Michael B. Marsden, P.G., C.Hg.
Principal Hydrogeologist

Technical Specialties:
Twenty-three years of environmental consulting experience including hydrogeologic analysis, complex site assessment and remediation, project management, litigation support, regulatory compliance, financial auditing, and insurance claim evaluation.

Experience Summary:
Mr. Marsden's experience covers environmental pollutants such as solvents, petroleum hydrocarbons, lead, arsenic, chromium, MGP wastes and pesticides in both soil and groundwater. Mr. Marsden has completed numerous extensive remedial investigations. He assisted in the design and installation of soil and groundwater remediation systems and supervised the analysis of groundwater flow and transport models. . Mr. Marsden has conducted complex hydrogeologic investigations and conducted evaluations of surface water and groundwater interaction using analytical tools including groundwater geochemistry, stable isotopes, hydrostratigraphic interpretation and aquifer test analysis. Mr. Marsden has managed litigation support for cases involving allocation of responsibility, insurance claims, and owner/tenant disputes over sites affected by solvents, metals, MGP wastes and fuel leaks. Mr. Marsden has coordinated efforts between attorneys and assisted in case strategy development and trial preparation. Mr. Marsden has been designated as a technical expert, been deposed and testified in court.

Credentials:
B.S., Hydrogeology, San Diego State University, 1987
A.S., Earth Science, Modesto Junior College, 1984
Professional Geologist: California, No. 6536
Certified Hydrogeologist: California, No. 566

Professional Organizations:
Groundwater Resources Association
National Ground Water Association

Publications:
Use of Flowing Artesian Well to Determine Aquifer Transmissivity, San Diego State University Senior Thesis, 1987

Professional Training and Certifications:
Biodegradation of Halogenated Hydrocarbons (solvents), 1989 Contaminant Fate and Transport, 1992 Modflow Numerical Modeling, 1992
Risk-Based Corrective Action (RBCA) 15-hour Training Course, 1996. Natural Resource Damage Litigation, February 2006 Groundwater Law Conference, June 2007
Climate Change: Implications to California Groundwater Management, August 2008 Emerging Contaminants, November 2008
Groundwater Monitoring: Design, Analysis, Communication & Integration with Decision Making; GRA
Conference, February 2009 40-hr HAZWOPER and 8-hr Supervisory Training (updated annually)

Key Projects

- Project Manager for an insurance coverage claim portfolio relating to past costs for reclamation of uranium mines in New Mexico and a mercury mine in Arizona. Mr. Marsden was responsible for overseeing review of all discovery documents, preparation of site chronologies, review and analysis of deposition and trial testimonies, and evaluation of past costs including development of expert opinions.
- Project Manager for an insurance coverage claim relating to environmental damages arising from the historical operations of a manufacturing and testing facility near Mesa, Arizona. Mr. Marsden conducted a technical evaluation of soil and groundwater impacts of various VOCs and perchlorate. Mr. Marsden was responsible for categorizing and evaluating the reasonableness of past and future costs.
- Project Manager and technical expert relating to environmental damages arising from the historical operations of a bulk fueling facility in Pleasant Hill, California. Mr. Marsden conducted fate and transport evaluation of petroleum hydrocarbons to assess the nature and timing of releases and the possible contribution to the groundwater beneath neighboring residential area.
- Project Manager and expert for an insurance coverage claim relating to environmental damages arising from the historical operations of a dry cleaning facility in Las Vegas, Nevada. Mr. Marsden conducted fate and transport evaluation of PCE through the unsaturated and saturated zones to assess the nature and timing of releases and the possible contribution of other parties to the groundwater plume.
- Project Manager and expert for an insurance coverage claim relating to environmental damages arising from the operations of a chrome plating facility in East Syracuse, New York. Mr. Marsden was retained first as a consultant to evaluate various technical defense arguments and assess the need for technical experts. Mr. Marsden was later retained to provide expert opinions on the nature, number, and timing of releases at the site and the possible contribution of the releases to the surrounding environmental contamination. Mr. Marsden testified in New York State Court as a technical expert or the plaintiff in this matter.
- Project Manager and expert for an insurance coverage claim relating to the environmental damages arising from the operations of a solvent repackaging facility in La Mirada, California. Mr. Marsden was responsible for categorizing and evaluating the reasonableness of past costs and projecting future costs. Mr. Marsden conducted an assessment of the contribution and possible allocation of costs associated with site-specific groundwater contamination to a larger regional groundwater contaminant.
- Project Manager for an insurance coverage claim relating to environmental damages arising from the operations of several dry cleaning facilities in Northern and Southern California. Mr. Marsden was responsible for categorizing and evaluating the reasonableness of past costs. Mr. Marsden conducted an ongoing reasonableness evaluation of the investigation and remedial strategies of the insured's consultant.
- Project Manager and expert for an insurance coverage claim relating to environmental damages arising from the operations of a dry cleaning facility in Sonoma, California. Mr. Marsden was responsible for categorizing and evaluating the reasonableness of past costs and projecting future costs. Mr. Marsden conducted an ongoing reasonableness evaluation of the investigation and remedial strategies of the insured's consultant.
- Project Manager and expert for an insurance coverage claim relating to the environmental damages arising from the operations of a uranium enrichment facility in Missouri. Mr. Marsden was responsible for categorizing and evaluating the reasonableness of past costs and projecting future costs. Mr. Marsden conducted an assessment of the contribution and allocation of costs associated with solvent contamination of the soil and groundwater to the comingled (solvent and radionuclide) contaminants.

