

David G. Dixon, P.G. Principal Geologist

Technical Specialties:

Twenty-three years of experience managing and conducting complex characterization and remediation projects, industrial facility permitting and closures, pre-acquisition site assessments, Brownfields redevelopment, litigation support and expert testimony, and environmental regulatory compliance audits.

Experience Summary:

Focused on evaluating, characterizing, and cleaning up contaminated sites including many sensitive ecological sites such as wetlands, National Parks, and wildlife refuge and waterfront sites. He organized, moderated and been a panelist at several National Brownfields Conferences and served on their educational session selection committee. Mr. Dixon has assisted clients to prepare Brownfield grant applications, Brownfields Phoenix Award applications, to manage grants, and was the project manager on the Stockton Event Center, the 2008 EPA Region 9 Phoenix Award winner. He is also on the Restoration Advisory Board (RAB) for the former Hamilton Air Base in Novato, California. He has managed cleanup projects for industrial, commercial, residential, school, hospital, recreation, wildlife refuge, and national park uses.

Mr. Dixon also has extensive experience with groundwater issues, including aquifer testing, extraction, and chemical and bioremediation technologies.

Credentials:

M.I.M., Master of International Management (Accounting and Business Management), Schiller International University, Heidelberg, Germany, 1986

B.A., Earth Sciences (Geology), University of California, Santa Cruz, 1985

Professional Geologist in California, 2000

California Class A General Engineering Contractors License #839723 with Hazardous Substance Removal Specialty, 2004

Continuing Education:

Hazardous Materials Fate and Transport, University of California, Berkeley

Asbestos Management, University of California, Berkeley

Hazardous Materials Management, University of California, Berkeley

Environmental Auditing, University of California, Santa Cruz

Chemistry of Hazardous Materials, University of California, Berkeley

EPA- and OSHA-approved courses in Supervisory Health/Safety, and Confined-Space Work

Resource Conservation and Recovery Act, Part B Permit training course

Toxic Substances Control Act Regulations training course

Recent Publications and Presentations:

2011 Panel Organizer/Presenter "Metrics of Brownfield Developments" National Brownfields Conference 2011. Philadelphia, PA

2010 Publication "In-Situ Chemical Oxidation and Enhanced Anaerobic Biodegradation of a PCE Plume". Paper published in the proceedings of Battelle's 7th International Conference on Remediation of Chlorinated and Recalcitrant Compounds (with Dustyne Sutherland). October

2010 Publication "Revitalizing an Urban Industrial Waterfront" Article in Brownfield Renewal Magazine. February.

2010 Presentation "In-Situ Chemical Oxidation and Enhanced Anaerobic Biodegradation of a PCE Plume" Battelle's Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA. May

2009 Presentation "Strategies to Pursue Sustainable Brownfield Redevelopment: The City of Stockton, CA " RTM conference on Sustainable Property Transactions: Reconfiguring the Business of Contaminated Site Redevelopment. San Francisco, CA. October

2009 Presenter/Panelist "The Role of Community Planning in Brownfields Development" National Brownfields Conference 2009. New Orleans, LA

2005 Panel organizer/moderator and presenter "From Fields to Fallow: Characterizing Agricultural Property," National Brownfields Conference 2005. Denver, CO

Key Projects:

Brownfield Project Experience

- Brownfields Site Assessment, Cleanup and Redevelopment, Stockton Redevelopment Agency.
 - 2008 EPA Region 9 Phoenix Award Winner

Project manager for environmental characterization and cleanup at the Stockton Event Center on 10 parcels planned for redevelopment in Stockton, California. Redevelopment included a baseball stadium, indoor sports arena, hotel and retail stores. The parcels about the Stockton ship channel and were previously used for fuel storage, paint manufacturing, shipbuilding, and light industry. Helped prepare the initial Phase I Site Assessments, conducted soil and groundwater investigations, and prepared a Remedial Action Plan (RAP) for the DTSC, focusing on issues that could impact development of the properties. Retained by the City to manage all environmental aspects of the \$80 million development, including permitting, closure of UST remediation programs, RAP compliance and cleanup. The cleanup was conducted on a short time frame as part of the mobilization and re-development process. Additionally, we assisted the Agency in preparing a Brownfield Phoenix Award the application for the project.

