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December 3, 2008

ELECTRONIC VERSION OF ORANGE GROVE ENERGY'S WITNESS RESUMES (ATTACHMENT TO EXHIBIT 18)

Dockets Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814
(916) 654-5076
E-mail: docket@energy.state.ca.us

Re: Orange Grove Energy, Docket No. 08-AFC-4

Dear Dockets Unit,

Last week, I spoke with Sabrina Savala, who requested that I provide the Dockets Unit with an electronic version of the witness resumes that were submitted as part of Orange Grove Energy's Exhibit 18. A CD-ROM with a .pdf file containing these resumes is enclosed.

Very truly yours,

DOWNEY BRAND LLP

Nicholas H. Rabinowitsh

NHR

(enclosure)

ELISHA BACK

EDUCATION

California State University, Fullerton, B.S., Political Science

AREAS OF EXPERTISE

- CEQA and NEPA
- Sec. 404 & 401, Clean Water Act
- Sec. 404(b)(1) Alternatives Analysis
- Sec. 1600, California Fish & Game Code
- Sec. 7, Federal Endangered Species Act
- California State Endangered Species Act
- Sec. 106, National Historic Preservation Act
- California Coastal Act
- Local Land Development permits
- NPDES
- Environmental policy development
- Construction support
- Wetland mitigation development, monitoring, and reporting

REPRESENTATIVE EXPERIENCE

Ms. Elisha Back has more than 17 years of environmental project management experience related to environmental planning and permitting of projects in California, Arizona, Nevada, Texas, Oregon, and Washington. She has worked on many types of projects including land development, public works, energy, transportation, fiber optics, and pipelines at all levels from due diligence and planning through construction and all phases in-between. Ms. Back has worked with local, state and federal agencies on behalf of her clients to obtain approvals. She has experience with environmental reviews associated with CEQA and NEPA. Types of permits approvals have included but are not limited to Section 404 Permits, Section 401 Water Quality Certifications, Coastal Development Permits, and encroachment permits. She has interacted with federal and state agencies regarding threatened and endangered species issues and cultural resource issues associated with the issuance of environmental permits. In addition, Ms. Back has provided onsite assistance with environmental compliance for construction personnel, coordination of environmental monitors and daily coordination with resource agencies regarding ongoing construction activities.

Energy Projects

Kinder Morgan Energy Partners In-House Permitting Assistance (2003-2006)

Project Manager for providing in-house permitting and planning assistance to Kinder Morgan Energy Partners for their west coast operations. Projects include routine pipeline maintenance, expansion projects, emergency maintenance projects, releases, etc. Projects have required compliance with CEQA, NEPA, Sections 404 and 401 of the Clean Water Act, Section 1600 of the Fish and Game Code, Section 7 of the Endangered Species Act, NPDES, as well as local requirements. Also included as part of these projects are biological and cultural surveys and construction monitoring.

Tucson Pipeline Expansion Project - Tucson, Arizona (2004)

Permitting Project Manager for the KMEP project which included development of 12 miles of pipeline through the City of Tucson and surrounding areas. Issues included Native American coordination, cultural resource surveys and permits, native plant plans and permits, water discharge permits, NPDES compliance, 404 Nationwide Permit compliance, and public outreach.

Nellis Tank and Pipeline Expansion Project - Las Vegas, Arizona (2005)

Permitting Project Manager for the KMEP project which includes development of two 80,000-barrel tanks and over 5 miles of new pipeline located on the Nellis Air Force Base. Issues included processing a NEPA document, 404 Nationwide Permit compliance, NPDES, Air Permits, Dust Permit, Endangered Species coordination, and processing a real estate documentation from the Army Corps of Engineers.

Miramar Tank and Pipeline Expansion Project - Miramar, California (2005-2006)

Environmental Project Manager for the KMEP project which includes development of four 80,000-barrel tanks and connection to the existing pipeline located on the Miramar Air Force Base. Issues included processing a NEPA document, NPDES, Dust Permit, Endangered Species coordination, and processing a real estate documentation.

Eastline Expansion Project - Texas to Arizona (2005)

Cultural Resource Project Manager for the proposed KMEP pipeline expansion project from El Paso, Texas to Phoenix, Arizona. Project involvement included development of a Programmatic Agreement with the Advisory Council and the BLM, oversight for the cultural surveys and data recovery, oversight for obtaining

the required permits and approvals from various agencies for the projects for cultural resource issues, management of the two cultural resource firms working on the project, and management of the $4.0 million dollar budget for the project for cultural resource issues.

Fresno Tank Expansion Project - Fresno, California (2004)

Project Manager for environmental permitting for the construction of a new tank in the existing KMEP tank farm in Fresno. Project included development and processing of a CEQA document and Conditional Use Permit through the City of Fresno.

Land Development Projects

Panhandle Residential Development – Sacramento, California (2006-2007)

Project Manager for the environmental permitting and entitlements for the Project on behalf of Dunmore Homes. Included an Environmental Impact Report with the City of Sacramento as the Lead Agency, processing Section 404 Individual Permit, Section 401 Certification, Section 1602 Agreement and Section 7 Consultation. Project included development of 600 acres and 3,000 homes. Issues included fairy shrimp, vernal pool impacts, wetlands, traffic, potential flood zones, air quality, adjacent land owners, aesthetics.

Wildhawk Residential Development Project – Sacramento, California (2006-2007)

Project Manager for the environmental permitting and entitlements for the Project on behalf of Dunmore Homes. Included a Mitigated Negative Declaration with DERA as the lead agency, processing Section 404 Individual Permit, Section 401 Certification, Section 1602 Agreement and Section 7 Consultation. Also responsible for working with mitigation brokers to obtain the necessary wetland and vernal pool mitigation for the project. Project included development of 126 acres and over 800 homes. Issues included potential impacts to protected fairy shrimp, vernal pools, wetlands, traffic, air quality.

Whispering Oaks Residential Development Project – Lincoln, California (2006-2007)

Project Manager for the environmental entitlements and permitting for the Project on behalf of Dunmore Homes. Included Environmental Impact Report, General Development Plan, Specific Plan, Section 404 NWP, Section 401 Certification, Section 1602 Agreement and Section 7 Consultation. Also responsible for working with mitigation brokers to obtain the necessary wetland and vernal pool mitigation for the project. Project included development of 20 acres and 114 homes.

Spectrum 5 Development Project - Irvine, California (1999)

Project Manager for the environmental permitting for the Project on behalf of The Irvine Company. Included processing Section 404 Individual Permit, Section 401 Certification, Section 1603 Agreement, and Section 7 Compliance; preparing Section 404(b)(1) Alternatives Analysis; completing the jurisdictional delineation; conducting construction monitoring; and developing mitigation plan. Project utilized the Natural River Management Concept, which allowed for natural growth within San Diego Creek. This concept consisted of widening and stabilization of the existing creek bottom, placement of soil cement lining on the side slopes and toe down, and construction of wetland habitat mitigation sites in the creek bottom while preserving the existing natural habitat.

Otay Mesa Skeet and Trap Shooting Range Remediation Project - Chula Vista, California (2005-2006)

Project Manager for the environmental permitting for the Project on behalf of Flat Rock Development. Project includes remediation of former shooting range near area utilized by protected species. Includes management of subconsultants, processing of technical studies, working with lead agency and development of documentation in support of the Initial Study and Mitigated Negative Declaration.

Presidio in the Pines - Coconino County, Arizona (2005)

Project Manager for the environmental permitting and review for the project. Included both biological and cultural surveys for a 250 acre property proposed for development near the city of Flagstaff. Permitting included Section 404 and 401 permitting as well as informal consultation with the USFWS on potential for occurrence of Mexican spotted owl (*Strix occidentalis lucida*).

Georgia Pacific - Mendocino County, California (2004)

Environmental Project Manager tasked with assessing biological resources, cultural resources and potential permitting issues on a 500-acre saw mill facility along the coast near Fort Bragg, California.

Shady Canyon Golf Course and Residential Development Project - City of Irvine, California (1999)

Project Manager for the environmental permitting on behalf of The Irvine Company. Included processing Section 404 Nationwide Permit, Section 401 Certification, Section 1603 Agreement, and Section 7 Compliance; Coordinating regarding NCCP compliance issues; conducting jurisdictional delineation; managing biological surveys; and developing mitigation plan.

Sherwood Park Project, City of Huntington Beach, California (1997)

Project Manager for the environmental permitting on behalf of PLC Land Company. Included processing Section 404 Nationwide Permit, Section 401 Certification, and Section 1603 Agreement; conducting jurisdictional delineation; developing the mitigation plan; and site monitoring and reporting.

Sunol Valley Golf Course Irrigation Pond Improvement Project - Sunol, California (2005)

Project Manager for the environmental permitting for Sunol Valley Golf Course. Project included improvements to existing irrigation ponds located within habitat for federally protected species as well as the development of a new maintenance yard. Environmental permitting included preparation and processing of a Mitigated Negative Declaration, NPDES compliance, Section 404 Permit, Section 401 Water Quality Certification, Section 7 Compliance, and Section 1602 Streambed Alteration Agreement.

Spectrum 6 Development Project - City of Irvine, California (1998)

Project Manager for environmental permitting on behalf of The Irvine Company. Included processing Section 404 Individual Permit, Section 401 Certification, and Section 1603 Agreement; conducting jurisdictional delineation; and preparing Section 404(b)(1) Alternatives Analysis.

Bonita Village Residential Development Project - City of Irvine, California (1997)

Project Manager for the environmental permitting on behalf of The Irvine Company. Included processing Section 404 Nationwide Permit, Section 1601 Agreement, and Section 401 Certification; conducting jurisdictional delineation; compliance with NCCP requirements; development of mitigation plan; and ensuring compliance with Section 7.

Jamboree Business Center - City of Irvine, California (1997)

Project Manager for the environmental permitting on behalf of The Irvine Company. Included processing the Section 404 Nationwide Permit, Section 1603 Agreement, and Section 401 Certification; and conducting jurisdictional delineation.

Retail Center Project - City of Irvine, California (1996)

Project Manager for the environmental permitting on behalf of The Irvine Company. Included processing the Section 404 Nationwide Permit, Section 401

Certification, and Section 1603 Agreement; and conducting jurisdictional delineation.

Newporter North - City of Newport Beach, California (1995)

Project Manager for the environmental permitting on behalf of The Irvine Company. Included processing a Section 404 Nationwide Permit, Section 1603 Agreement, and Section 401 Certification; conducting a jurisdictional delineation; ensuring compliance with Section 106; and preparing a mitigation plan.

Planning Area 10 Project - City of Irvine, California (1997)

Project Manager for the environmental permitting on behalf of The Irvine Company. Included processing of the Section 404 Individual Permit, Section 401 Certification, and Section 1603 Agreement; conducting jurisdictional delineation; and preparing Section 404(b)(1) Alternatives Analysis.

Linear Park Outlet - City of Huntington Beach, California (1998)

Project Manager for the environmental permitting on behalf of PLC Land Company. Included processing Section 404 Nationwide Permit, Section 401 Certification, and Section 1603 Agreement; and developing the mitigation plan.

Liberty and North Peak Projects - City of Lake Elsinore, California (1998)

Coordinated with the Corps regarding compliance with Section 106 for The Town Group (formerly TMC).

Infrastructure

5 Bridges Replacement – San Bernardino, California (2007-2008)

Project Manager for the environmental permitting on behalf of BNSF Railway. Project included replacement of 5 deck replacements. Included processing emergency permits from the agencies. Required coordination with BLM due to access issues. Two of the bridges were located within critical habitat for the desert tortoise.

Oakland Bridge Skyway Project - City of Stockton, California (2003)

Project Manager for the environmental entitlements and permitting for Kiewit/FCI/Manson Oakland Bridge Skyway Project. Project included development of a pre-cast yard, batch plant, and barge slip for development of the segment for the new Oakland Bay Bridge. Environmental permitting included preparation and processing of a Mitigated Negative Declaration and NPDES compliance. Also included was processing of the Section 404 Permit, Section

1603 Streambed Alteration Agreement, Section 7 Consultation and Section 401 Water Quality Certification for the barge slip that was part of the project.

Harbor North Off-Ramp - Costa Mesa, California (2005-2006)

Environmental Project Manager for the environmental clearances for the proposed Harbor North Off-Ramp off the I-405. Project required clearance through CEQA and the City of Costa Mesa is the Lead Agency and Caltrans was acting as a Responsible Agency. Responsible to have all technical studies prepared for the project including air, noise, natural resources, cultural resources, and visual impacts.

Borrego Wash Improvements - County of Orange, California (1998)

Project Manager for the environmental entitlements and permitting for the Irvine Ranch Water District for improvements to Borrego Wash for protection of adjacent waterlines. Included preparing and processing CEQA/NEPA documents, Section 404 Nationwide Permit, Section 1603 Agreement, and Section 401 Certification. Also included conducting the jurisdictional delineation and preparing the Air Quality Analysis.

Natural River Management Concept - Valencia, California (1995)

Assisted with the development of the Natural River Management Concept. It allows for the stabilization of rivers while preserving the river's natural characteristics.

San Diego Creek Watershed General Permit - Orange County (1993-1994)

Project Manager for the development and processing of the Section 404 Permit and Section 1600 Agreement for The Irvine Company, the County of Orange, and the City of Irvine. Included permit submittals and jurisdictional delineation.

Hicks and East Hicks Retarding Basins - Orange County, California (1997)

Project Manager for the environmental permitting for The Irvine Company. Included processing Section 404 Nationwide Permit, Section 401 Certification, Section 1603 Agreement, and Section 7 Compliance; and conducting jurisdictional delineation.

Laguna Terrace Park - Laguna Beach, California (1996)

Project Manager for the environmental permitting for the interim flood control protection of the Laguna Terrace Park. Included processing a Section 404 Nationwide Permit, Section 1603 Agreement, Section 401 Certification, and a Coastal Development Permit; and conducting a jurisdictional delineation.

Nutmeg Street Bridge - City of Murrieta, California (1996)

Project Manager for the environmental permitting for the Nutmeg Street Bridge project. Included processing a Section 404 Nationwide Permit, Section 1603 Agreement, and Section 401 Certification; and conducting a jurisdictional delineation.

Agua Chinon Retarding Basin - Orange County, California (1997)

Project Manager for the environmental permitting for The Irvine Company. Included processing a Section 404 Nationwide Permit, Section 401 Certification, Section 1603 Agreement, and Section 7 Compliance; managing the CEQA update; and conducting jurisdictional delineation.

City of Corona Operation and Maintenance Permit - Corona, California (1996)

Project Manager for the City of Corona. Included processing Section 404 Permit, Section 401 Certification, Section 1601 Agreement, Section 7 Biological Opinion; preparing and processing the NEPA document; and conducting jurisdictional delineation.

Borrego Wash Improvements - County of Orange, California (1995)

Project Manager for the environmental permitting for the Los Alisos Water District for improvements to Borrego Wash for protection of adjacent waterlines. Included processing Section 404 Nationwide Permit, Section 1603 Agreement, and Section 401 Certification; conducting jurisdictional delineation; preparing and processing CEQA and NEPA documents; and preparing the Air Quality Analysis.

Main Street Channel Maintenance Project - City of Corona, California (1997)

Project Manager for the environmental permitting for the City of Corona. Included processing Section 404 Individual Permit, Section 1601 Agreement, and Section 401 Certification.

Fiber Optics Projects

Level (3) Communications Project - San Luis Obispo to Oxnard, California (1999-2002)

Project Environmental Coordinator for the environmental permitting and compliance for the portion of the project between San Luis Obispo and Oxnard for contractor, Kiewit Pacific Co. Included processing Section 404 Nationwide 12 Permits, Section 401 Waiver of Certifications, Section 1603 Agreements, several Coastal Development Permits, encroachment permits; also included providing

onsite assistance to the construction personnel with compliance with environmental issues, coordination of environmental monitors and daily coordination with resource agencies regarding ongoing construction. Required to manage several subconsultants on behalf of the client as well as provide oversight to over 150 monitors.