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- Project for an insurance coverage claim relating to environmental damages arising from the discharge of radioactive wastes to a municipal sewer system in Portland, Oregon. Mr. Marsden was responsible for categorizing and evaluating the reasonableness of past costs.
- Project Manager for an insurance coverage claim relating to environmental damages arising from historical operations of mining activities across northern Idaho. Mr. Marsden is responsible for evaluation of future costs, developing technical defense strategies, overseeing review of all discovery documents, preparation of site chronologies, evaluation of fact and expert witnesses, assessing industry knowledge, and review and analysis of deposition and trial testimonies associated with CERCLA investigation and remediation and the nearly $1 billion natural resource damage claim.
- Project Manager for cost allocation dispute for commingled solvent plume at site in Silicon Valley. Managed and conducted the evaluation of large volumes of historical data including aerial photographs, technical reports, facility records, and deposition testimony. Mr. Marsden conducted analysis of the effects of depositional environment on contaminant fate and transport. Mr. Marsden developed technical arguments to assist client in cost recovery action. Participated in strategy meetings with attorneys and managed the preparation of expert reports, rebuttal reports, deposition testimony, and trial preparation.
- Project Manager for an insurance claim mediation relating to the remedial approach and costs associated with a groundwater solvent plume in the LA Basin. Mr. Marsden was responsible for analyzing the technical data associated with soil and groundwater impacts, regulatory issues involving the Regional Water Quality Control Board and DTSC, evaluation of the various proposed remediation approaches and providing opinion as to reasonable future costs to achieve site closure. Mr. Marsden participated in strategy meetings with attorneys and the Mediator and managed the preparation of an expert report.
- Project Manager for litigation support to corporate counsel provided litigation support for cost allocation mediation, insurance recovery mediation, and tax assessment negotiations related to a chlorinated solvent impacted site. Developed cost allocation approach and provided support in preparing
- Project Manager for an insurance coverage claim relating to natural resource damages (NRD) arising from historical industrial operations in Commencement Bay, Washington. Mr. Marsden is responsible for the evaluation of the technical process and reasonableness associated with habitat equivalency analysis (HEA) and the development of discount service acre years (DSAYs) used in valuing the NRD claim. Mr. Marsden was responsible evaluating the technical process utilized and educating Counsel and Insurer regarding the approach.
- Project Manager for an insurance coverage claim relating to natural resource damages (NRD) arising from historical operations of mercury mining activities in Northern California. Mr. Marsden is responsible for the evaluation of the technical process and the reasonableness and necessity of costs associated with habitat equivalency valuation used in valuing the NRD claim.
- Project Manager for an insurance coverage claim portfolio relating to environmental damages arising from historical operations of former MGP facilities across the state of Kansas. Mr. Marsden is responsible for overseeing review of all discovery documents, preparation of site summaries and chronologies, and the evaluation of future costs for environmental activities.
- Project Manager for an arbitration relating to the transfer of petroleum impacted sites in California between petroleum marketers. Mr. Marsden was responsible for evaluating the technical data associated with soil and groundwater impacts of total petroleum hydrocarbons, BETX, MTBE, and TBA and preparing expert opinion reports for use in the arbitration.
- Project Manager for technical analysis in support of expert opinion for case involving the environmental impacts of carbon tetrachloride contamination on groundwater and surface water from a major chemical manufacturer RCRA facility in Northern California. Mr. Marsden conducted an analysis of the distribution, possible sources, and fate and transport of contaminants at the site.
- Project Manager for an insurance coverage claim portfolio relating to environmental damages arising from historical operations of power generation facilities including former MGP sites across several states. Mr. Marsden is responsible for overseeing review of all discovery documents, preparation of site chronologies, and evaluation of past costs.
- Managed and provided technical analysis in support of ongoing litigation at several former and active petroleum refineries across California and Canada and at several chlorinated solvent sites across Silicon Valley. Coordinated staff review, attended strategy meetings with attorneys, assisted with deposition, expert report preparation, and preparation for trial.
- Project Manager for technical analysis in support of expert opinion and testimony for case involving a claim against a major petroleum company and the potential impact of an oil production field in the Central Valley on groundwater quality.
- Client Director for PG&E projects, overseeing technical and management issues associated with several former PG&E Power plants, MGPs and surplus properties. Issues include Phase I/II investigations of surplus properties, evaluation of technical issues petroleum hydrocarbons, PAHs, and metals in soil and groundwater, removal actions for soil impacted with metals, regulatory negotiations with offices of the DTSC, RWQCB, and county agencies, and support to in-house and outside counsel.
- Project Manager for Coatings Manufacturing Facility, North San Francisco Bay. Managed multiple complex stages of remedial investigation and restoration. Investigated the extent of arsenic and solvents in soil, ground water and surface water. Responsible for the selection, pilot testing and ongoing operation of groundwater remediation system. Participate in ongoing meetings with working group that includes regulators, community groups and representatives of surrounding property owners to assist client with strategy development, public relations and agency negotiation.
- Program Manager for Navy Clean II projects in Northern and Southern California. Managed project's team and was primary liaison with the Prime Contractor. Negotiated scopes of work and budgets with Prime Contractor and assisted with preparation of work plan cost estimates. Supervised and coordinated the performance of Contract Task Orders (CTO). Assisted the client in designing site investigations and