- Brownfields Redevelopment of the First LEED Platinum College Campus worldwide. Newark, California.
 - Brownfields Cleanup Grant Recipient
 - Winner of EPA's Environmental Hero Award

Project manager for the characterization and cleanup for an 80-acre former agricultural site planned for the new Ohlone Community College Campus. The characterization work identified pesticides in soil exceeding regulatory agency guidance for school sites and we subsequently assisted the school district negotiate a voluntary cleanup agreement with the California DTSC. Site documents prepared included investigation reports, a Removal Action Work Plan, a Risk Assessment, a Brownfields Work Plan and a Quality Assurance Project Plan. Evaluated multiple remedial options, which included bench testing new remedial technologies for pesticide remediation. Completed the cleanup to unrestricted use criteria. Additionally, Mr. Dixon took the lead in helping the district obtain a \$200,000 USEPA Brownfields cleanup grant for the site, one of only two cleanup grants awarded to school districts nationwide in 2004.

- Waterfront Brownfield Development, US Steel Facility, South San Francisco, California

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Managed the remediation of the former U.S. Steel manufacturing facility, which included 47 onshore and 120 offshore acres in South San Francisco, California under the oversight of the Regional Water Quality Control Board (RWQCB). Managed the removal and on-site stabilization and entombment of over 60,000 cubic yards of lead- and hydrocarbon-contaminated soil and over 10,000 cubic yards of concrete debris contaminated with metals, hydrocarbons, and polychlorinated biphenyls (PCBs). Specific tasks included preparing bid specifications, work plans, Storm Water Pollution Plans and reports, regulatory agency permitting and negotiations, assessing the risks associated with lead contaminated soil, and managing the stabilization of lead impacted soil using pH stabilization and chemical reagent technologies.

- Brownfield Remediation at Maritime Sites, Mare Island, Vallejo, California

Managed the remediation and cleanup verification sampling at four sites at the former Mare Island Naval Base proposed for redevelopment or re-use at designated historic resource buildings. The sites included petroleum hydrocarbon, metals and PCB contamination. Prepared remedial planning documents for the DTSC, RWQCB and USEPA review. One of the Buildings is a designated historic resource. This cleanup has been completed and the final cleanup documents are being prepared.

- Site Characterization for Redevelopment at Piers 92 and 94, Port of San Francisco

Managed a baseline soil and groundwater characterization for a private client proposing to develop an industrial facility on Port Property. In order to facilitate the client's lease agreement with the Port the investigation focused on establishing levels of existing contamination, and on estimating the extent and cost of remediation required for the proposed site development.

- Hospital Development on Agricultural Land, Merced, California

Managed the characterization of a 30-acre former agricultural site that was proposed for development as a hospital. Designed and conducted a site characterization plan in conformance with appropriate regulatory guidance. The investigation identified only one location with pesticides in soil exceeding regulatory agency guidance for hospital sites. Presented the hospital developer with and evaluation potential cleanup options, which could occur when the site is developed.

- Characterization and Cleanup of Pesticide and Lead impacted soil for the beneficial re-use of a National Historical Landmark Building, Presidio National Park, San Francisco, CA

Project manager for hazardous materials and waste assessment and cleanup at the Public Health Services Hospital (PHSH) area at the Presidio of San Francisco. The assessment included the main 180,000 square foot hospital building planned for residential re-use and several smaller adjacent buildings. Our scope included reviewing existing survey reports, conducting new lead paint and asbestos surveys, and soil and groundwater investigations to assess the scope and cost of the reuse project. We developed bid specifications for the hazardous materials abatement, met with regulators to develop plans to address lead based paint in soil and pesticide

impacted soil, supervised the soil cleanup and received Site Closure.

- EPA Brownfields Assessment Grants for Hazardous Material and Petroleum Sites.