Level (3) Carpinteria Realignment - Santa Barbara County, California (2003)

Project Manager for environmental permitting on behalf of Level (3) Communications for the re-alignment of the fiber optic line near Carpinteria. Project involved filing for amendment to Mitigated Negative Declaration for fiber optic line construction in wetland habitat within Santa Barbara County. Also included biological survey, processing environmental permits, a Horizontal Directional Drilling (HDD) Plans, Frac-Out Contingency Plans, Stormwater Pollution Prevention Plans (SWPPP), Spill Prevention Control and Countermeasure (SPCC) Plans, Revegetation Plans, and Mitigation and Monitoring Plans.

Santa Ynez River/San Antonio Creek Realignment Project - Vandenberg Air Force Base, California

Project Manager for environmental permitting on behalf of Level (3) Communication for the realignment of the fiber-optic beneath two river systems within Vandenberg Air Force Base. Involved biological surveys, coordination with Vandenberg staff, processing environmental permits, Section 7 Consultation with USFWS, development of HDD Plans, Frac-Out Contingency Plans, SWPPP, SPCC Plans, Revegetation Plans, and Mitigation and Monitoring Plans.

Sayres and Associates - Various Locations (2003-2005)

Prepared numerous NEPA compliance documents (Environmental Assessments) and SWPPP for fiber optic extension projects for Homeland Security project. Included site reviews as well as coordination with the resource agencies as required.

Mining Projects

Royal Mountain King Mine - Calaveras County, California (2005)

Project Manager for environmental permitting for Natural Treatment System wetlands. Project included development of wetlands within existing drainages onsite to assist with TDS loading issues as part of the closure of the mine. Included processing Section 404 Permit, Section 401 Certification, and Section 1602 Agreement. Coordinated the biological review and jurisdictional delineation. Other issues also included a Waste Discharge Requirement update, CEQA evaluation, and water rights issues.

Beartrack Mine - Salmon, Idaho (2005)

Project Manager for review of wetland issues associated with closure of the mine. On behalf of client review potential issues related to closure of certain elements of the mine and permitting requirements.

Railroad

BNSF Permitting Assistance – Various Projects (2003)

Assisted BNSF with various projects related to crossing closures. Permitting included preparation of Proponent's Environmental Assessment for processing with the California Public Utilities Commission, coordination of biological and cultural reviews, and various environmental permits. Projects included Avenue 13, Deadman Creek and North Tower Road.

Wetland Mitigation Sites

San Joaquin Marsh Mitigation Project - City of Irvine, California (1994)

Project Manager for the environmental permitting for The Irvine Company. Included processing of the Section 404 Individual Permit, Section 401 Certification, and Section 1603 Agreement; preparing Section 404(b)(1) Alternatives Analysis; conducting jurisdictional delineation; developing the mitigation plan; and site monitoring and reporting.

City of Corona Mitigation Sites - Corona, California (1995)

Completed monitoring and reporting requirements for the City of Corona mitigation sites. Included coordination with the resource agencies.

SPECIALIZED TRAINING

- Developing a Biological Assessment, USFWS, June 2007
- Successful CEQA Compliance, UCLA Extension, July 2002
- Wetland Delineation and Management Training, Richard Chinn Environmental Training, June 1996
- CalTrans Horizontal Directional Drilling Inspection Course, December 2000
- Federal Energy Regulatory Commission Environmental Compliance Training, February 2003
- Hazwoper Supervisory Training, August 2005
- Various courses toward Environmental Management Certificate, UCI Extension, 2004-2006

PROFESSIONAL AFFILIATION

- Association of Environmental Professionals
- American Planning Association
- Women's Environmental Council
- Society of Wetland Scientists
- The National Audubon Society
- Environmental Law Institute
- The Desert Tortoise Council

Professional Qualifications

Joseph K. Bondank, P.E.

POSITION Project Manager / Senior Electrical Engineer

EDUCATION

B.S.E.E., 1988
Kansas State University
Manhattan, Kansas

B.S. Mathematics, 1988
Kansas State University
Manhattan, Kansas

M.S. Engineering Management, 1999
University of Kansas
Overland Park, Kansas

REGISTRATION Registered Professional Engineer

- California
- Iowa
- Missouri
- New York
- Oregon
- Utah

AFFILIATIONS Institute of Electrical and Electronics Engineers, Inc.

CAREER EXPERIENCE

Mr. Bondank has been with Sega Inc. since 1992. Throughout his career, Mr. Bondank has worked on projects in the utility, industrial, institutional, commercial, and aviation markets. Prior to 1992, Mr. Bondank worked for a large multidiscipline international consulting engineering firm. Project work includes both national and international projects.

As project manager, Mr. Bondank serves as the firm's primary interface on the assigned project. Responsibilities include customer interface, project manuals, coordination, project leadership, scheduling, staffing, financial, reporting, marketing, technical consultant, contract administration, proposals, business development, project success, and overall customer satisfaction.

Professional Qualifications

Joseph K. Bondank, P.E.

Most of Mr. Bondank's experience comes from large multi-discipline projects with a wide variety of technical and contract experience on civil, mechanical, architectural and control systems. Many projects have been new installations with site development, while many others have been retrofits into existing facilities. Project delivery experience includes engineer lead, or contractor lead EPC; design-build; design-bid-build; cost plus fixed fee; shared savings; Owner's engineer; or a hybrid of one of those delivery methods.

SPECIFIC PROJECT EXPERIENCE

Utilities:

- **Kansas City Power & Light,** West Gardner and Osawatomie, Kansas – Project engineer on four nominal 80-MW and one nominal 80-MW GE 7EA simple-cycle combustion turbine units at two project sites. Both sites included the development of the area adjacent to an existing substation. The connection and modifications to the existing substations were also included.

- **San Diego Gas & Electric, JPower, Industrial Construction Company,** Orange Grove Power Plant, San Diego County, California – Project manager on an EPC contract to install two simple-cycle combustion turbine generators (GE LM6000 classic) with a plant nominal output of 96-MW plus all auxiliaries and maintenance facilities.

- **Babcock Power / Aquila Networks**, Sibley Generating Station – Assistant project manager on an SCR and SNCR addition project for three coal-fired units. Services included balance-of-plant structural, mechanical, electrical, and controls.

- **Alstom Power / Empire District Electric Company**, Asbury Station – Project manager on SCR addition project where Sega provided controls and commissioning services as part of an EPC team.

- **Babcock & Wilcox / Kansas City Power & Light,** La Cygne Generating Station – Project manager on SCR addition project where Sega provided electrical, controls and commissioning services as part of an EPC team.

- **Desert Power,** Rowley, Utah – Project electrical on plant expansion project to convert two 40-MW simple-cycle combustion turbines to a combined-cycle plant. The plant expansion includes HRSG, steam turbine, and 138-kV substation expansion.

- **Ramco/San Diego Gas & Electric,** San Diego, California – Project engineer on an EPC contract to install a 50-MW simple-cycle combustion turbine and 69-kV substation expansion.

Professional Qualifications

Joseph K. Bondank, P.E.

- **City Utilities of Springfield**, James River Power Station, Springfield, Missouri – Project manager on an EPC ash handling conversion project. The project included the installation of two ash silos, equipment, piping, and controls for the collection of dry ash. Sega provided construction management, engineering, and procurement services. Sega and its team of subcontractors provided all installation services.

- **City Utilities of Springfield,** McCartney Generating Station, Springfield, Missouri – Assistant project manager and project electrical engineer on an unmanned "greenfield" 100-MW simple-cycle gas turbine power plant and high-voltage substation. The plant included gas turbines and auxiliary equipment and miscellaneous equipment buildings and maintenance facility. The substation included an inverted breaker and a half design, control building, SCADA, and protective relaying.

- **Trigen**, St. Louis, Missouri – Served as project electrical engineer on a combined cycle 15-MW gas turbine plant installation. Project included two gas turbines, HRSGs, black start diesel generator, 13.8-kV – 138-kV step-up transformer and substation.

- **Arizona Electric Power Cooperative, Inc.**, Apache Station, Benson, Arizona – Provided a specification and conceptual design to obtain bids from a design-build contractor to perform a phased controls retrofit on Units 1, 2, and 3.

- **Alabama Electric Cooperative, Inc.**, Lowman Station, Leroy, Alabama – Provided a specification and conceptual design to obtain bids from a design-build contractor to convert Unit 1 from forced draft to balance draft, plus other modifications.

- **Associated Electric Cooperative, Inc.**, Clifton Hill, Missouri – Project electrical engineer for a 4,600 I/O point controls retrofit on Unit 3 at the Thomas Hill Energy Center. A new distributed control system and UPS system were installed to retrofit turbine, motor, burner management, boiler feed pump, combustion controls, data acquisition, and alarm systems.

- **AmerenUE**, St. Louis, Missouri – Project electrical engineer for a 1,500 I/O point controls retrofit on Unit 3 at the Meramec Station. A new distributed control system and UPS system were installed to retrofit burner management, data acquisition, and alarm systems.

- **AmerenCIPS** (formerly Central Illinois Public Service), Meredosia, Illinois – Electrical engineer for a 2,000 I/O point controls retrofit on Unit 3 at the Meredosia Station. The retrofit included the burner management, data acquisition, turbine controls, motor controls, combustion controls, and alarm systems.

Professional Qualifications

Joseph K. Bondank, P.E.

Industrial:

- **U.S. West Communications**, Des Moines, Iowa – Electrical engineer for the 9N chiller plant project. This project installed a new central chiller plant in the top two floors of one building of a three-building, high-rise telecommunications complex in downtown Des Moines. The project included a PLC-based control system, three new unit substations, and two 1,500-kW standby diesel generators with paralleling and peak shaving controls.

- **Parkchester,** Bronx, New York – Upgraded the service entrance electrical equipment for a heating plant and converted a steam driven FD fan to a motor driven fan with variable frequency drive.

- **Honeywell**, Kansas City, Missouri – Project electrical engineer for the phased replacement of four 80,000 lb/hr boilers at the central utility plant. Project included a new central control room for all four boilers.

Institutional:

- **Southern Illinois University**, Carbondale, Illinois – Electrical engineer for the installation of a fluidized-bed boiler at the University steam plant. The project included a new enclosed building structure, modifications to the existing ash, coal, and water treatment systems, and the installation of two new baghouses. Centralized distributed control for all boilers and local PLC control of auxiliary systems were included in the project.

- **University of Missouri**, Columbia, Missouri – Electrical engineer for the installation of a packaged boiler inside the existing University power plant, backup fuel facilities, and incorporation of boiler controls into the centralized distributed control system.

- **University of Northern Iowa**, Cedar Falls, Iowa – Working as an MEP sub-consultant, served as project electrical engineer for the Donald O. Rod Library addition and renovation project. The project included the addition of a fourth floor to an existing three-floor structure and the renovation of the first three floors.

- **University of Northern Iowa**, Cedar Falls, Iowa – Working as an MEP sub-consultant, served as electrical engineer on a new residence facility project. The four-floor facility included 100 living suites and commercial style laundry, kitchen, and mechanical equipment rooms.

- **Emporia State University**, Emporia, Kansas – Served as electrical engineer on various on-call services projects including diesel generator addition, HVAC replacements, and lightning protection.

Professional Qualifications

Joseph K. Bondank, P.E.

Commercial:

- **Sprint**, Medford, Oregon – Working as an MEP sub-consultant, served as project electrical engineer to renovate a 55,000 square foot facility into a call center. Lighting, grounding, UPS systems, fire protection, and standby diesel generation were critical design elements of this project.

- **Sega Headquarters**, Stilwell, KS – Served as electrical engineer in the design and construction administration of a new 30,000 square foot office facility.

- **Sprint Cumberland No. 4**, Atlanta, Georgia – Project electrical engineer for the evaluation of the complex's emergency capacity, distribution loading and short circuit and ground fault analysis. Provided recommendation, conceptual cost estimates, and phasing of construction to modify the speculative office building into a 24/7 critical operations center.

- **City of Ames**, Ames, Iowa – Project electrical engineer for the design of a new water treatment laboratory facility. The facility is a two-floor building with offices and lab rooms.

Aviation:

- **Evergreen Airways**, Chaing Kai Shek Airport, Taiwan – Electrical engineer for a maintenance hangar facility design. The facility included a maintenance bay with space for two 747-400 series aircraft and one 757 series aircraft. The facility also contained seven floors of offices and four floors of shops for support.

- **Lockheed, Norton Air Force Base**, San Bernadino, California – Electrical engineer for the renovation of an existing air force hangar into a painting facility for Lockheed. Two bays of the existing four-bay structure were modified to perform maintenance on 747-400 series aircraft.

- **Gannett Advertising**, Dulles International Airport, Washington D.C. – Electrical engineer for the design of a new maintenance facility for a fleet of corporate aircraft.

- **Bristol-Myers Squibb**, Mercer County Airport, Trenton, New Jersey – Electrical engineer for the design of a new maintenance facility and fueling station for a fleet of corporate aircraft.

- **Arizona Air National Guard**, Tucson International Airport, Tucson, Arizona – Electrical engineer for the design of a new maintenance and training facility for F-16 fighter planes.

- **Egyptian Air Force**, Sakkhara, Egypt – Electrical engineer for the design of a new air force base with responsibilities for the F-16 fighter plane maintenance facility and weapons shelters.

N. RUTH DAVIS, P.E., P.T.O.E. ♦ SENIOR CIVIL ENGINEER

EDUCATION

- B.S., Civil Engineering & Advanced Studies in Transportation Planning, Texas A&M University
- B.S., Physics/Earth Science, East Texas State University

REGISTRATION

- California P.E. (#C55461)
- Texas P.E. (#78319)
- Ohio P.E. (E-65979)
- North Carolina P.E. (#027117)
- Louisiana P.E. (#32452)

CERTIFICATIONS

- Professional Traffic Operations Engineer (PTOE #2149)

AFFILIATIONS

- Fellow, Institute of Transportation Engineers

REPRESENTATIVE PROJECTS

Circulation Elements & Specific Plans

- Circulation Elements for Cities of Delano & Fresno
- Specific Plans for the City of Reedley & Communities of Frazier Park /Lebec, Shaver Lake Forest & Springville

General Plan Amendments

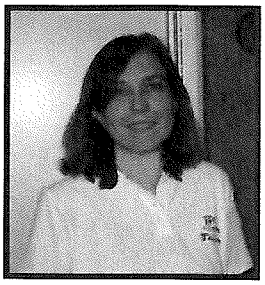
- General Plan Amendments for both public and private entities for several major planned unit developments, retail centers, etc.

Traffic Impact Studies

- Traffic Impact Studies for both public and private entities in the Cities of Atwater, Avenal, Bakersfield, Clovis, Corcoran, Delano, Escalon, Farmersville, Fresno, Goleta, Hanford, Morro Bay, Parlier, Porterville, Selma, Tulare, Visalia, Wasco & Counties of Fresno, Kern, Kings, Madera, Mariposa, San Luis Obispo, Santa Barbara & Tulare.

E-MAIL

jwnrd@earthlink.com
rdavis@tpgconsulting.net



Ms. Davis joined TPG Consulting after working for both public and private entities. Her background includes a wide variety of project experiences in transportation planning, travel demand modeling, traffic engineering, congestion management programs, and air quality conformity and analysis efforts.

Ms. Davis has prepared numerous traffic evaluations and impact studies for a variety of projects including:

- Circulation Elements
- Specific Plans
- General Plan Amendments
- Redevelopment Plans
- Sphere of Influence Update
- Project Study Reports
- Planned Unit Developments
- Residential Developments
- Commercial / Industrial Developments
- Schools
- Churches
- Casinos
- Rock Quarries
- Landfills
- California Energy Commission (CEC) Application for Certification (AFC)
- Other – Selma Super Wal-Mart, Fresno Speedway, "O" Street Closure, Wackenhut Prison, Fresno Heart Hospital

Several of these reports have been used in support of various CEQA and NEPA documents.

