site in Bridgeport, NJ, as well as comments and responses to an earlier SPRD technical review. The issues discussed included a background chloride test, chloride mass balance, oxidant demand, ketone formation, and carbon dioxide production. Also discussed was the temporary elevation of metals concentrations following treatment.
(00-R02-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region VI: In a continuing technical assistance effort at England AFB in Alexandria, LA, Steven Acree (SPRD) and Dr. Daniel Pope (Dynamac) provided Senior Project Manager Michael Overbay with comments concerning a MNA Progress Evaluation Letter Report. The November 21, 2002, comments focused on the conceptual site model, plume stability, and evaluation indicator parameters. Detailed comments were offered with respect to sampling frequency, water level measurements, contaminant distribution characterization, geochemical parameters, and the sampling and analysis program.
(98RC06-002) (S. Acree(SPRD)580-436-8609)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Jorgensen, E.E., P.M. Mayer, A.E. West, and M.E. Gonsoulin (SPRD), and S.J. Tunnell, J.E. Clark, J.L. Parsons, D.M. Engle, and E.C. Hellgren (Okla. St. Univ.). ì Early Indicators of Nitrate Stress; Effects to Ecosystems of Chronic Exposure to Low Doses of Bioavailable Nitrogen.î Proceedings of the National TMDL Science and Policy Conference, Water Environment Federation, Phoenix, Arizona. 2002.
(E. Jorgensen(SPRD)580-436-8545)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center
Status Report for the Week of December 2, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region V: On November 26, 2002, Dr. David Jewett (SPRD) and Dr. Mingyu Wang and Abu Noman Ahsanuzzaman (ManTech) provided RPM Lolita Hill with a review of a conceptual model technical memorandum for the Chem-Dyne Superfund Site in Hamilton, OH. It was not clear whether the modeling scenarios would involve steady-state or transient simulations. Issues discussed in detail included the model grid spacing, horizontal layers in the ground-water flow and contaminant transport model, boundary conditions, values for a number of model parameters, and the variability of the storage coefficient.
(01-R05-001) (D. Jewett(SPRD)580-436-8560)

Technical Assistance to Region IX: During November 20-22, 2002, Dr. David Jewett (SPRD) attended a technical review meeting in Clear Lake, CA, to discuss the Sulphur Bank Mercury Mine Superfund Site. Others attending the meeting were representatives from U.S. EPA Region 9, U.S. EPA ORD, USACE, Tetra Tech, USFWS, CA DTSC, LANL, Lake County officials, and the Elem Colony and their representatives. The purpose of the meeting was to review and discuss activities proposed for FY03 and FY04 at the site.
(97-R09-006) (D. Jewett(SPRD)580-436-006)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Wilkin, Richard T. and R.G. Ford (SPRD). ìUse of Hydrochloric Acid for Determining Solid-Phase Arsenic Partitioning in Sulfidic Sediments.î Environmental Science and Technology. Vol. 36 (No. 22). 2002.

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

An, Youn-Joo (ORISE), Donald H. Kampbell (SPRD), and G. Peter Breidenbach (ManTech). ìEscherichia Coli and Total Coliforms in Water and Sediments at Lake Marinas.î Environmental Pollution. Vol. 120. 2002. Published by Elsevier Science Ltd.

(D. Kampbell(SPRD)580-436-8564)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of December 16, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: On December 9, 2002, Dr. Randall Ross (SPRD) and Dr. Milovan Beljin (Dynamac consultant) provided RPM Darryl Luce with review comments on a ìDraft Revised Groundwater Model Summaryî for the Dover Municipal Landfill Superfund Site in Dover, NH. In general, the revised model was found to be an improvement over the previous version, however, there was no comparison of the two models and no explanation as to why the two models are conceptually different. The revised model may better represent site conditions considering the additional data that had been collected since the original model was developed. Detailed comments were offered with respect to the need to define the objectives of the modeling exercise in detail, the use of the model to identify data gaps, recharge rates, and boundary conditions.
(02-R01-006) (R. Ross(SPRD)580-436-8611)

Technical Assistance to Region I: On December 11, 2002, Steven Acree (SPRD) and Drs. Robert Dover and Ram Arora (Dynamac Consultants) provided Christopher Pyott (MDEP) with a review of an ìInitial Screening Evaluation (ISE) Off-Property West Ditch Study Areaî for the Olin Chemical Site in Wilmington, MA. The purpose of the review was to evaluate identified remedial alternatives and determine if additional alternatives should be considered to meet site objectives. Comments on data gaps were also provided, relating to the site conceptual model, which should be considered in the remedial alternative evaluation process.
(02-R01-001) (Steven Acree(SPRD)580-436-8609)