Mr. Dixon managed the USEPA Brownfields Assessment grants for hazardous materials and petroleum hydrocarbons for the City of San Pablo, California. The project tasks include:

- Conducting a Brownfields Inventory along a six mile corridor that encompasses the City's traditional commercial and heavy industrial areas and integrating these results with City's graphical interface system (GIS).
- Preparing relative risk categories and criteria to screen the inventory for known or likely hazardous material impacts in soil, groundwater or soil gas and selecting up to 24 sites for Phase I Environmental Site Assessments (ESAs). This step uses the hazardous materials impact ranking along with planning, zoning and redevelopment plan information from the City and other stakeholders;
- Conducting Phase I and Phase II ESAs and supporting documents. The Phase II selection will be influenced with input from the City, the USEPA and other stakeholders;
- Assisting the City with its EPA grant reporting requirements.

In December 2009 Treadwell & Rollo finalized the contract with the City for this project and are currently completing the hazardous material impact ranking.

- Multi-Parcel Hazardous Material Site Inventory for Redevelopment and Zoning in Newark, California

Project manager for hazardous material evaluation and geotechnical site assessments for two separate projects in the City of Newark consisting of 44 parcels over 680 acres. We conducted environmental site assessments and identified sites with potential development restrictions and/or cost impacts due to identified contamination and geotechnical issues. The sites were predominantly auto service, salvage and manufacturing related, and included Area 4 and groups of parcels in central Newark. The work was performed to help the Redevelopment Agency assess to feasibility of redeveloping industrial, commercial, or agricultural areas for residential, school or commercial uses.

Litigation Support and Expert Testimony Experience Includes:

- Litigation Support for Air Toxics Class-Action Suit
On behalf of the facility, researched and evaluated hazardous and toxic emissions from an aerospace production facility to support the defense of a class-action litigation brought by neighbors of the facility. Obtained data through regulatory agency reviews, Freedom of Information Act filings and interviews. The scope included collecting and analyzed soil samples at neighborhood sites to evaluate potential soil impacts.
- Site Characterization and Expert Testimony, Site Characterization and Cleanup Costs

Characterized the extent of a subsurface formaldehyde plume using soil borings, backhoe test pits, and trenches. Supervised the excavation, transportation, and remediation of the contaminated soil. Provided expert testimony and assisted the client's legal counsel in preparing the case to recover cleanup

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costs from the responsible party under the Comprehensive Environmental Response, Compensation, and Liabilities Act regulations.

- Expert Witness and Litigation Support, Site Characterization and Valuation in Eminent Domain

Assisted with the litigation support and was the expert witness for a Municipality conducting an eminent domain property acquisition. The site had known releases of hazardous materials to soil and a multi-zone groundwater plume. Reviewed the results of previous investigations, identified data gaps and conducted a soil and groundwater investigation. Created a site conceptual model and prepared remedial estimates.

- Litigation Support, Site Characterization and Remediation Estimating

Assisted with the litigation support for a property owner seeking to recover cleanup costs from historic hazardous material releases originating from a railroad line at the site. Reviewed the results of previous investigations, identified data gaps, conducted a soil and groundwater investigation, developed a site conceptual model with detailed cross sections and prepared remedial estimates. A focus of the investigation was to determine the forensics of how the rail lines and associated subsurface improvements facilitated the migration of the contamination. The investigation included conducting soil borings and digging multiple 18-foot deep trenches across the rail lines to identify the presence and extent of pipelines, gravel backfill and to map soil discoloration.

Characterization and Remediation at Ecologically Sensitive Areas Includes:

- Groundwater Monitoring and Evaluation, Presidio of San Francisco

Project manager for a multi-year groundwater monitoring program encompassing this 1,200-acre former military base. Developed the schedule and budget to collect groundwater samples from over 150 wells at nineteen sites on a quarterly basis, with detailed quarterly and annual reports prepared for state and federal agencies. Also used a network of electronic dataloggers to provide information for a hydrologic study to determine the viability of restoring filled in streams to their native state. Managed the fieldwork and office analysis, as well as additional task-order contracts including tidal influence studies and site-specific investigations.