Ms. Davis has also prepared several air quality assessments for both large and small projects throughout the San Joaquin Valley.

Thomas L. Jackson, Ph.D., RPA

Principal Investigator / Archaeologist

Summary of Qualifications

Mr. Jackson is a Principal of Pacific Legacy, Inc., and has more than 35 years experience as a professional archaeologist in cultural resources management. Mr. Jackson meets the Secretary of Interior's standards as an archeological Principal Investigator. His field experience is throughout California, the western Great Basin, Hawaii, Wake Island, Easter Island and Mongolia. As a specialist in igneous toolstone sourcing he has analyzed and reported on collections from the western US, Canada, Mexico, Guatemala, Peru, and elsewhere in South America. Mr. Jackson is course certified in *Native American Graves Protection & Repatriation Act: Implications & Practical Implications* (UN-Reno), *The National Environmental Policy Act and Historic Properties* (UN-Reno) and *Federal Projects and Historic Preservation Law* (Advisory Council on Historic Preservation). He has taught historic preservation and cultural resources management curriculum at the University of California at Berkeley.

Education

Ph.D., Anthropology, Stanford University, Stanford, California, 1986
(Dissertation title: *Late Prehistoric Obsidian Exchange in Central California*)
M.A., Anthropology, San Francisco State University, California, 1974
(Thesis title: *The Economics of Obsidian in Central California Prehistory: Applications of X-ray Fluorescence Spectrography in Archaeology*)
B.A., Anthropology (major), Geology (minor), San Francisco State University, California, 1971

Skills met by Pacific Legacy staff

NHPA Compliance
NEPA Compliance
Field surveys (inventories)
Site visits
Interviews
Work plans
Research designs
Literature searches
Overviews
Predictive models
Test excavations
Site monitoring
Site documentation
Site evaluation
Historic contexts
Reports and publications
Public interpretation/education
Mitigation plans
Native American consultation

Sierra Nevada
Great Basin
Mojave Desert
Southern California

Professional Experience

1994-present	Co-founder and Principal of Pacific Legacy, Inc. Senior archaeologist and Chief Financial officer.
1988-1994	Senior Archaeologist/Cultural Resources Division Director/Principal. BioSystems Analysis, Inc.

	1985-1988	Senior Archaeologist. Theodoratus Cultural Research.
	1974-1985	Principal/Senior Archaeologist. Archaeological Consulting and Research Services, Inc.
Selected Publications & Accomplishments	2006-2007	Principal Investigator for Southern California Edison Company Tehachapi Renewable Transmission project, Kern, Los Angeles and San Bernardino Counties, California. Cultural resources inventory along 200+ miles of existing and proposed transmission lines in western Mojave Desert and Los Angeles basin. Client: Southern California Edison.
	2005-2006	Principal Investigator for Southern San Joaquin Valley Oil Fields Comprehensive Study, Bureau of Land Management. Review historic context for 92 oil fields in the southern San Joaquin Valley and prepare recommendations for the identification and management of historic properties on oil field lands administered by BLM. Client: USDI Bureau of Land Management, Bakersfield Field Office.
	1998-2007	Principal Investigator for on-call cultural resources studies for the University of California at Santa Cruz. Client: University of California at Santa Cruz.
	2000-2007	Principal Investigator for cultural resources studies and historic preservation compliance for licensing the Southern California Edison Big Creek System (FERC Projects 67, 120, 2085, 2086, 2174 and 2175). Supervised all aspects of NHPA Section 106 and NEPA compliance activities for the relicensing 6 major hydroelectric projects, including archaeological inventory, site evaluation; preparation of Historic Properties Management Plans; Native American consultation with 11 separate tribes, groups, organizations and individuals; public meetings; multi-agency consultation; technical reporting; preparation of documents for general public; co-rdination with local historical societies and museums. Client: Southern California Edison Company.
	2002	Principal Investigator for cultural resources studies for 250 square-mile Monument 3D Seismic prospect near Los Banos, Merced County: cultural resources inventory, Native American consultation, US Army Corps of Engineers, US Fish and Wildlife Service, California Fish and Game consultation. Client: Black Coral, LLC.
	2001-2002	Principal Investigator, Designated Cultural Resource Specialist (by California Energy Commission) for the Elk Hills Power Project, Kern County. Construction and operation of Elk Hills Power Plant and transmission line Elk Hills to Midway Substation. Client: Elk Hills Power.
	1999-2001	Principal Investigator for the cultural resources inventory for the Sunrise Power Project; preparation of the cultural resources element of the Application for Certification; testimony given before the California Energy Commission (CEC); designated project Cultural Resource Specialist approved by CEC. Client: Sunrise Power Company.
	1998-2001	Principal Investigator/Contract Manager for California Department of Transportation multi-year, on-call cultural resources services contract for

Districts 5, 6, 9, and 10. Work involved Phase 1, Phase 1.5, Phase 2 archaeological studies, ethnographic, historical and ethnohistoric research, data analysis, National Register of Historic Places evaluations and reporting. Client: Caltrans.

1997-1999 Principal Investigator for prehistoric cultural resources management for Department of Energy (DOE) divestiture of Naval Petroleum Reserve No. 1, Kern County, CA., the most valuable ($3.65 billion) single divestiture of federal property in U.S. history. Dr. Jackson designed and implemented the Cultural Resource Management Plan covering all historic property types at NPR-1; prepared National Register of Historic Places eligibility assessments; directed archeological survey, test excavations, laboratory analyses and reporting for 91 prehistoric sites; drafted and assisted the DOE in successfully negotiating a Programmatic Agreement with the California State Historic Preservation Officer and the Advisory Council on Historic Preservation and continues to assist the DOE in implementing the PA. Client: ICF Resources, Inc.

2006 (C. Stevenson, T. Jackson, A. Mieth, H-R Bork and T. Ladefoged). Prehistoric and early historic agriculture at Maunga Orito, Easter Island (Rapa Nui), Chile. Antiquity 80:919-936.

2005 (C. Stevenson and T. Jackson). Estimación de las tasas de hidratación de la composición química: un caso ejempo de Xaltocan, Mexico. La Produccion Local y El Poder en el Xaltocan Posclasico, (E. Brumfield, ed.) 154-169. Serie Arqueología de México, Instituto Nacional de Anthropología e Historia/University of Pittsburgh.

in press Obsidian Studies in South America: An Overview of Recent Research. Paper presented at Obsidian Summit International Workshop, Rikkyo University, Tokyo, Japan (2004). Paper accepted for publication of Summit Proceedings (2005).

1998 (M. Davis, T. Jackson, M. Shackley, T. Teague and J. Hampel) Factors Affecting the Energy-Dispersive X-Ray Fluorescence (EDXRF) Analysis of Archaeological Obsidian. In *Archaeological Obsidian Studies: Method and Theory*, edited by M.S. Shackley, pp. 159-180. Plenum Press, New York.

1994 (T. Jackson and J. Ericson) Prehistoric Exchange Systems in California. In *Prehistoric Exchange Systems in North America*, edited by T.G. Baugh and J.E. Ericson, pp.385-415. Plenum Press, New York.

1991 Pounding Acorn: Women's Production as Social and Economic Focus. In *Engendering Archaeology*, edited by M. Conkey and J. Gero, pp. 301-328. Basil Blackwell, Inc., Cambridge, England. Reprinted 2004, in Prehistoric California: Archaeology and the Myth of Paradise, edited by L.M. Raab and T.L. Jones. University of Utah Press.

Thomas L. Jackson, Ph.D., RPA

Principal Investigator / Archaeologist

Additional Publications	Author, co-author or contributor to more than 150 technical reports, management plans, research designs and professional presentations.
Professional Affiliations & Memberships	International Association for Obsidian Studies Society for California Archaeology Society for American Archaeology Register of Professional Archaeologists

R. Michael Jones

Education

BS Marine Engineering, California Maritime Academy, Vallejo, CA, 1986

Experience

Director, J-POWER USA Development Co. Ltd. October 2007-present. Responsible for late-stage development, engineering and construction (and following construction, will be responsible for operations) of the 100 MW Orange Grove development project in San Diego County, CA.

Director, Luminate, LLC 2005-October, 2007. Financial, regulatory and technical due diligence for acquisition and new-build power and ethanol project on behalf of lenders, ratings agencies, and project sponsors.

Director, then Vice President, Black Hills Generation, Inc. 2000-2004 Operations, asset management and technical leadership for portfolio of 10 power generation projects totaling 1,000 net MW.

General Manager, Idaho Cogeneration Projects, various owners including Statoil and Indeck Energy Capital 1996-2000 Developed, built and managed two cogeneration combined-cycle power projects.

General Manager, Climax Energy Facility, Sithe Energies 1993-1996 Rebuilt and reorganized this troubled facility and returned it to profitability and operating excellence.

Operations Manager, DCS Engineer, Feather Rive Power Plant, Sithe Energies 1986-1993. Started up and operated a 20 net MW biomass-fired CFB. This was an R&D project that required reengineering and rebuilding of the boiler, rebuilding of the steam turbine and much of the auxiliary equipment. Most of this work was done in-house by plant staff.

ROBERT MANTEY – PRINCIPAL CONSULTANT
Alliance Acoustical Consultants, Incorporated

PROFESSIONAL HISTORY:

- Principal Consultant, **Alliance Acoustical Consultants, Inc.**, 2000 to present
- Section Manager - Noise, Vibration & Acoustics Group, **PCR Services Corporation**, Irvine, California, 1997 - 2000
- Lead Engineer/Senior Engineer, **Fluor Daniel, Inc.**, Irvine, California, 1990 - 1997
- Lead Engineer/Senior Engineer, **Douglas Aircraft Co.**, Long Beach, California, 1988 - 1990
- Research Specialist/Member of the Technical Staff, **Wyle Research Group, Wyle Laboratories**, El Segundo, California, 1981 - 1988
- Acoustical Engineer/Consultant, **Bolt Beranek and Newman, Inc.**, Canoga Park, California, 1979 - 1981
- B.S., Engineering, **Harvey Mudd College**, Claremont, California, 1979

Certifications & Training:

- Member, Institute of Noise Control Engineering (INCE)
- TNM and FHWA traffic noise modeling training/certification through HMMH, 2006
- FTA Certification - Transit Noise and Vibration Impact Assessment
- Engineer-In-Training Certificate, EIT, State of California
- Attended several instrumentation and data acquisition seminars given by Brüel and Kjær

Expertise:

ROBERT MANTEY has more than 29 years of managerial and technical experience in the field of applied engineering acoustics and industrial noise control. His expertise includes environmental/community noise modeling, predictive noise analyses, noise impact assessment & documentation, as well as machinery noise analysis, mitigation, and control. He is experienced in acoustical analysis, modeling, and investigation techniques using both proprietary and commercially-available computer packages. He is also well-versed in field data acquisition/ measurement techniques and noise data processing methodologies. He has consulting experience in residential sound insulation design optimization analyses, aircraft over-flight noise level measurements, and emergency warning system design. Mr. Mantey has training in ISO 9000 implementation, Kepner-Tregoe decision-making and technical contract management. He has foreign assignment experience in Taiwan, Saudi Arabia, Thailand, and Mexico.

Experience:

PROJECT MANAGEMENT / GROUP MANAGEMENT: For 8 years, Mr. Mantey has been a managing technical principal of an acoustical engineering consulting firm that he co-founded. This consulting firm provides services to both private and government entities in environmental noise assessment, industrial noise control, transportation noise analyses, vibration evaluation, and acoustical project planning. Prior to establishing AAC, Bob was responsible for group management and administrative oversight of several noise control engineering and acoustical specialists at two firms over a span of 10 years. He also was the Project Manager of an industrial noise survey and worker exposure study at a large, Middle-Eastern refinery, and the Project Manager of several power substation noise assessment jobs for a large southern California utility.

Alliance Acoustical Consultants, Incorporated.
bmantey@allianceacoustics.com
800/664-7318 Voice
800/664-7340 Fax

INDUSTRIAL NOISE CONTROL: Bob has performed environmental noise analysis, predictive design modeling, and worker (OSHA) exposure assessments for hundreds of electrical power generation stations, refinery/hydrocarbon-processing plants, and commercial/industrial facilities. Emphasis was placed on noise control of all types of rotating machinery, cooling equipment, process piping, venting sources, and material handling systems. Project involvement often entails 'cradle-to-grave' services from regulatory review, to ambient baseline surveys, to permitting and impact assessment, to noise control engineering (throughout the design process), to start-up troubleshooting, to verification measurements following commissioning. Noise reduction/mitigation projects – ranging from snack chip production/packaging lines to petrochemical processing complexes – typically have entailed source assessments, mitigation methodology examinations, vendor screenings, benefit estimations, and costing investigations to establish a cost-effective and practical noise reduction approach, while minimizing facility down-time. Most recently, Bob has supported the design teams regarding on-site equipment noise mitigation for two overseas U.S. embassies, while maintaining security and functionality aspects.

POWER PLANT PERMITTING AND DESIGN SUPPORT: As a subset of CEQA assessment documentation Bob has reviewed, contributed to, analyzed, and/or written noise sections for many power plant permit applications to the California Energy Commission (CEC). As part of the CEC permitting process, technical noise studies, modeling analyses, Application for Certification (AFC) section generation, response to comments, and/or assistance in public hearings have been performed for the following California power projects: Hydrogen Energy California, Orange Grove, Margarita, Miramar (MEF II), South Bay (San Diego), Morro Bay, Avenal, Colusa, Tesla, Moss Landing, Rio Linda/Elverta, Mountainview, High Desert, Riverside Canal, and Crockett. Mr. Mantey has also prepared technical noise studies on power plants in 15 other states and in a half-dozen countries for such developers as Mission Energy, Wellhead Electric, LS Power, SDG&E, Duke Energy, Reliant Energy, Calpine, ConEd, Entergy, AES, FPL, TIE, Panda Power, PSE&G, MEGA, TransAlta, Iberdrola, Energy NorthWest, EMI, and Thermo Ecotek.

NOISE MEASUREMENTS / MONITORING: Bob has done community/environmental noise data acquisition on industrial facilities, transportation sources, and entertainment venues and he has conducted field studies of machinery noise emissions at several power plants and refineries; both domestic and foreign. Measurements have included frequency-band, time-averaged, and statistical sound level data acquisition/processing techniques. Also, he has performed on-site noise mitigation trouble-shooting at operating facilities, including food-grade facilities, off-shore oil drilling platforms, a CO_2 recovery plant, large refineries, and several power plants.

TRANSPORTATION: Currently, Bob is working on a roadway noise impact assessment for a medical office development adjacent to both busy arterial and highway roadways. Bob has performed railway noise and vibration measurements on active freight and commuter rails lines; most recently on the proposed Gold Line commuter rail line in the City of South Pasadena. Bob has also conducted public information presentations and city staff overview briefings for a roadway realignment project in the City of Orange. Previously, he carried out field measurements of aircraft fly-over noise for residential sound insulation projects around several major airports, including LAX and John Wayne (SNA). On the analytical side, he helped develop, run, and update computer optimization studies for retrofit sound insulation upgrades for several residential pilot programs at major southern California airports. He helped write a performance specification for an expanded and updated community noise monitoring system at LAX.

ENVIRONMENTAL NOISE ASSESSMENT AND EIR DOCUMENTATION: Bob wrote or assisted in the preparation of the noise section and/or noise technical appendix for several California development projects requiring CEQA-based EIR documentation. These projects included the Hollywood & Highland Entertainment Center (the permanent home of the Oscars®), the Warner Center Specific Plan Supplemental EIR, WDI's Grand Central Creative Campus (GC3) studios in the Glendale Redevelopment Center, WDI's Third Gate in the Disneyland Resort Complex, and the LA Equestrian Center. He also performed technical review and helped generate formal responses to comments on the proposed Universal City Specific Plan EIR (for Universal Studios' proposed theme park, retail, and hotel expansion). Bob also generated NEPA documentation for potential noise impacts from a facility expansion/upgrade project on a Veterans Administration Hospital. All of these environmental assessment projects entailed significant noise-related issues and/or potential impacts to surrounding land uses, adjacent residential area, and/or nearby school facilities.