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developing site strategies. Provided technical review and QA/QC for documents and other deliverables.

- Project Manager for surface water/groundwater interaction at two Navy bases in Southern California. Conducted investigations of the groundwater systems at the Bases evaluating the distribution of contaminants including fuels, MTBE, metals and solvents. Performed an evaluation of the interaction between the surface water and groundwater systems geochemistry, stable isotopes, hydrostratigraphic interpretation, channel morphology, stream gauging, tidal studies, aquifer test analysis, and saltwater intrusion studies. Developed conceptual models of the flow systems and constructed numerical flow models.
- Program Manager for a multidisciplinary remedial investigation/feasibility (RI/FS) study and remediation project. The site had multiple solvent plumes commingling beneath the site. The project is conducted as part of a multiple responsible party (RP), state Superfund project under site specific and regional consent orders with Department of Toxic Substance Control (DTSC). Responsibilities include negotiating terms of the consent order with DTSC, regulatory interpretation, client and RP management interaction, scope development and negotiation, technical management of all aspects of the program, technical quality assurance and quality control (QA/QC), and overall coordination and management of the multidisciplinary project.
- Project Manager for the regional groundwater modeling effort in support of a state Superfund project regional remediation. Collaborated in the development of a regional groundwater flow (Modflow) and fate and transport model. Managed client and regulatory review and approval.
- Project Manager for an EPA Region IX Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) site. Mr. Marsden managed the project for the responsible party from investigation through remedial action. Amended National Pollutant Discharge Elimination System (NPDES) permits. Issued specifications for subcontractor selection and acted as construction manager for site activities. Performed community relations and regulatory negotiations. Prepared work plans, sampling plans, quality assurance plans, health and safety plans, data management plans, feasibility studies, and remedial design plans. Contaminants consisted of chlorinated hydrocarbons and heavy metals.
- Project Manager for Preliminary Endangerment Assessments for new school construction in Oakland Ca.
- MEW Superfund Site, Mountain View, California. Directed site characterization field program investigating dense non-aqueous phase liquid (DNAPL) plumes beneath a site within the MEW Federal Superfund project. Supervised the installation of groundwater and vapor-extraction wells, a soil gas survey, aquifer testing as part of the field program, and evaluating percent contribution.
- Project Manager for major petroleum marketer, California. Managed subsurface investigation of several gasoline service stations. Developed conceptual remedial designs for soil and groundwater. Managed installation, operation, and maintenance of a bioremediation system using an aboveground fixed film bioreactor.
- RI/FS field program, U.S. Army, San Francisco. Managed multiple field crews investigating numerous landfills, motor pools, and chemical storage areas.
- Task Manager for underground storage tank management and remedial action program for a major telecommunications company. Inspected underground storage tanks at over 200 remote microwave stations in the western states (California, Nevada, Oregon, and Arizona) as part of the development of a task management program. Supervised tank removal at many of the sites, and conducted site characterization programs at sites where tanks were leaking.