- National Park Service, PA and RI/FS for Pesticide Diesel and Solvent Impacted Soil

Managed and conducted a preliminary assessment and RI/FS according to federal guidelines at three sites in Volcano National Park in Hawaii. The sites were suspected of having diesel, solvent, and herbicide contamination; two of them were found to be contaminated, and remediation work plans were prepared. No further action was required at the third site.

- Shotgun Shooting Range Characterization and Remediation, Newark, California

Managed the soil characterization, agency negotiation and remediation at an 18-acre former shotgun shooting range heavily impacted with lead shot in Newark, California. Negotiated the scope of the remedial work and cleanup concentrations with regulatory oversight agencies such as the Regional Water Quality Control Board and the Army Core of Engineers (half the site are designated wetlands). Early in the

process we obtained agency concurrence that groundwater was not impacted, and no groundwater monitoring would be required. Prepared a remedial work plan, a remedial bid specification package and obtained and evaluated bids from remedial contractors. Developed and implemented a remedial feasibility study for lead shot recovery. Managed the excavation, waste characterization, onsite treatment of RCRA hazardous waste, and waste disposal tasks. Using global positioning system (GPS), laser levels and specialized grading equipment, the several acres remedial area was excavated to within 0.5-inch accuracy. Maintaining these tight excavation tolerances resulted in reducing soil volumes and saving the client time and money.

- RI/FS and Remedial Action at Yosemite National Park

Managed and conducted remediation and cleanup verification sampling at a PCB-contaminated electrical substation in an ecologically sensitive area in Yosemite National Park in California. Participated as a team member on the remedial investigation/feasibility study (RI/FS). The investigation was conducted according to state and federal guidelines in response to an Environmental Protection Agency corrective action order. Rigid health and safety measures and decontamination procedures were adhered to throughout the project. Wrote the site closure report and achieved case closure (no further action) from the EPA.

Industrial Facility Project Experience Includes:

- Site Characterization, Facility and RCRA unit Closure, Remedial Estimating and Oversight, San Carlos, California

Managed all aspects of the site characterization, remedial feasibility study, facility and RCRA closure at a 55-year old 18-acre industrial facility. Assisted the client in negotiating a liability transfer agreement as part of the sale of the facility, and am conducting the third party oversight of the >\$8,000,000 remediation to unrestricted use criteria on behalf of the former facility owners and operators. A hospital is proposed for construction at the Site. The Site had soil impacts of metals, chlorinated compounds petroleum hydrocarbons, and PCBs. Groundwater impacts included 5 plumes of chlorinated compounds (primarily TCE) and a plume of gasoline and metals. The facility assessment and closure included evaluating historical and current hazardous waste and material storage and use and evaluating waste streams (there were over 30 RCRA units and areas of concern). Third party oversight is continuing, with substantial amounts being funded by the cost cap insurance policy.

- Characterization, Cleanup and Natural Attenuation Monitoring of TCE Plume. Santa Clara, CA.

Senior manager and technical oversight for the characterization, remedial alternatives evaluation, remedial design and implementation of a two zone groundwater plume of TCE and associated daughter products. The oversight agency was the RWQCB. The plume extended below an onsite and offsite active manufacturing facilities. The remediation program included chemical oxidation followed by enhanced anaerobic biodegradation. The remediation program succeeded at reducing PCE in groundwater with an average baseline concentration of 45,000 micrograms per liter (µg/L) to below reporting limits within a year. The Site currently has several years of post-remediation groundwater monitoring and of natural attenuation parameter assessment.

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- Air Toxic Evaluation and Regulatory Permitting, Thousand Oaks, California

Managed an environmental compliance audit at a large aerospace research and production facility to identify air toxic emission types and volumes in conformance with AB 2588 and emission fee billing regulations. Helped the facility comply after up to seven years of noncompliance, and negotiated a reduction of fees and penalties with the South Coast Air Quality Management District. Tasks included inspecting the facility, analyzing production processes, reviewing chemical purchase, recycling and disposal records, and preparing AB 2588 inventories, reports, and emission fee billing forms. Served as prime regulatory agency contact.

- Characterization and Evaluation at the Former Dow Chemical (DowElanco) Agricultural Research Facility, Davis, California.