LEGAL SUPPORT: Bob has supported legal firms in the environmental application process for several power plant projects, including testifying (sworn-in hearings) before the California Energy Commission on one of the most complicated and involved projects to go before the CEC. In support of a legal firm representing a homeowners' group, Mr. Mantey conducted outdoor noise level measurements in a dispute over potentially intrusive commercial operations. He has also contributed to the litigation support of *LAUSD vs. City of Los Angeles*, concerning noise impacts in a degraded classroom noise environment for the City of Los Angeles' Warner Center Specific Plan.

ARCHITECTURAL ACOUSTICS: Bob has modeled and analyzed potential impacts from exterior mechanical equipment onto interior spaces at several commercial facilities, including hospitals, schools, and two overseas embassies for the U.S. Department of State. Bob also supported the architectural acoustics design efforts for operating spaces inside the City of Long Beach and City of Los Angeles Emergency Operations (911) Centers. Previously, he applied theoretical research studies to the practical estimation/assessment of sentence intelligibility parameters inside industrial work spaces. He also evaluated telecommunications effectiveness and alerting capabilities on interior environments in several nuclear power facilities.

ACOUSTICS RESEARCH: Bob was the Task Manager on a noise research project for Riverside County aimed at studying the noise emissions, measurement methodologies, and long-range propagation of noise from electricity generation wind turbines. A technical paper was presented at a Wind Turbine Technology Symposium.

DOUGLAS R. MURRAY, CCM

EDUCATION

M.S., Geoscience/Atmospheric Sciences, Purdue University, 1977
B.S., Atmospheric Sciences, State University of New York at Albany, 1975

PROFESSIONAL REGISTRATION

Certified Consulting Meteorologist, American Meteorological Society, (#415), 1987

AREAS OF EXPERTISE

Mr. Douglas R. Murray, CCM has program management and technical expertise in:

- Expert Testimony
- Air Quality Planning and Analysis
- Experimental Design and Field Project Management
- Dispersion Modeling and Model Evaluation
- Air Toxics Evaluation
- Odor Assessment and Modeling
- Materials Damage and Corrosion Assessment
- Air Quality and Meteorological Monitoring

REPRESENTATIVE EXPERIENCE

Mr. Murray has over 29 years of environmental consulting experience. Mr. Murray is a Principal Consulting Scientist and a Certified Consulting Meteorologist. He performs dispersion modeling, meteorological and air quality monitoring studies, and applied research for a variety of industrial, utility, and governmental clients. His experience includes modeling and model development for traditional and nontraditional sources; meteorological, aerometric and remote sensing data acquisition; dispersion modeling for power plants and industrial sources; odor surveys and modeling; toxics and emergency response modeling; materials damage and economic assessments; regulatory reviews; dispersion model performance evaluations; and various other programs involving the atmospheric sciences.

Expert Testimony

Mr. Murray is a Certified Consulting Meteorologist, the highest professional certification of the American Meteorological Society, and has provided expert reports and testimony for litigation and before public agencies.

Drayer vs. Lallier, Litigation Support – Mount Holly, NJ (Expert Witness: 1996)
Mr. Murray quantified dust emissions from a commercial horse stable and the impact of the emissions on a neighboring property. He testified regarding findings at a civil trial.

M. Shane Buckley et al. vs. American Electric Power, Robinson and McElwee, LLP, Litigation Support (Expert Witness: 1999)
Mr. Murray served as an expert witness in a civil suit claiming automobile and residential paint damage attributable to power plant emissions. Following field investigation and submittal of an expert report, the case was dismissed.

Anne S. Finder et al. vs. Springhill Terrace Associates, Gulash and Riccio, Litigation Support – CT (Expert Witness: 1998 – 1999)
Mr. Murray reviewed meteorological data and provided expert witness testimony in an accident related civil suit.

LaMalfa, et al. vs. ML&P Trucking, L.L.C., Litigation Support – Portland, CT (Expert Witness: 2001)
Mr. Murray Inspected damage of materials in-place and collected materials damage field samples for microscopic analysis in TRC's in-house laboratory. He provided expert witness services on atmospheric induced materials damage in a civil suit.

United States vs. Illinois Power Company, (Civil Action No. 99-833-DRH), Akin, Gump, Strauss, Hauer, Feld, LLP – Baldwin, IL (Expert Witness: 2002 – 2003)
Mr. Murray served as an expert witness in New Source Review (NSR) case under the Clean Air Act regarding the impact of power plant emissions on architectural and cultural/historical materials.

Mannheimer vs. City of Bremerton, WA, Carney, Badley, Smith and Spellman – Bremerton, WA (Expert Witness: 1998 – 2000)
Mr. Murray served as an expert witness on air quality and odor modeling in class action suit against the City of Bremerton, WA/Olympic View Sanitary Landfill.

United States vs. W.R. Grace, et al., Libby, MT, Kirkland and Ellis, LLP – Libby, MT (Expert Witness: 2006 – Present)
Mr. Murray is serving as an expert witness on air quality and dispersion modeling for asbestos in a criminal trial.

Valley Protein, Mays and Valentine, Air Quality Modeling – VA (Expert Witness: 2000)

Mr. Murray testified in an adjudicatory proceeding in Virginia regarding air quality and odor modeling for a proposed rendering plant.

Lane Construction, Air Quality Modeling – Brainard, NY (Expert Witness: 1995 –1996)
Mr. Murray testified as an expert witness regarding air quality and atmospheric modeling for an adjudicatory proceeding for a proposed hard rock quarry.

D&J Earthworks, Air Quality Modeling – Old Lyme, CT (Expert Witness: 2004 –2005)
Mr. Murray served as Expert Witness before the Inland Wetland Commission of Old Lyme, Connecticut regarding a proposed quarry operation's impact on air quality and ecological resources.

Air Quality Planning and Analysis

Mr. Murray has directed or participated in numerous air quality evaluation programs, both for individual sources and for regional planning. These programs have utilized both modeling and monitoring approaches to assess or predict air quality. In addition, Mr. Murray has consulted with the U.S. Environmental Protection Agency (USEPA) at the science policy level to establish the National Ambient Air Quality Standards (NAAQS).

J-Power, Orange Grove Energy – CA (2007-Present)
Mr. Murray is supporting air quality permitting and environmental compliance activities for a proposed combustion turbine power plant in northern San Diego County. Filings have been submitted to the San Diego Air Pollution Control District and the California Energy Commission.

PPL Services Corporation, BART Compliance – PA and MT (Project Manager: 2006 – Present)
Mr. Murray is managing visibility modeling and engineering assessments for compliance with Best Available Retrofit Technology (BART) rules under the Regional Haze Regulations.

American Electric Power, Great Bend and Mountaineer IGCC Air Permitting – OH and WV (Air Quality Modeler: 2006 – Present)
Mr. Murray provided air quality analyses in support of PSD permitting for Integrated Coal Gasification/Combined Cycle turbine power projects.

PPL Services Corporation, Air Quality Permit Modeling for Montour and Brunner Island Generating Stations – PA (Project Manager: 2005)
Mr. Murray managed air quality modeling program air pollution control system installations at two coal-fired generating stations.

MGM Mirage, City Center Project – Las Vegas, NV (Project Task Manager: 2005)
Mr. Murray managed air quality modeling program for construction of the City Center Project on the Las Vegas Strip, one of the largest private development projects in the United States.

Meridian Gold, Inc., Esquel Mine, Air Quality Modeling – Esquel, Argentina (Project Task Manager: 2003 – 2006)
Mr. Murray managed air quality modeling to international standards for a proposed gold mine in the foothills of the Andes.

PPL Generating/ Kings Park Energy LLC, Simple Cycle Turbine Generating Station, Environmental Permitting – Kings Park, NY (Air Quality Modeler: 2000 –2001)
Mr. Murray provided air quality analyses in support of New York Article X Application on Long Island.

Lake Road Generating Company, Combined Cycle Turbine Generating Station, Environmental Permitting – Killingly, CT (Air Quality Modeler: 1999)
Mr. Murray conducted and reported air quality dispersion modeling and visual impacts analysis for a greenfields power plant development project in Connecticut. This project followed all CTDEP modeling guidelines for modeling a major stationary source.

CRRA, Existing and Potential Future Landfill Operations Evaluation – Windsor, CT (Visual Impacts Assessor: 2000)
TRC assisted CRRA in its engineering, environmental, and economic evaluation of existing and potential future operations at the Windsor Landfill. TRC provided assistance in consideration of the opportunities associated with the partnering of CRRA and the Town of Windsor in the future operation and management of the landfill. Mr. Murray conducted visual impacts analyses for CRRA and the public using computer and field-based techniques.

Kleen Energy, LLC, Environmental Permitting of the Kleen Energy Project – Middletown, CT (Visual Impacts Assessor: 2001)
TRC is responsible for all environmental permitting for the siting of this large electric power generation facility. Mr. Murray conducted visual impacts analyses using computer and field-based techniques as part of the regulatory compliance requirements for the air permit application.

Calpine-Lawrence, Combined Cycle Generating Station, Environmental Permitting – Lawrence County, OH (Air Quality Modeler: 2000 – 2001)
Mr. Murray provided air quality analyses and complex terrain modeling for a large, combined cycle generating station in Ohio.

Calpine-Stony Brook, Combined Cycle Generating Station, Environmental Permitting – Stony Brook, NY (Air Quality Modeler: 2002 – 2003)

Mr. Murray provided air quality analyses, modeling and permitting for a large, combined cycle generating station/cogen facility in New York.

Astoria Energy, LLC, Combined Cycle Turbine Generating Station, Environmental Permitting – Astoria, NY (Air Quality Modeler: 1999 – 2003)
Mr. Murray provided air quality analyses in support of New York Article X Application and PSD application in New York City.

ARCO Alaska, Exxon USA, and BP, Environmental Fatal Flaws Analysis for Alaska North Slope Gas Commercialization Project, Environmental and Regulatory Review Team – Multiple Locations, AK (Project Manager: 1977 – 1998)
Mr. Murray conducted environmental fatal flaws analysis for proposed gas pipeline and terminal facilities. Primary air emissions sources included natural gas turbines. He evaluated project impacts against various regulatory requirements.

USEPA, Environmental Criteria and Assessment Office, Air Quality Criteria Documents for Oxides of Nitrogen, Photochemical Oxidants and Particulate Matter – Nationwide, U.S. (Project Author and Expert Reviewer: 1990 – 1995)
Mr. Murray is the author of the NO_x and ozone criteria documents and a paid reviewer of the particulate criteria document. Criteria documents form the scientific basis for USEPA's NAAQS.

USEPA, Development of Dispersion Parameters for Complex Terrain – Nationwide, U.S. (Task Manager: Prior to 1990)
Mr. Murray reviewed and analyzed airborne and surface concentration measurements collected by the USEPA's Las Vegas Laboratory in complex terrain settings throughout the Rocky Mountains. He used various mathematical fits to parameterize the raw data.

Allegheny County, State Implementation Plan (SIP) Development – Allegheny County, PA (Air Quality Analyst: Prior to 1990)
Mr. Murray performed modeling in the complex terrain and highly industrialized setting of Allegheny County to explore control strategies for SIP development and NAAQS compliance.

American Petroleum Institute, Chapter 6, Dispersion of Gases – Nationwide, U.S. (Project Author: Prior to 1990)
Mr. Murray prepared the "Dispersion of Gases" chapter for API's handbook on refinery emissions.

ASARCO, Air Quality Modeling and Model Evaluation – East Helena, MT (Air Quality Modeler: 1992)
Mr. Murray participated in an extensive complex terrain modeling and monitoring program for a primary lead smelter in Montana.

Confidential Client, Evaluation of Sulfur Dioxide Monitoring Network – Globe, AZ (Project Manager: Prior to 1990)
Mr. Murray Inspected and multi-station air quality and meteorological monitoring network and performed complex-terrain air quality dispersion modeling.

Charles River Associates/USEPA, Diesel Exposure – Nationwide, U.S. (Project Manager: Prior to 1990)
Mr. Murray estimated the frequency of personal exposure to detectible odors of diesel fumes in urban environments based on modeling and available monitored air quality data.

California Energy Commission, Externalities Cost Model for Power Plant Siting – Statewide, CA (Air Quality Modeler: 1991 – 1992)
Mr. Murray participated in the design and implementation of an air quality/economic impact model to optimize power plant siting in California's air basins.

City of Hudson, Environmental Impact Statement (EIS) Review – Hudson, NY (Project Manager: Prior to 1990)
Mr. Murray conducted an independent review of an EIS for an oil re-refinery proposed for the shore of the Hudson River.

Kennecott Copper Company, Evaluation of Ozone SIP – Salt Lake City, UT (Project Task Manager: 1993 – 1994)
Mr. Murray evaluated the technical and modeling basis of the ozone SIP proposed for the Salt Lake-Provo, Utah area.

Geneva Steel, Carbon Monoxide (CO) Non-Attainment Area Evaluation – Provo, UT (Air Quality Analyst: 1991)
Mr. Murray analyzed an extensive set of meteorological, air quality and atmospheric tracer data to determine the contribution of the mill to CO concentrations in a non-attainment area.

Lane Construction, Brainard Quarry, Air Quality Modeling – East Nassau, NY (Project Manager: 1995 – 1996)
Mr. Murray performed air quality modeling and testified in an adjudicatory hearing under New York State's Environmental Quality Review Act (SEQRA) process regarding particulate matter and crystalline silica generation from the proposed hard rock mine and resulting community exposures.

USEPA, Area Source Module Evaluation – Nationwide, U.S. (Project Task Manager: Prior to 1990)
Mr. Murray evaluated the technical basis of area source algorithms as implemented in various USEPA regulatory models.

Procter and Gamble, Hamilton County SIP Development Assistance – Ivorydale, OH (Project Manager: 1990)
Mr. Murray assisted Procter and Gamble with modeling to understand the impact of the proposed Hamilton County SIP on their operations.

American Energy Systems, Complex Terrain Modeling – Jobos, PR (Air Quality Modeler: 1993 – 1995)
Mr. Murray conducted multi-source, complex terrain modeling in support of construction and operating permits for a new power plant installation.

Alyeska Pipeline Service Company, Complex Terrain Modeling – Valdez, AK (Project Manager: 1994 – Present)
Mr. Murray conducted complex terrain modeling for Alyeska's implementation of a marine vapor control system and other air quality related issues at the Valdez Marine Terminal. The modeling was intricate due to the number and types of sources involved, including a fleet of tankers involved in the Alaska trade.

Conectiv Energy, NO_x RACT Compliance – DE and MD (Project Manager: 2000)
Mr. Murray assisted utility client in development of alternative NO_x RACT limits for three generating stations in Delaware and Maryland.

Experimental Design and Field Project Management

Mr. Murray has designed and conducted several large, multi-contractor field projects. These projects have required extensive planning and management skills to attain the project goals.

Electric Power Research Institute (EPRI), Plume Model Validation and Development Project – Nationwide, U.S. (Technical Manager: Prior to 1990)
Mr. Murray served as Technical Manager for EPRI's Plume Model Validation project, a $32 million, multi-year atmospheric research effort. He oversaw the activities of several contractors and subcontractors. He supervised the implementation of a large database management system with associated dispersion models and statistical software. He directed the design of a comprehensive quality assurance program, designed field measurements programs including tracer network design and monitor siting, and oversaw the field monitoring program involving air quality and meteorological data collection and utilizing state-of-the-art remote sensing equipment and aircraft.