Technical Assistance to Region X: On December 3, 2002, Dr. Randall Ross and Steven Acree (SPRD) and Dr. Milovan Beljin (Dynamac consultant) provided RPM Lee Marshall and Hydrogeologist Bernie Zavala with a review of two documents prepared for the Boomsnub/Airco Superfund Site in Hazel Dell, WA. The documents discussed a ground-water modeling technical approach and a removal action work plan. Among the issues discussed were the use of modeling as a guide in prioritizing future data collection, model parameters, and model calibration and limitations. It was also pointed out that there was no discussion of any aspects of performance verification and monitoring criteria with respect to the proposed remedial technologies.
(03-R10-001) (R. Ross(SPRD)580-436-8611)

SCIENTIFIC AND TECHNICAL PUBLICATIONS

Heron, Gorm (SteamTech Environmental Services), John S. Gierke (Michigan Technological University), Barton Faulkner, Susan Mravik, and Lynn Wood (SPRD), and Carl G. Enfield (NRMRL). ìPulsed Air Sparging in Aquifers Contaminated with Dense Nonaqueous Phase Liquids.î Ground Water Monitoring & Remediation. Vol. 22, No. 4. Fall 2002.
(B. Faulkner(SPRD)580-436-8530)

H I G H L I G H T S

National Risk Management Research Laboratory
Subsurface Protection & Remediation Division
Robert S. Kerr Environmental Research Center

Status Report for the Week of December 30, 2002

TECHNICAL ASSISTANCE

Technical Assistance to Region I: In a continuing technical assistance effort at the Resolve Superfund Site in Dartmouth, MA, Dr. Scott Huling (SPRD) and Dr. Bruce Pivetz (ManTech) provided RPM Joseph Lemay with comments and recommendations regarding questions raised about a ìBio-Filter/Phytobed Pilot Field Sampling and Analysis Planî which was prepared for the site. Comments were offered on December 20, 2002, with respect to microcosm results, number and depth of soil cores, and sampling for VOCs, PCBs, and metals. It was suggested that finalization of the soil sampling program be deferred until data is collected during the preliminary operation of the bio-filter phytobeds.
(01-R01-002) (S. Huling(SPRD)580-436-8610)

Technical Assistance to Region I: On December 20, 2002, Dr. Randall Ross (SPRD) and Dr. Milovan Beljin (Dynamac Consultant) provided RPM Darryl Luce with a review of the ìDraft Summary of Fate and Transport Parametersî report prepared for the Dover Municipal Landfill Superfund Site in Dover, NH. It was suggested that the simplifying assumptions used in the modeling study will limit its utility in that potential hydraulic impacts to the site such as a treatment trench, sheet piling, and landfill cap were ignored. It was also suggested that the objectives of the solute transport modeling should be specified in detail in the introduction along with a list of contaminants under consideration.
(02-R01-006) (R. Ross(SPRD)580-436-8611)

Technical Assistance to Region IX: On December 18, 2002, Dr. David Jewett (SPRD) provided RPM Bonnie Arthur with a review of a ìDraft Groundwater Conditions Work Planî for the Yerington Mine Site in Yerington, NV. The purpose of the document was to provide a work plan for field investigations evaluating ground-water flow and the potential impacts of mine wastes and former mining operations on ground-water quality. Concerns were expressed about the conceptualized direction of ground-water flow, the level of detail provided in the discussion of specific activities, and the lack of attention paid to ground-water conditions under potential source areas. In addition, the work plan provided limited details on many field activities including the proposed drilling, soil/aquifer material sampling, monitoring well construction, and soil moisture and calibration methods. Detailed comments were provided with regard to a wide variety of issues.
(01-R09-004) (D. Jewett(SPRD)580-436-8560)

Technical Assistance to the Hawaii Department of Health: On December 24, 2002, Steven Acree (SPRD) and Drs. Hai Shen and Daniel Pope (Dynamac) provided Laura Young (HDH) with comments concerning proposed treatability studies at the former GASCO Benzine Site in Honolulu, HI. General comments focused on the location of the pilot test, characterization of the vertical extent and distribution of contaminants, design and location of multi-level monitoring wells, displacement of ground water and contaminant migration during in-situ air sparging, and types of evaluations used in the interpretation of system effectiveness. A number of specific comments were also provided.
(02RC09-001) (S. Acree(SPRD)580-436-8609)

TECHNICAL PRESENTATIONS

Dr. Scott Huling (SPRD) made a presentation in Chicago, IL, during a December 10-12, 2002, conference titled ìIn Situ Treatment of Groundwater Contaminated with NAPL: Fundamentals and Case Studies.î The presentation, ìIn-Situ Fenton Oxidation: A Critical Analysis,î included a discussion of the fundamental chemistry of Fenton oxidation, bench-scale applications, and mass transport processes. There were 300 registrants for the meeting and the presentations were broadcasted over the internet via simulcast where more than 300 attendees participated.

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

Striz, Elise and Paul Mayer (SPRD). ìUse of Continuous Dataloggers to Assess the Temporal and Spatial Variation of Ground Water/Surface Water Interaction Before and After Stream Restoration,î poster presentation at the 2002 National Ground Water Association Expo, Dec. 8-11, 2002, Las Vegas, NV.

(E. Striz(SPRD)580-436-8594)