Reviewed and evaluated site use history and soil and groundwater characterization reports to determine the completeness of the site characterization and the appropriateness of various site uses and land use restrictions. The evaluation included preparing recommendations regarding the need for additional investigations based different land use scenarios. This work is being conducted for the current owner and is ongoing.

- Facility Audit and RCRA Closure and Demolition Plan, Palo Alto, California

Managed a pre-demolition environmental assessment and oversaw and abatement at a 25-year old machinery and silicon chip manufacturing facility. The assessment included evaluating historical and current hazardous waste and material storage and use, and determining the extent of onsite lead paint, PCB, and asbestos containing materials, and evaluating waste streams. Assisted the client in developing bid specifications for abatement and demolition, and in evaluating bid responses and the results of the work. Prepared a demolition activities report which presented the audit results and identified all permits and agency notifications required for demolition. Negotiated with regulatory agencies (there were onsite RCRA units and known impacts to soil and groundwater) during the preparation of a facility closure and contingency plan, and prepared a closure report for the site.

- Characterization and Evaluation at the Former Dow Chemical (DowElanco) Agricultural Research Facility, Davis, California.

Reviewed and evaluated site use history and soil and groundwater characterization reports to determine the completeness of the site characterization and the appropriateness of various site uses and land use restrictions. The evaluation included preparing recommendations regarding the need for additional investigations based different land use scenarios. This work is being conducted for the current owner and is ongoing.

- Preliminary Assessment and Remediation for East Bay Municipal Utility District

Investigated and helped characterize the extent of lead- and PCB-contaminated sandblast grit at over 100 sites, of which approximately 70 required remediation, for the East Bay Municipal Utility District in California. Researched regulations and disposal options, developed remedial techniques, supervised the removal of sandblast grit and

impacted soil, and helped coordinate the consolidation and removal of hazardous waste.

- Environmental Compliance Audit, SWPPP and HMMP preparation, PakTank Bulk Oil Storage Facility, Richmond, California

Prepared SPCC plans for marine oil terminals, food processing, and industrial facilities in order to bring above-ground storage containers into compliance with the applicable federal regulations at various sites in California and Oregon. Developing the plans included conducting facility audits, calculating potential spill volumes and flow paths, designing above- and below-ground containment basins, and working with facility management to implement the various aspects of the plans. Prepared plans for bulk storage tanks, electrical transformers, and hazardous material and waste storage areas.

- Environmental Site Assessments and Compliance Audits

Managed environmental site assessments and audits at over 60 sites. The projects included reviewing regulatory records, aerial photographs and results of previous investigations; conducting asbestos surveys and regulatory compliance audits; evaluating properties for potential liability due to hazardous waste contamination; and preparing remedial cost estimates. Assessments were performed at manufacturing facilities for semiconductors, clothing, food products, and building materials, and at gasoline stations, auto and truck repair facilities, machine shops, dry cleaners, mixed-use business parks, and shopping malls.

- Storm Water Pollution Prevention Plans

Prepared Storm Water Pollution Plans (SWPPPs) for construction and environmental remediation sites. The work included evaluating drainage and calculated storm run off potential, working with contractors and civil engineers to determine the best management practices (BMPs) to be implemented on a site specific basis, generating engineering drawings and plans. The work also included training onsite personnel in the implementation and monitoring requirements of the SWPPPs.

- Spill Prevention, Containment, and Countermeasure Plans

Prepared SPCC plans for marine oil terminals, food processing, and industrial facilities in order to bring above-ground storage containers into compliance with the applicable federal regulations at various sites in California and Oregon. Developing the plans included conducting facility audits, calculating potential spill volumes and flow paths, designing above- and below-ground containment basins, and working with facility management to implement the various aspects of the plans. Prepared plans for bulk storage tanks, electrical transformers, and hazardous material and waste storage areas.

- Underground Storage Tank Location and Contaminant Source Identification

Managed and conducted multiphase tank location and site characterization projects in order to determine contaminant sources and migration pathways at many sites in California. Employed ground-penetrating radar and electromagnetic detectors in the field, and performed trenching, soil borings, and soil and groundwater sampling. Sampled tank contents to identify and appropriately classify it as a waste or recyclable material.