Alyeska Pipeline Service Company, Valdez Air Health Study – Valdez, AK (Project Manager: 1989 – 1992)
Mr. Murray served as Project Manager for an innovative personal air toxics monitoring and tracer program, the Valdez Air Health Study. He oversaw the design and implementation of an intensive personal and indoor/outdoor volatile organic compound (VOC) monitoring program using atmospheric tracers to

apportion emissions. He was the editor of the final, multiple contractor risk assessment report.

Puerto Rico Environmental Quality Bureau, Air Monitoring and Risk Assessment Time Critical Removal Action at Former Vieques Naval Training Range – PR (Air Quality Analyst: 2005 – Present)
Mr. Murray reviewed the air quality monitoring sites and data reports relative to ordnance removal operations at a former naval practice bombing range. He reviewed air quality monitoring system design for controlled forest burns as part of the remediation program.

EG&G/Department of Energy, Rocky Flats Plant, Winter Validation Study – Boulder, CO (Program Manager: 1990 – 1991)
Mr. Murray served as overall manager of the Winter Validation Study at the Rocky Flats Plant, an extensive tracer, meteorological and remote sensing program. The project was cooperative with DOE's ASCOT program and included 14 field measurements contractors or cooperative agencies with several subcontractors. The study provided plume data for the evaluation of Rocky Flat's sophisticated plume dispersion model.

Minneapolis Energy Center, Inc., Urban Downwash Study – Minneapolis, MN (Project Manager: 1990)
Mr. Murray served as Project Manager for a study of plume downwash in an urban core area for the Minneapolis Energy Center. He designed and implemented a meteorological and tracer measurement program for downtown Minneapolis to evaluate the applicability of the USEPA's Industrial Source Complex model for predicting SO_2 concentrations. He statistically analyzed the results to show that the model over-predicts during stable, low wind speed conditions.

Confidential Client, Property Transfer – Nationwide, U.S. (Field Coordinator: 1995)
Mr. Murray coordinated nationwide file searches and record reviews of 29 manufacturing facilities on a very compressed project time schedule. The seller agreed to retain environmental liability for previous releases at the facilities and needed a complete set of materials handling records, manifests, etc. for their legal department to use in the event of future law suits or Superfund actions. The results of the file searches were put into a database by chemical and facility to enable the client to respond to potentially responsible party (PRP) notifications. He also supported the client with response to a CERCLA 104 information request.

Consolidated Edison Company of New York, Evaluation of PCB Inventories for Oil Filled Electrical Equipment – New York City, NY (Project Manager: 1998 – 1999)

Mr. Murray designed and conducted a project to evaluate the precision of PCB concentration information contained in Con Ed's inventories that are used for compliance with TSCA and for emergency response in the event of a fire or spill. He prepared the sampling approach, oversaw field sampling and performed the database evaluation which was reported to the New York State Department of Environmental Conservation and the Public Service Commission as well as the New York City Department of Environmental Protection and the Fire Department.

U.S. Army Corps of Engineers, Hurricane Georges Cleanup – Salinas, PR (Field Manager: 1998 – 1999)
As part of the disaster response and cleanup from Hurricane Georges, the Corps of Engineers designed and constructed an incinerator to handle storm damaged materials. Mr. Murray participated in negotiations with the Environmental Quality Bureau and USEPA Region II personnel regarding the design of an air quality monitoring program for a waste handling/incinerator site. He directed a field crew and subcontractors in around-the-clock monitoring for the site while still under disaster conditions (disrupted power, communication and transportation systems, tropical disease health warnings in effect). The project succeeded in meeting required data capture targets and the Corps of Engineers was able to demonstrate environmental compliance.

Dispersion Modeling and Model Evaluation

Mr. Murray has modeled a wide variety of emissions sources using USEPA "Guideline" models, various Gaussian and first-order closure models and physical models (wind tunnel). He has played a key role on several model evaluation projects.

American Petroleum Institute, Model Evaluation Program – Nationwide, U.S. (Air Quality Analyst: Prior to 1990)
Mr. Murray was responsible for creating a computer archive of experimental data containing over 80,000 station observation hours from 17 tracer dispersion programs. These data were the basis for an extensive evaluation of USEPA's air quality dispersion models.

USEPA, Narrative Example – Nationwide U.S. (Project Author: Prior to 1990)
Mr. Murray conducted the statistical evaluation and authored the "Narrative Example" for the USEPA's Interim Procedures for Evaluating Air Quality Models.

American Mining Congress, Model Evaluation – Nationwide, U.S. (Air Quality Modeler: Prior to 1990)
Mr. Murray compared model predicted concentrations against monitored air quality data for several surface mining operations.

American Petroleum Institute and Western Oil and Gas Association, Model Evaluation – Nationwide, U.S. (Air Quality Modeler: Prior to 1990)
For offshore oilfield development projects, Mr. Murray evaluated the technical applicability of available modeling approaches and compared model predictions to onshore monitored data.

Confidential Client, Deposition Algorithm Evaluation – Classified (Project Manager: 1993 – 1994)
Mr. Murray reviewed available particle and gas deposition modeling algorithms for inclusion in a model to determine the impact of a conventional weapon strike on a hardened target containing biological and chemical warfare agents.

Pennsylvania Electric Company/General Public Utilities, Model Evaluation Programs – Western PA (Air Quality Modeler: 1991 – 1998)
Mr. Murray performed modeling and air quality model performance evaluations for several electric generating stations in the complex terrain of western Pennsylvania.

North Shore Mining, Model Evaluation – Silver Bay, MN (Project Manager: 1994 –1995)
Mr. Murray prepared an evaluation protocol following the USEPA's "Interim Procedures for Model Evaluation" and executed the statistical procedures for a complex, multi source mineral processing facility.

Wyoming Mining Association, Model Performance Evaluation – Various Western Mines (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted an evaluation of the applicability of AP42 emission estimates and the ISC model to surface mining operations.
USEPA, User's Guide for the ISC Model – Nationwide, U.S. (Project Author: Prior to 1990)
Mr. Murray prepared sections of the User's Guide for the ISC model.

China Technical Corporation, Inc., Model Training and Emissions Evaluation – Taipei, Taiwan (Project Role: 1992)
Mr. Murray provided dispersion model training to CTCI staff engineers, subcontractors and members of the Republic of China environmental regulatory community. He also conducted field evaluations of emissions sources in industrial parks in Kaosuing in southern Taiwan.

Dairyland Power, Acid Deposition/Long Range Transport Modeling – WI (Air Quality Modeler: Prior to 1990)
Mr. Murray modeled power plant emissions to determine the contribution of the facilities to regional acid precipitation.

FMC Corporation, Total Suspended Particulate Modeling – Pocatello, ID (Air Quality Modeler: Prior to 1990)

For an elemental phosphorous plant, Mr. Murray conducted emissions surveys and air quality modeling to assess compliance with NAAQS for total suspended particulate (TSP).

Pennsylvania Department of Environmental Protection (PADEP) Bureau of Air Quality, Modeling Assistance – Statewide, PA (Project Manager: Prior to 1990)
Through the USEPA's State Assistance Program, Mr. Murray provided expert meteorological and modeling advice to the PADER Bureau of Air Quality.

USEPA, Pollutant Episode Analysis – Nationwide, U.S. (Task Manager: Prior to 1990)
Mr. Murray analyzed meteorological and air quality data collected during episodes of high observed concentrations of ozone and other criteria pollutants. The objective of the study was to identify underlying meteorological causes of elevated concentration events.

GE Silicones, Risk Assessment Modeling – Waterford, NY (Air Quality Modeler: 1996 – 2006)
Mr. Murray performed dispersion modeling to assess community health risks under USEPA's BIF regulations.

Air Toxics Evaluation/Accidental Release

Mr. Murray has conducted a variety of air toxics monitoring, dispersion modeling and model evaluation projects.
Connecticut Resources Recovery Authority, Health Assessment Modeling for Landfill – Hartford, CT (Air Quality Modeler: 1995)
Mr. Murray employed modeling (ISCST3), monitoring and emissions data to assess the health risks associated with operation and expansion of an urban area regional landfill.

Cosmed Group, Permitting Assistance – RI and NJ (Project Task Manager: 2002 –2006)
Mr. Murray provided emission measurement, permitting and regulatory assistance for ethylene oxide sterilizer facilities.

Posillico Brothers Asphalt Company, Plume Modeling Study – Farmingdale, NY (Project Manager: 2002)
Mr. Murray provided air toxics modeling for an asphalt plant in response to DEIS public comments.

PPL Generation, LLC, Lake Wallenpaupack Project Hydrogen Sulfide Emissions – Lake Wallenpaupack, PA (Project Manager: 2001 – 2002)
Mr. Murray estimated maximum long and short term concentrations arising from tailstock emissions.

The Fertilizer Institute, Ammonia Release Modeling – Nationwide, U.S. (Project Manager: 1995 – 1996)
To assist its members in meeting the requirements of USEPA's Risk Management Program under Section 112r of the Clean Air Act Amendments (CAAA) of 1990, Mr. Murray modeled worst-case and alternative scenario accidental releases of anhydrous ammonia for a variety of tank sizes and configurations.

Louisiana Ammonia Producers Association, Ammonia Release Modeling – Statewide, LA (Project Role: 1996)
To assist with 112r compliance, Mr. Murray performed a series of worst-case and alternative scenario modeling runs using appropriate dense gas modeling algorithms. Employed several different modeling approaches and compared their results.

General Public Utilities Generating Company, Shawville Generating Station, Risk Management Plan (RMP) Review – Shawville, PA (Air Quality Modeler: 1996)
Mr. Murray reviewed the existing OSHA Process Safety Management (PSM) plan and recommended additional steps needed to comply with USEPA's RMP requirements. He also performed worst case, dense gas modeling for compounds stored onsite.

Confidential Client, RMP Worst-Case and Alternative Scenario Modeling – Various Upper Midwest States (Project Manager: 1996 – 1997)
For an ammonia production and transportation client, Mr. Murray assisted in defining alternative release scenarios and performed dense gas modeling using DEGADIS and HGSYSTEM to determine distance to endpoint for RMP compliance.

Chemical Manufacturers' Association, Model Evaluation – Nationwide, U.S. (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted an evaluation of dense gas and other models applicable to accidental releases.

Duane Arnold Energy Center, Chlorine Spill Modeling – Palo, IA (Air Quality Modeler: Prior to 1990)
To assess the impact of an accidental chlorine spill on operations of a nuclear power station control room, Mr. Murray modeled several potential accident scenarios and used "what if" analysis techniques to predict accident consequences on both personnel and reactor control hardware.

Ciba Geigy, Hypothetical Phosgene Gas Release Tracer Study – Toms River, NJ (Project Manager: Prior to 1990)

Mr. Murray used sulfur hexafluoride tracer to simulate low wind speed, stable meteorology condition accidental releases from a phosgene gas storage facility.

Carolina Power and Light, Meso-Scale Modeling, Accidental Release and Long-Term Exposure – Hartsville, SC (Air Quality Modeler: Prior to 1990)
Mr. Murray modeled potential accidental and long-term releases of radionuclides using the MESODIFF dispersion model.

Potentially Responsible Parties, McColl Superfund Site – Fullerton, CA (Air Quality Modeler: Prior to 1990)
Mr. Murray modeled odor and toxic air pollutant emissions from one of the first Superfund sites in the country.

Travenol Laboratories, Ethylene Oxide Modeling – Glenview, IL (Project Manager: Prior to 1990)
Mr. Murray modeled near field (employee) and far field (community) concentrations resulting from the operation of bulk sterilizers at a production facility.

Jacknife, Air Toxics Evaluation – Middletown, CT (Project Manager: Prior to 1990) Mr. Murray evaluated the air toxics exposure potential of a proposed movie battle scene for the Robert DiNiro movie "Jackknife".

USEPA, Toxic/Accidental Release Model Evaluation – Nationwide, U.S. (Project Task Manager: Prior to 1990)
Mr. Murray reviewed and prepared databases for the USEPA's evaluation of dense gas dispersion models. He subsequently participated in the model evaluation effort.

Exxon Bayway Refinery, Accidental Release – Bayway, NJ (Air Quality Modeler: 1990)
Mr. Murray collected meteorological data and performed modeling over a three state region in support of litigation actions following an accidental release.

Union Camp Corporation, Air Toxics Sampling – Savannah, GA (Project Manager: 1994)
Mr. Murray designed, conducted and analyzed an ambient sampling program to determine the concentrations of air toxics surrounding a large paper mill and to determine whether the paper mill was a significant source of the compounds measured.

City of Hartford, North Meadows Landfill, Meteorological and Air Quality Sampling Program – Hartford, CT (Air Quality Analyst: 1991)
In response to community concerns regarding landfill gas emission and population exposure, Mr. Murray designed a meteorological and air quality sampling program for the landfill.

Odor Assessment and Modeling

Mr. Murray is an author of TRC's ODOR model, designed to predict very short-term concentrations, and has conducted several odor measurement, survey and modeling studies.

Massachusetts Water Resources Authority, Odor Impact Evaluation and Odor Modeling Support – Boston, MA (Project Task Manager: 2001 – 2004)
Mr. Murray provided support for odor measurement and odor modeling activities for the Deer Island Treatment Plant in Boston Harbor.

City of Fort Lauderdale, Odor Modeling – Fort Lauderdale, FL (Air Quality Modeler: Prior to 1990)
Mr. Murray modeled odorous emissions for a variety of industrial sources in Fort Lauderdale in order to devise an economically viable control strategy.

Dexter Corporation, Odor Impact Evaluation – Windsor Locks, CT (Air Quality Analyst: Prior to 1990)
Mr. Murray conducted odor emission measurements, community odor surveys and odor modeling for a specialty paper company. The modeling used TRC's proprietary ODOR model and was performed to explore control strategy alternatives.

General Motors Truck and Coach, Odor Modeling – Pontiac, MI (Air Quality Modeler: Prior to 1990)
Mr. Murray performed odor modeling for foundry, spray booth and other sources at GM's facilities.

General Motors, Orion Plant, Odor Modeling – Lake Orion, MI (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted odor modeling for proposed control strategies.

Tennessee Eastman, Odor Modeling – Kingsport, TN (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted odor modeling for process control applications.

City of Baltimore, Back River Wastewater Treatment Plant (WWTP), Odor Study – Baltimore, MD (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted odor emission and ambient sampling, and odor modeling for a large municipal WWTP.

Composting Facility, Odor Modeling – Montgomery County, VA (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted odor modeling and community odor evaluation for a state of the art composting facility.

Clark County, Nevada, Odor Modeling – Clark County, NV (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted odor modeling and evaluations for a municipal WWTP.

General Motors, Odor Measurement and Modeling – Van Nuys, CA (Air Quality Modeler: Prior to 1990)
Mr. Murray participated in an extensive odor evaluation and control project at an automotive assembly plant in a heavily developed suburban area.

Valley Proteins, Odor Emissions Testing, Modeling and Professional Testimony – Winchester, VA (Air Quality Modeler: 2000)
Mr. Murray tested and modeled emissions from a poultry rendering facility. He testified in an adjudicatory hearing regarding the odor impact of siting a rendering facility.

Ford Motor Company, Odor Modeling, Twin Cities Plant – St. Paul, MN (Air Quality Modeler: Prior to 1990)
Mr. Murray evaluated the community impact of odors emissions from an automotive manufacturing plant.

Phthalchem, Inc., Odor Modeling – Cincinnati, OH (Air Quality Modeler: Prior to 1990)
Mr. Murray conducted dispersion modeling for emissions from a chemical manufacturing facility.

New Milford Landfill, Odor Modeling – New Milford, CT (Air Quality Modeler: 1996)
Mr. Murray performed extensive ISCST3 odor modeling to determine the impact of removing the existing permanent landfill cap and excavating the landfill to comply with a court decision requiring portions of the landfill materials to be removed from the site.

Canadian Technical Tape, Odor Modeling Evaluation – Montreal, Canada (Air Quality Modeler: 1996)
Mr. Murray supported a manufacturing plant in interpreting and complying with municipal regulations regarding the emission of odorous compounds in an urban setting.

Materials Damage and Corrosion Assessment

Mr. Murray has conducted several projects evaluating the impact of air pollutants on non-biological materials and is past Chairman of the Air and Waste Management Association's Materials Effects Committee.

Orange and Rockland Utilities, Materials Damage Study – Stony Point, NY (Project Manager: 1987 – 1990)
Mr. Murray designed and conducted a three-year field exposure study of the impact of a coal fired utility plant on metals, paints and structural stone. The study involved several field monitoring sites with concurrent air quality and meteorological monitoring.

USEPA, Coating Performance Evaluation – Jacksonville, FL (Project Manager: 2002 – 2005)
Mr. Murray designed and conducted a two-year field exposure study of coating performance at the Naval Air Station, Jacksonville, Florida. The study incorporated exposure coupons, fuel tank and runway striping coatings.

USEPA, Materials Damage Survey – AZ, NE, NC (Air Quality Analyst: Prior to 1990)
Mr. Murray conducted a field survey of single and multi-family residential, commercial and agricultural materials in-place in Tucson, Arizona, Lincoln, Nebraska and Charlotte, North Carolina. The objective of the survey was to quantify the types of exposed materials in pre-selected Census Tracts so that a predictive model of materials in place could be developed to support estimates of the economic consequences of air pollution induced materials damage to building exteriors.

California Air Resources Board, Economic Estimate of Air Pollution Materials Damage – Los Angeles, CA (Air Quality Analyst: Prior to 1990)
Using data bases of monitored air quality data, estimates of materials in place and materials damage functions, Mr. Murray estimated the total and per capita costs of air pollution induced materials damage in the South Coast Air Basin.

National Park Service, Air Pollution Damage to Statuary and Historic Building Facades – Nationwide, U.S. (Project Manager: Prior to 1990)
Mr. Murray designed and conducted a survey of art conservators, historic preservation groups and building contractors to quantify the economic impact of air pollution on culturally and historically significant properties including bronze statuary and masonry building facades.

First Brands Corporation, Severe Atmospheric Corrosion – Cartersville, GA (Project Manager: Prior to 1990)
Mr. Murray investigated equipment failure attributable to rapid atmospheric corrosion at three manufacturing facilities. Ambient sampling was conducted to identify chemically active ions and determine the likely sources of the damaging emissions.

Freeport Sulfur, Materials Damage/Emission Study – Jacksonville, FL (Air Quality Analyst: Prior to 1990)
Mr. Murray participated in a project to determine the particulate emissions from pelletized sulfur and determine the corrosion impact of sulfur.

City of Charleston, Materials Damage Pine Island WWTP – Charleston, SC (Project Manager: Prior to 1990)
Mr. Murray analyzed an acute rapid corrosion problem at the city's WWTP and recommended control strategies to resolve the corrosion problems.

Electric Motion, Materials Damage/Corrosion Evaluation – Winsted, CT (Project Manager: Prior to 1990)
Mr. Murray conducted an investigation of corrosion of electronics components stored in a warehouse environment. Using microscopy, he found that modifications to coating processes were needed.

National Acid Precipitation Assessment Program (NAPAP), Review of Acid Precipitation Impact on Materials – Nationwide, U.S. (Air Quality Analyst: Prior to 1990)
Mr. Murray conducted a critical review of NAPAP's findings regarding the effects and economics of acid precipitation on culturally significant and common architectural materials.

Fritzche, Dodge, Olcott, Materials Damage Review – New York, NY (Air Quality Analyst: Prior to 1990)
Mr. Murray reviewed materials damage and corrosion allegedly caused by material handling practices at a manufacturing facility.

Monitoring and Data Evaluation

Mr. Murray has been responsible for several air quality and meteorological monitoring programs.

Phelps Dodge, Metals Deposition Analysis – Norwich, CT (Air Quality Modeler: 2000)
Mr. Murray performed statistical/graphical analysis of geographic concentration pattern of metals in soil and streambeds to determine probable source locations.

New York State Department of Transportation, Carbon Monoxide (CO) Hotspot Monitoring – New York, NY (Project Task Manager: 1990 – 1991)
Mr. Murray installed and operated CO Hotspot monitoring sites around some of the busiest intersections in midtown Manhattan. The project was conducted as part of the West Side Highway rebuild environmental assessment.

New York Economic Development Corporation, Richmond County Ballpark at St. George Design – New York, NY (Air Quality Analyst: 1998)
Mr. Murray participated in design of a minor league baseball park on Staten Island by examining historical wind data to determine the appropriate distance to the outfield fence.

Industry Consortium, Pioneer Valley Hi-Vol Sampling Program – Statewide, MA (Air Quality Analyst: Prior to 1990)
Mr. Murray managed a 12-station TSP monitoring network throughout the Connecticut River Valley in Massachusetts.

Boston Edison Company, Meteorological Monitoring Pilgrim Station – Plymouth, MA (Air Quality Analyst: Prior to 1990)
Responsible for meteorological system maintenance, data processing and review to meet Nuclear Regulatory Commission (NRC) requirements for a safety related program with full NRC Quality Assurance (QA).

Sandia National Laboratory, Waste Isolation Pilot Plant (WIPP) – Carlsbad, NM (Air Quality Analyst: Prior to 1990)
Mr. Murray was responsible for meteorological data processing and reporting under NRC QA requirements. He also performed accidental release and long-term exposure modeling calculations for the proposed facility.

Finch Pruyn Corporation, Meteorological Monitoring System Design – Glens Falls, NY (Air Quality Analyst: Prior to 1990)
Mr. Murray designed a meteorological monitoring system to meet PSD and state monitoring requirements for onsite data collection in support of regulatory dispersion modeling.

Mashantucket Pequot Tribe, Meteorological and Air Quality Monitoring System Design – Ledyard, CT (Air Quality Analyst: 1994)
Mr. Murray prepared a conceptual design plan to assess the air quality impacts of development of the reservation property.

Yankee Atomic Electric Company, Meteorological Data Evaluation – Rowe, MA (Air Quality Analyst: Prior to 1990 – 1999)
In compliance with NRC safety requirements, Mr. Murray reviewed meteorological data collected at the Rowe power station.

Princeton University Plasma Physics Laboratory, Meteorological Data Evaluation, – Princeton, NJ (Air Quality Analyst: Prior to 1990 – 1999)
In compliance with NRC safety requirements, Mr. Murray reviewed meteorological data collected at Princeton's research facility.

PROFESSIONAL AFFILIATIONS

- American Meteorological Society, Certified Consulting Meteorologist

- Air and Waste Management Association (National and Connecticut Chapter, Chairperson)

SELECTED PUBLICATIONS AND PRESENTATIONS

Murray, D.R., "Experiences Using AERMOD," Presented *Air Quality Models Specialty Conference*, at *Air and Waste Management Association*, Newport, RI, April 2001.

Murray, D.R., "Compliance with USEPA's Risk Management Planning", *New Jersey Environment, Massachusetts Environment and Pennsylvania Environment,* Environment News Magazines, Inc., Bloomfield, CT, January 1997.

Murray, D.R., "Atmospheric Tracer Concentrations from Elevated Source in Urban Core", *Journal of Environmental Engineering, American Society of Civil Engineers*, Vol. 121, No. 1, January 1995.

Murray, D.R., "Observed Downwash Concentrations Compared to ISCST Predictions in Urban Core," *Journal of Environmental Engineering, American Society of Civil Engineers*, Vol. 121, No. 1, January 1995.

Murray, D.R., "Review of the Effects of Ozone and Nitrogen Oxides on Non-Biological Materials," 94MP1.02, Presented at the *87th Annual Meeting of the Air and Waste Management Association*, Cincinnati, OH, June 1994.

Murray, D.R., "CTDMPLUS Modeling Program Development and Implementation at the ASARCO Primary Lead Smelter," 94WP89.04, Presented at the *87th Annual Meeting of the Air and Waste Management Association*, Cincinnati, OH, June 1994.

Murray, D.R., "Preparing for CTDMPLUS Modeling Analysis: Necessary Enhancements to an Existing Meteorological Monitoring Network," Presented at the *8th Joint Conference on Applications of Air Pollution Meteorology, American Meteorological Society*, Nashville, TN, January 1994.

Murray, D.R., "Meteorological Aspects of Benzene Transport, Dispersion and Personal Exposure in Valdez, Alaska," Presented at the *8th Joint Conference on Applications of Air Pollution Meteorology, American Meteorological Society*, Nashville, TN, January 1994.

Murray, D.R., "Evaluation of REMTECH PA2 Phased Array SODAR Performance in Complex Terrain Using In-Situ Turbulence Instruments," Presented at the *8th Joint Conference on the Applications of Air Pollution Meteorology, American Meteorological Society*, Nashville, TN, January 1994.

Murray, D.R., "Impact of a Coal-Fired Power Plant on Architectural Materials," Presented at the *84th Annual Meeting of the Air and Waste Management Association*, Vancouver, Canada, June 1991.

Murray, D.R., "Valdez Air Health Study: Exposure Monitoring and Risk Assessment," Presented at the *International Symposium on Measurement of Toxic and Other Related Air Pollutants*, Raleigh, NC, March 1991.

Murray, D.R., "Comments on NAPAP's Program on Materials and Cultural Resources Effects", Presented at the *National Acid Precipitation Assessment Program Peer Review Meeting*, Charleston, SC, January l989.

Murray, D.R., "Plume Dispersion Project," Presented at the *2nd International Conference on Atmospheric Sciences and Applications to Air Quality*, Tokyo, Japan, October 1988.

Murray, D.R., "Design and Implementation of a Materials Deterioration Monitoring Study for an Electric Utility" Presented at the *81st Annual Meeting of the Air Pollution Control Association*, Dallas, TX, June 1988.

Murray, D.R., "Industrial Toxic Gas Storage Facility Dispersion Study," Presented at the *1988 USEPA/APCA Symposium on Measurement of Toxic and Related Air Pollutants,* Raleigh, NC, May 1988.

Murray, D.R., "Urban Power Plant Plume Studies," *EPRI EA5468, Electric Power Research Institute*, Palo Alto, CA January 1988.

Murray, D.R., "Dispersion of Gases", Manual on *Disposal of Refinery Wastes*, Volume on *Atmospheric Emissions, American Petroleum Institute*, Washington, D.C., 1987.

Murray, D.R., "Urban Dispersion Model Evaluation," Presented at the *Fifth Joint Conference on the Applications of Air Pollution Meteorology, American Meteorological Society*, Chapel Hill, NC, November 1986.

Murray, D.R., "Assessment of the Costs of Materials Damage from Air Pollution in Los Angeles, California," Presented at the *79th Annual Meeting of the Air Pollution Control Association*, Minneapolis, MN, June 1986.

Murray, D.R., "Ambient Odor Modeling to Determine Control Requirements," Presented at the *76th Annual Meeting of the Air Pollution Control Association*, Atlanta, GA, June 1983.

Murray, D.R., "Comparisons of Wind Observations Taken at Different Heights and Locations in a Flat Terrain Setting," Presented at the *3rd Joint Conference on Applications of Air Pollution Meteorology, American Meteorological Society*, San Antonio, TX, January 1982.

Murray, D.R., "Use of a Fluctuating Plume Puff Model for Prediction of the Impact of Odorous Emissions," Presented at the *71st Annual Meeting of the Air Pollutant Control Association*, Houston, TX, June 1978.

Murray, D.R., "Characterization of St. Louis Urban Aerosol Using Scanning Electron Microscopy and Energy Dispersion XRay Analysis," *Thesis to the Faculty of Purdue University*, Lafayette, IN, December 1977.

ROBERT F. PROHASKA, PMP

EDUCATION

M.S., Environmental Health Science, University of California, Los Angeles, 1991
B.A., Geography, University of California, Santa Barbara, 1984

AREAS OF EXPERTISE

Mr. Robert F. Prohaska has project and program management and technical experience in the following general areas:

- Project and Program Management
- Environmental Planning and Permitting
- California Environmental Quality Act (CEQA)
- National Environmental Policy Act (NEPA)
- Energy Infrastructure Construction Monitoring and Compliance
- Electric Utility Operations and Maintenance Environmental Compliance

REPRESENTATIVE EXPERIENCE

Mr. Prohaska has 24 years of experience focusing on the preparation of environmental documents in compliance with NEPA and CEQA, as well as, California Energy Commission and California Public Utilities Commission (CPUC) environmental permitting and construction compliance. He has completed Environmental Impact Reports (EIR) and Statements (EIS), Environmental Impact Assessments (EIA), Applications for Certification (AFC), and Proponent's Environmental Assessments (PEA) for a wide variety of clients and projects. Mr. Prohaska has worked on several large and complex EIS and EIR projects involving multiple stakeholders and government agencies. Consequently, he is adept at understanding the requirements for preparing these documents to satisfy NEPA and CEQA, both from a procedural and technical standpoint. Mr. Prohaska has developed a talent for contributing to the resolution of complex and controversial environmental issues through building consensus among diverse stakeholder groups. He has been recognized for proactively identifying project challenges and finding solutions before they become obstacles to project success.

San Diego Gas & Electric, Silvergate Substation Project – San Diego County, CA (Project Manager: 2006 – Present)

Mr. Prohaska is managing environmental compliance monitoring for the construction of a 138 kilovolt (kV) transmission line—a portion of which will be placed beneath the Sweetwater Marsh National Wildlife Refuge via a horizontal directional drill—demolition of a decommissioned power plant, and construction of a new substation near downtown San Diego.

San Diego Gas & Electric, Otay Mesa Power Purchase Agreement Transmission Line Project – San Diego County, CA (Project Manager: 2005 – 2008)
Mr. Prohaska is managing environmental compliance monitoring during construction of 38 miles of overhead and 10 miles of underground 230 kV transmission line. The project includes a horizontal directional drill beneath the Sweetwater Marsh National Wildlife Refuge. Mr. Prohaska is providing comprehensive mitigation monitoring services in compliance with CPUC stipulations and requirements.

Southern California Edison, San Joaquin Cross Valley Loop – Tulare County, CA (Project Manager: 2005 – 2008)
Mr. Prohaska is managing the preparation of a PEA for submittal to the CPUC for approval of a new 20-mile, 220 kV transmission line. He is assisting the client in developing alternative routes and participating in route evaluation, selection criteria weighting, and scoring.

Southern California Edison (SCE), As-Needed Environmental Services – Riverside, Los Angeles, San Bernardino, Inyo, Mono, Tulare, Kern, Ventura, Santa Barbara Counties, CA (Project Manager: 2005 – Present)
Mr. Prohaska is managing a contract with SCE's Environmental Affairs Department to provide as-needed biological services for operations and maintenance of existing facilities and new installations throughout SCE's 50,000-square-mile service territory.

San Diego Gas & Electric, Miguel to Mission 230 kV #2 Project – San Diego County, CA (Project Director: 2004 – 2007)
Mr. Prohaska is overseeing environmental compliance monitoring of a 35-mile reconductoring project. He is providing comprehensive mitigation monitoring services in compliance with CPUC stipulations and requirements.

San Diego Gas & Electric, On-Call Biological Services – CA (Program Manager: 2004 – 2008)
Mr. Prohaska is managing and coordinating a team of biologists for biological surveys and reports for operation, maintenance, and new construction of electric distribution and transmission lines in accordance with Sempra's 50-year Natural Community Conservation Plan permit.

San Diego Gas & Electric, Sycamore Canyon to Miramar Substation Project – San Diego, CA (Project Manager: 2005)
Mr. Prohaska managed the preparation of a PEA evaluating the addition of a second 69 kV circuit to an existing circuit extending from the Sycamore Substation to the Miramar Substation.

Pacific Gas and Electric Company, Delta Distribution Planning Area Capacity Increase Substation Project – Antioch, CA (PEA Task Leader: 2004)
Mr. Prohaska provided senior project direction of staff involved in developing a PEA for the siting and construction of a new 230 kV/21 kV distribution substation and associated 230 kV transmission supply extensions at four alternative locations in the San Francisco East Bay.

Southern California Edison, Oak Valley Substation Project – Riverside County, CA (Project Manager: 2004)
Mr. Prohaska managed a Habitat Assessment Report for new substations in the Beaumont-Banning-Calimesa area. He provided site screening model input to the client's project development team.

Southern California Gas Company, Kramer Junction Expansion Project – San Bernardino County, CA (Project Manager: 2001 – 2002)
Mr. Prohaska managed acquisition of a Negative Declaration, California Department of Fish and Game 2081/1601 permits, Environmental Assessment (EA)/Findings of No Significant Impact, National Historic Preservation Act Section 106 compliance, a Regional Water Quality Control Board 401 Certification, a U.S. Army of Engineers 404 Permit, a Stormwater Pollution Prevention Plan, and other related Bureau of Land Management permit documents. The project was permitted and construction commenced within six months of receiving the Notice to Proceed for this 30-inch-diameter, 32-mile-long natural gas pipeline project.

Riverside County, San Bernardino National Forest, and Federal Highway Administration, Bautista Canyon Road – Riverside County, CA (Project Manager: 2000 – 2002)
Mr. Prohaska managed all federal and state permitting on the realignment and paving of a road through the San Bernardino National Forest. The project included threatened and endangered species surveys, cultural resource surveys, wetland delineations, and development of a geographic information system database. The project was designed and funded by the Federal Highway Administration, which also served as the lead federal agency. Riverside County was the lead CEQA agency.

National Fish and Wildlife Foundation, Lower Colorado River Multiple Species Conservation Plan EIS/EIR – CO, CA, AZ, NV (CEQA/NEPA Task Leader: 1999 – 2000)
Mr. Prohaska initiated preparation of an EIS/EIR covering the Colorado River floodplain from Glen Canyon Dam to the international border. This multi-year planning effort involved over 50 participating agencies and groups. The goals of the program were to conserve, restore, and protect endangered species and their habitats for a 50-year planning horizon.

Los Angeles International Airport, EIS/EIR for Expansion – Los Angeles, CA (CEQA Technical Lead: 1999)
Mr. Prohaska served on a team overseeing the development of an EIS/EIR for the airport expansion to accommodate projected air traffic into the 21st century. He provided critical review of environmental documents in conjunction with the client's legal team and Federal Aviation Administration staff.

Three Mountain Power Project AFC – Burney, CA (Project Manager: 1999)
Mr. Prohaska oversaw preparation of an AFC for a new natural-gas-fired, 500-megawatt power plant proposed for development in the town of Burney, east of Redding in Shasta County.

Otay Mesa Power Plant AFC – Otay Mesa, CA (Deputy Project Manager and Task Leader: 1998 – 1999)
Mr. Prohaska prepared land use and cumulative impacts sections of an AFC that evaluated the impacts of a new natural-gas-fired, 500-megawatt power plant proposed for development.

Santa Fe Pacific Pipeline Partners, Camp Pendleton Pipeline Project – San Diego County, CA (Project Manager: 1998 – 1999)
Mr. Prohaska managed preparation of an EA and specialized technical studies for construction and operation of a new 23-mile, 16-inch-diameter petroleum products pipeline. The segment was the last segment in the client's system to be upgraded from 10-inches to 16-inches diameter.

Santa Fe Pacific Partners, Watson to Colton Pipeline Project – CA (Technical Lead: 1997)
Mr. Prohaska prepared a PEA for submittal to the CPUC for a 13-mile petroleum products pipeline. The proposed and alternative pipeline routes traversed the cities of Long Beach, Compton, Bellflower, and Norwalk.

MidCon, Mier-Monterrey Natural Gas Pipeline – Mexico (Task Leader: 1998 – 1999)
Mr. Prohaska evaluated potential socioeconomic, land use, air quality, and noise impacts from the construction and operation of a 150-kilometer-long natural gas pipeline from the City of Mier to the City of Monterrey. The EIA was required by the Mexican government to issue an Environmental Impact Authorization prior to authorization of construction.

Oman-Northern United Arab Emirates, Gas Pipeline Permitting Report – Oman and Northern United Arab Emirates (Principal Report Scientist: 1996)
Mr. Prohaska was responsible for preparing a fatal flaws permitting report for a proposed 300-mile-long, 1,800 MMSCFD capacity natural gas pipeline from the Sain Rawl area gas fields in Oman to Amoco's gas processing plant in Sharjah.

Multi-Telescope Array Project – Mt. Wilson, CA (Project Manager: 1995)
Mr. Prohaska managed preparation of an EA evaluating the impacts of a new facility for optical/infrared multi-telescope interferometry at the Angeles National Forest proposed by Georgia State University and partially funded by the National Science Foundation.

U.S. Department of Energy, Nevada Test Site – NV (Technical Lead: 1994)
Mr. Prohaska was the on-site NEPA technical lead for preparation of an EIS for the U.S. Department of Energy that evaluated the impacts of the future use of the site.

Regional Environmental Planning and Permitting – San Diego County, CA (Senior Project Manager: 1995 – 1999)
Mr. Prohaska was recruited to expand the environmental planning and permitting practice in the San Diego region. He was responsible for identifying leads, developing client relationships, preparing technical and cost proposals, leading interviews with prospective clients, negotiating contract terms and cost, and performing project scopes of work on time and within budget. He was successful in winning the first local EIR project in several years.

NEPA and CEQA Project Management – Pasadena and San Diego, CA (Environmental Program Manager: 1988 – 1995)
Mr. Prohaska was promoted from staff environmental scientist to senior project manager. He was responsible for project management and task leadership as part of project teams working on CEQA and NEPA projects. He was the principal author of EIRs and EISs for the U.S. Navy, National Aeronautics and Space Administration, U.S. Air Force, and the Department of Energy. Mr. Prohaska created and implemented a corporate health and safety program for the 500-employee firm. He also served as corporate, regional, and office health and safety officer.

PROFESSIONAL AFFILIATIONS

- Association of Environmental Professionals
- Project Management Institute, Certified Project Management Professional
- Former member and Chairman, Carlsbad Beach Erosion Committee
- Former member, Olivenhain Municipal Water District Citizens Advisory Committee

SELECTED PUBLICATIONS AND PRESENTATIONS

Prohaska, R.F., "Shoreline and Coastal Bluff Management Strategies MEIR," *California and the World Ocean '02 Conference*, Santa Barbara, California, 2002.

Prohaska, R.F., Interview by Eric Larson on beach erosion issues. *Eye on North County*, Daniels CableVision, 1999.

J. TODD STANFORD, REA, REHS, CEM

EDUCATION

M.S., Environmental Health, California State University (CSU), Northridge, 1991
B.S., Environmental and Occupational Health, CSU, Northridge, 1988

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Registered Environmental Assessor, California (#03742), 1991
Registered Environmental Health Specialist, California (#6183), 1991
Certified Environmental Manager, Nevada (#1814), 2002

AREAS OF EXPERTISE

Mr. J. Todd Stanford, REA, REHS, CEM has program management and technical experience in the following general areas:

- Environmental Due Diligence Assessments
- Health, Safety, and Environmental Compliance
- Underground Storage Tank Management
- Remedial Investigation and Characterization
- Human and Ecological Risk Assessment
- Fate and Transport Modeling
- Soil and Groundwater Remediation
- Solid Waste Management

REPRESENTATIVE EXPERIENCE

Mr. Stanford has over 20 years experience in site assessment, soil and groundwater remediation, pharmacology, risk assessment, occupational health and safety, and air toxics. His qualifications include extensive experience planning, directing, and completing environmental site assessments, designing remedial projects for soil and groundwater, performing human and ecological risk assessments, and evaluating the fate and transport of chemicals in soil, groundwater, and air. During Mr. Stanford's career, his project management experience has been applied to underground storage tank facilities, chemical production and bulk storage facilities, manufactured gas plant sites, power generation and distribution facilities, and State and Federal Superfund sites. Mr. Stanford's public and private-sector clientele includes the Los Angeles County Metropolitan Transportation Authority, County Sanitation Districts of Los Angeles County, Pacific Gas & Electric, Union Bank of California, ConocoPhillips, ExxonMobil, Combined Properties, Lockheed Martin, SPX Corporation, Voit Development Company, Home Depot, and Kinder Morgan Energy Partners. He currently serves as the Principal Scientist of the Chatsworth, California office and is responsible for technical service delivery, staff performance, and development. Mr. Stanford also serves as the primary technical resource for Human Health Risk Assessment within the West Region.

Los Angeles County Metropolitan Transportation Authority (Metro), Environmental Engineering Services – Multiple Locations, Los Angeles County, CA (Project Director: 2005 – Present)
Mr. Stanford is the Project Director for a five-year exclusive multi-task environmental engineering contract with Metro. This contract covers environmental engineering services for a variety of facilities including bus and rail maintenance divisions and both existing and planned dedicated bus and Light Rail alignments. Environmental engineering services provided to Metro include geotechnical evaluation of new facilities and proposed facility improvements, underground storage tank compliance and inspection programs for 22 operating bus and rail facilities, Stormwater Management Program development and implementation at 30 industrial facilities and ongoing construction-related activities, environmental due diligence associated with the acquisition of properties for expansion bus and light rail services, environmental assessment of soil and groundwater impacts, pilot testing of soil vapor and groundwater extraction systems, development of Remedial Action Plans, engineering design and specifications development for remedial actions, engineering design of methane gas and rockfall mitigation systems, regulatory communications and negotiations for assessment and remediation programs, and air quality permitting and program management. Mr. Stanford participates in project scoping and development meetings, develops project work scopes and schedules, administers the financial aspects of the project, organizes and allocates internal and external staffing requirements, and provides senior-level review of project deliverables.

Honolulu Harbor Working Group, Iwilei District Participating Parties – Honolulu, HI (Risk Assessment Manager: 1999 – Present)
Mr. Stanford serves as the Project Manager for a multi-party PRP group for a 0.5 square mile area that is impacted by petroleum hydrocarbons in soil and groundwater and methane gas in the subsurface. He developed a conceptual site model of fate, transport, and human and ecological exposure pathways, calculated health-based screening levels for chemicals of potential concern, and developed a comprehensive database and GIS application that is used to provide focus to ongoing assessment and interim remedial activities. Mr. Stanford also interfaces with State of Hawaii and USEPA regulators.

Precision Specialty Metals, Environmental Compliance Support – Los Angeles, CA (Environmental Compliance Manager: 2000 – Present)
Mr. Stanford developed a comprehensive, multi-media environmental compliance program involving hazardous waste profiling, manifesting, and tracking; industrial wastewater treatment system monitoring and reporting; air permitting and related compliance activities (including Title V and RECLAIM programs); EPCRA reporting; RMPP compliance; and Stormwater Pollution Prevention Planning, implementation, and reporting. In support of facility compliance activities, he also interfaces with various regulatory agencies including the State Board of Equalization, Air Pollution Control Districts,

Sanitation and Industrial Wastewater Discharge agencies, US Environmental Protection Agency, and Regional Water Quality Control Boards. Mr. Stanford provides ongoing technical support including identification of hazardous waste source reduction alternatives and general facility compliance with community right-to-know regulations.

Confidential Clients, Multiple Locations, California and Nevada. *Risk Assessment and Risk Management Planning.* Prepared documentation related to potential releases of ammonia from onsite storage and NOx control (Selective Catalytic Reduction) systems for several proposed and existing power generation facilities. Lead process hazard reviews and identified potential mitigation measures for deployment at facilities in conjunction with site selection and preliminary engineering design of facilities. Performed offsite consequence analyses for facilities based on mitigated and unmitigated alternatives.

Combined Properties, Incorporated, Environmental Due Diligence, Assessment and Remediation – Multiple Locations, Southern CA (Project Director: 2001 –Present)
Mr. Stanford directs environmental due diligence activities for acquisition and divestment of commercial properties. He is responsible for all aspects of pre-acquisition environmental due diligence activities including preparing Phase 1 Environmental Site Assessment documents, characterizing subsurface soil and groundwater conditions for petroleum hydrocarbons and hazardous substances, conducting geotechnical evaluations, completing asbestos and lead-based paint evaluations, designing, installing and operating remedial systems, and providing assistance on mitigation of subsurface and building hazards.

Union Bank of California, Environmental Due Diligence – Multiple Locations (Project Director: 1997 – Present)
Mr. Stanford manages Union Bank of California's environmental risk management and environmental due diligence activities related to secured loans and real estate used as collateral for loan securitization. Over the past nine years, he has completed more than 100 Phase 1 Environmental Site Assessments and Transaction Screen Reports for Union Bank of California for locations throughout the continental United States. Mr. Stanford has also completed environmental site assessments, removed underground storage tanks, developed remedial action plans, and installed and operated soil and groundwater remediation systems at a variety of industrial, commercial, and retail properties.

Confidential Client, Risk Characterization and Management – Chubut Province, Argentina (Risk Assessment Manager: 2003 – 2004)
Mr. Stanford served as the Risk Assessment Manager for a proposed mine site located in the Andes Mountain range of Chubut Province, Argentina. As the Risk Assessment Manager, he evaluated potential risks to human health of mine site workers and nearby residents resulting from mine site operation and potential

catastrophic event scenarios. Activities evaluated as a component of this project included transport of hazardous substances during mine operation, plant operations and process-related activities, impoundment and sterile rock pile facilities, and onsite use of hazardous substances. Mr. Stanford also identified risk management measures for the activities associated with the greatest risk probability and consequence.

Former Cannery, Remedial Investigation and Mitigation – Honolulu, HI (Risk Assessment Manager: 1997 – 1999)
In conjunction with the first Voluntary Cleanup Agreement completed in the State of Hawaii, Mr. Stanford performed a comprehensive evaluation of the presence and distribution of multiple chemicals in soil and groundwater beneath a former cannery. Chemicals evaluated include substituted benzene compounds and polynuclear aromatic hydrocarbons. As a component of this evaluation, he conducted an analysis of the potential fate and transport potential of chemicals in groundwater and evaluated potential onsite and offsite health risks associated with direct contact and inhalation of chemicals during and after site development. The results of the health-risk assessment were used to establish vapor control criteria for volatile compounds and methane gas and to secure approval for site redevelopment for commercial use.

Former Railroad Facility, Health Risk Evaluation and Remedial Action Planning – San Jose, CA (Risk Assessment Manager: 2005)
Mr. Stanford managed all aspects of a human health risk assessment for an approximately 13 acre former rail facility impacted by surficial and subsurface metals, polynuclear aromatic hydrocarbons (PAHs), pesticides/herbicides, and volatile organic compounds. The health risk assessment considered the redevelopment of the property for residential use. Consequently, he performed an evaluation of potential risks under a proposed future residential land-use scenario under baseline (i.e., pre-remediation) conditions for direct exposure and vapor diffusion exposure pathways. The health risk assessment also included an evaluation of the potential migration of methane gas and volatile organic compounds in soil vapor from two adjacent landfills. TRC developed health-based remediation goals for metals, PAHs, and pesticides/herbicides in soil to protect future site residents from direct contact with these constituents. The results of the vapor diffusion analysis were used to establish engineering controls to prevent the migration of methane gas and VOCs from the adjacent landfills to the subject property and from the subsurface to indoor air within the residences. Following approval of the health-risk assessment and regulatory concurrence with the remediation goals, the remedy was implemented and a no further action determination was obtained.

City of Burbank Redevelopment Agency, B-1 Remediation Oversight – Burbank, CA (Project Director: 1997 – 1999)
Mr. Stanford served as the Project Director for the City of Burbank in association with the operation of the Lockheed B-1 Facility Vapor Extraction System. As a

component of this project, Mr. Stanford assisted the City of Burbank in determining whether the Vapor Extraction System was operating in compliance with the Conditional Use Permit issued by the City. Activities performed include collection and analysis of verification samples of system air emissions, evaluate calibration of in-line VOC detectors and programmable logic controllers, and completion of weekly and quarterly health risk assessments based on facility emissions. TRC also developed and maintained a webpage for the City of Burbank containing the results of verification samples, health risk evaluations, and vapor extraction system operational data.

Ramco, Mace Ranch Development – Davis, CA (Project Manager: 1989 – 1991)
Mr. Stanford was the Project Manager for a former pesticide and fertilizer bulk facility located in an agricultural area of Central California. Historical dumping of bulk pesticides including ethylene dibromide (EDB), dichloropropane (DCP), and dibromochloropropane (DBCP) into an unlined wash basin created a plume of pesticides in soil and perched groundwater that threatened a nearby municipal water well. Remedial investigations focused on establishing health based remedial goals for soil and groundwater that are protective of the underlying utilized aquifer and allow for residential development of the adjacent property. The selected remedial alternative included both limited remedial excavation of impacted soil and groundwater plume control.

Kirkland & Ellis, M&A Environmental Auditing – Various Locations, Western and Central US (Project Manager: 2002)
As the Project Manager for proposed merger and acquisition, Mr. Stanford performed limited environmental compliance audits of several food production and distribution facilities located in California and Texas. The environmental compliance evaluations were performed as a component of pre-acquisition due diligence. TRC provided environmental compliance auditing services as related to air emissions and permitting, underground storage tanks, spill prevention and control, ozone depleting substances, Risk Management Planning, SARA Title III and EPCRA, and Process Safety Management.

Nixon Peabody, M&A Environmental Auditing – Various Locations, Western US (Project Manager: 2002)
Mr. Stanford managed several comprehensive multi-media compliance audits of industrial manufacturing facilities located in the Western US. Compliance evaluations were performed subsequent to various acquisitions by a confidential parent company. TRC provided environmental compliance auditing services as related to hazardous and solid waste management, water and wastewater discharges, chemical management, air emissions and permitting, underground storage tanks, spill prevention and control, SARA Title III and EPCRA, OSHA, DOT, and TSCA.

Kinder-Morgan Energy Partners, Remedial Investigation and Remedial Action Planning – Various Locations, Southern CA (Project Manager: 2001 – 2005)
As the Project Manager for bulk storage plants located in San Pedro and Carson, California, Mr. Stanford conducted environmental site assessments, human and screening level ecological risk evaluations, and established site-specific remedial criteria for soil and groundwater. TRC also conducted remedial action planning, and regulatory negotiations related to the closure and redevelopment of a 13-acre facility for proposed residential uses. He also participated in regulatory negotiations, conducted contaminant fate and transport modeling, and planned facility deconstruction activities.

Unocal Corporation, Environmental Assessment and Remediation Portfolio – Multiple Sites, CA and NV (Program Manager: 1998 – 2004)
As TRC's Program Manager for Unocal, Mr. Stanford was directly involved in all aspects of contract and technical service delivery including the preparation of annual and lifecycle budget estimates for a portfolio of over 50 retail and bulk storage facilities, project and program scheduling, and technical service delivery. As a senior technical professional, he prepared and reviewed environmental site assessment documents and human health risk assessment reports; conducted remedial feasibility tests; completed remedial action plans and engineering design drawings and specifications; and was responsible for operation, maintenance, and optimization of more than a dozen simultaneously operated soil vapor, groundwater, air sparging, and bioventing systems in Southern California and Nevada. Mr. Stanford also served as a technical representative for assessment, remediation, and regulatory negotiations for three Unocal facilities located within the Charnock Sub Basin of Los Angeles.

Metal Finishing Companies, Environmental Health and Safety Consulting – Various Locations, CA (Project Manager: 1995 – 1998)
Mr. Stanford managed environmental and health & safety compliance issues for a number of metal finishing companies operating in Southern California. His typical consulting services included evaluating exposures to personnel working near open process tanks containing phosphoric, nitric, and sulfuric acids, nickel, tin, copper, and hexavalent chromium; general and specific requirements for air emissions from degreasing solvents and air emissions from anodizing and etching, and electro and electro-less plating of nickel, chromium, copper, tin, silver, and gold. Mr. Stanford also reviewed source testing results, established emissions estimates based on normalized facility-specific indices, conducted screening level risk evaluations, assisted in optimizing wastewater treatment system efficiency, identified source reduction alternatives, and provided training to facility personnel in the areas of environmental compliance and worker and community right to know regulations. Additionally, he developed occupational safety and training programs for eye and face protection, hearing conservation, confined space identification and permitting, lockout/tagout, foot protection, respiratory protection, and operation of industrial trucks.

Lockheed Martin Corporation, Former Industrial Light Metals Facility – Torrance, CA (Risk Assessment Manager: 2001 – 2005)
Mr. Stanford provided risk assessment services for chlorinated and aromatic hydrocarbons in soil and groundwater at a former aerospace facility. His risk assessment services included evaluation of vapor intrusion into indoor air under current and anticipated future site conditions and hypothetical future residential use of groundwater. In addition, Mr. Stanford analyzed the fate and transport of chlorinated solvents in soil to determine whether residual soil impacts represent a potential source of impact to groundwater. The results of the risk assessment were incorporated into the Corrective Measures Study and were used to support site development and use during remedial testing and remedy implementation. The results of the fate and transport analyses were used to justify closure of several solid waste management units associated with the facility.

City of Monterey, Monterey Swim Gym Facility – Monterey, CA (Project Manager: 1989 – 1990)
As the Project Manager for the human health risk assessment portion of the Monterey Swim Gym Facility, Mr. Stanford assisted in comprehensive site assessment and remedial design for a former manufactured gas plant site located in Monterey, California. His specific project responsibilities included identifying potential constituents of concern related to former facility operations, designing a statistical sampling plan, completing a human health risks assessment involving current and potential future exposures related to property development, and establishing remedial design objectives. The remedial design objectives were used to establish the geographic limits of the remedial response in consideration of the intended site development and to support the beneficial reuse of impacted soil.

Various Industrial Companies, Health Risk Assessment Services – Western United States (Western Region Risk Assessment: 1991 – Present)
Mr. Stanford is the technical lead for human health risk assessments performed in the West Region. During his tenure with TRC, Mr. Stanford has completed human health risk assessments for a variety of petroleum, chlorinated solvent, heavy metal, dioxin/furan, and radionuclide impacted sites and facilities throughout the continental United States. Risk assessment clients include, among others, ConocoPhillips, ExxonMobil, Chevron, Unocal, Simpson Paper Company, Lockheed Martin Corporation, Coastal Corporation, Rohr Industries, Signet Armorlite, BP Arco, Gatron Industries, Home Depot, BNSF Railroad, Kinder-Morgan Energy Partners, State of Hawaii Department of Transportation, Montrose Chemical Company, Weyerhauser, Kimberly Clark, and Jorgensen Steel. The health risk assessments have ranged in complexity from single exposure pathway analyses to complex multi-media exposure pathways involving multiple chemicals. The risk assessment results have been used in internal risk-management decision making and prioritization, litigation support, and as regulatory compliance tools. Risk assessments prepared in the West Region have been approved by agencies including the California Department of Toxic

Substances Control, California Air Resources Board, Hawaii Department of Health, Nevada Department of Environmental Protection, Arizona Department of Environmental Quality, and the United States Environmental Protection Agency. In addition to conducting human and ecological risk assessments, Mr. Stanford also participates in the communication of risk to the public.

Various Public Agencies, On-Call Environmental Services – Southern CA (Project Manager: 1997 – Present)
Mr. Stanford administers on-call environmental contracts with a variety of public agencies in Southern California. Since 1997, these agencies have included the Cities of Anaheim, Ontario, Riverside, Brea, and Burbank; the Sanitation Districts of Los Angeles County, and the Los Angeles Community Design Center. Representative project activities include environmental due diligence associated with the acquisition of real property and rights-of-way, environmental site assessment of soil and groundwater, asbestos and lead-based paint evaluations, hazardous waste characterization and disposal, and development of remedial alternatives and project development cost analyses.

SPECIALIZED TRAINING

- Project Manager Training, 1990-1991
- Total Quality Management Training, 1993-1994
- Forty-Hour OSHA Health and Safety Training, 1989
- Supervisory OSHA Health and Safety Training, January 1993
- CPR and First Aid Training

PROFESSIONAL AFFILIATIONS

- Society for Risk Analysis
- National Environmental Health Association

SELECTED PUBLICATIONS AND PRESENTATIONS

Stanford, J.T. and R.E. Stultz, "Multiple Site Management via Risk Based Prioritization," *International Petroleum Environmental Conference*, Albuquerque, New Mexico, October, 1998.

Stanford, J.T. and G. McCue. "Risk Based Corrective Action and Inhalation of Vapors from Subsurface Contamination: Theory versus Reality," *Seventh Annual Conference on Contaminated Soils & Groundwater*, Oxnard, California. March 1997.

Baker, J., J.J Clark, and J.T Stanford, "Ex Situ Remediation of Diesel-Contaminated Railroad Sand by Soil Washing," *Principles and Practices for Diesel Contaminated Soils*, Lewis Publishers, Volume II. 1994.

Stanford, J.T., "Risk Management for Metals in Soil," Proceedings of *HAZMACON '94*, San Jose, California, March 1994.

Stanford, J.T., "Applications of Risk Assessment and Risk Management for UST Sites," Proceedings of the 1994 *California Water Resources Control Board Underground Storage Tank Conference*, San Diego, California, March, 1994.

Wiegand, J., J.T. Stanford, and W.H. Hunt, "Closure Technologies for California LUST Sites," *Hydrocarbon Contaminated Soils and Groundwater*, Lewis Publishers, Volume III, 1993.

Stanford, J.T. and R.J. Kofron, "Risk Management versus Clean at Any Cost," *San Diego Business Journal*, August 1993.

Baghdikian, S.Y., J.T. Stanford, W.T. Hunt, and J.W. Wiegand, "Limitations of Pump-and-Treat Technologies in Remediating LNAPL," *Association of Groundwater Scientists and Engineers Annual Conference*, Las Vegas, NV, September 1992.

Sullivan, M.J. and J.T. Stanford, "Estimating the Toxicological Properties of Tetramethyltetrahydrofuran through Structure Activity Relationships," *Society of Toxicology Annual Meeting*, February, 1992.

Stanford, J.T. and M.J. Sullivan, 1991, "Determination of Allowable Risk for Occupational Exposures: A Comparison of TLV's and Standard 'De Minimis' Risk Levels," *Society for Risk Analysis Annual Convention*, Baltimore, MD, December, 1991.

Stanford, J.T. and M.J. Sullivan, "Evaluation of Exposure Pathways, Risks and Remedial Alternatives Associated with Soil Contamination at a Metal Scrap Yard: A Case Study," *Society for Risk Analysis Annual Convention*, Baltimore, MD, December, 1991.

Stanford, J.T. and M.J. Sullivan, "Calculation of Incidental Ingestion of Soil: A Methodology Based on Transfer Events," *Society for Risk Analysis Annual Convention*, Baltimore, MD, December, 1991.

Stanford, J.T., M.J. Sullivan, and A.C. Kopf, "Practical Results of Risk Assessments," *Industrial Environmental Association Environmental Compliance Conference*, San Diego, California, 1991.

Sullivan M.J., A.C. Kopf, S.R. Custance, and J.T. Stanford, "Toxicity Assessment of the Chemical Mixtures: JP-5, Crude Oil, Mineral Spirits and Diesel Fuel," *Society for Risk Analysis Annual Convention*, Baltimore, MD, December, 1991.

Sullivan, M.J. and J.T. Stanford, 1991, "Using Risk Assessment to Select Subsurface Remedial Action Plans," *Industrial Environmental Association Environmental Compliance Conference*, San Diego, California, 1991.

Wright, C., J.T. Stanford, and D. Vensel, "Air Toxics Risk Assessment - Human Health Risk Assessment and Air Dispersion Modeling," *North Carolina Air Toxics Conference*, February, 1991.

Stanford, J.T., M.J. Sullivan, C.J. Miller, and P.A. McCaw, "Setting Initial Safe Concentrations in an Unused Perched Zone to Protect a Drinking Water Aquifer," *Society for Risk Analysis Annual Convention*, New Orleans, LA, October 1990.

Stanford, J.T., M.J. Sullivan, and J.R. Hatherill, "Human Health Risk Assessment Under AB 2588 for Air Emissions of Acetone, Freon 113 and Methylene Chloride," *Ensol '90*, Santa Clara, California, September, 1990.

Stanford, J.T., M.J. Sullivan, and J.R. Hatherill, "Quantification of Non-Cancer Health Risks from Exposure to Facility Air Emissions of Acetone, Freon 113 and Methylene Chloride," *Society for Risk Analysis Annual Convention*, New Orleans, LA,
October 1990.

Sullivan, M.J. and J.T. Stanford, 1990, "Risk Associated with Potential Exposure to Dioxin through Consumption of Tea Brewed Using Tea Bags Containing Bleached Pulp," *Chemosphere*, Pergamon Press, England, Volume 20, 1990.

TEACHING AND ADVISORY POSITIONS

California State University, Northridge, Lecturer, Environmental Health Risk Assessment and Risk Communication graduate courses, 1994-Present

JOSEPH L. STENGER, PG, REA, CEM

EDUCATION

B.S. (Cum Laude), Geology, University of California, Santa Cruz, 1985

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Geologist, California, (#5964), 1993
Registered Environmental Assessor, California, (#02977), 1991
Certified Environmental Manager, Nevada, (#EM-1280), 1996

AREAS OF EXPERTISE

Mr. Joseph L. Stenger, PG, REA, CEM has program management and technical experience in the following general areas:

- Project Management
- Site Assessment and Remediation
- Multimedia Permitting and Agency Interfacing
- NEPA/CEQA Environmental Analyses
- Environmental Regulatory Compliance
- Geology/Hydrogeology
- Engineering Analyses/Feasibility Studies

REPRESENTATIVE EXPERIENCE

Mr. Stenger is a Project Director with more than 20 years of technical consulting and management experience encompassing a wide variety of infrastructure and industrial projects including power plants, bulk petroleum facilities, mining, solid waste management, manufacturing, steel production, and linear infrastructure including electric transmission and pipelines. He is an expert at multi-media environmental compliance, permitting, and liability assessment. Mr. Stenger has experience in 18 states and several Latin American countries. He is adept at streamlining compliance efforts and regulatory submittals to satisfy relevant requirements without unnecessary costs or other burdens on project development and operations.

Project Management

Macquarie Cook Power, Inc., Avenal Energy – Kings County, CA (Project Director: 2007 – 2008)

Mr. Stenger directed and managed a team of professionals for the completion of baseline environmental studies, environmental impact assessments, and preparation of a licensing application for this proposed $530 million power plant and associated 6.4 mile long electric transmission line and 2.5 mile long natural gas pipeline. Mr. Stenger directed the preparation of the Application for Certification (AFC) submitted to the California Energy Commission (CEC) to obtain approval to construct and operate this state-of-the-art 600-megawatt combined-cycle natural gas fired power plant and is currently supporting the

licensing of this plant as the AFC is processed by the CEC.

J Power USA Development Co., LTD., Orange Grove Energy – San Diego County, CA (Project Director: 2007 – 2008)
Mr. Stenger directed and managed a team of professionals for the completion of baseline environmental studies, environmental impact assessments, and preparation of a licensing application for this proposed $90 million power plant and 2.4 mile long natural gas pipeline. Mr. Stenger directed the preparation of the Application for Certification (AFC) submitted to the California Energy Commission (CEC) to obtain approval to construct and operate this 96-megawatt simple-cycle natural gas fired power plant designed to provide new generating capacity and support electric grid reliability during times of peak electric power demand. Mr. Stenger is currently supporting the licensing of this plant as the AFC is processed by the CEC.

Duke Energy, Various California Power Plant Sites – Central and Southern CA (Project Manager: 1998 – 2006)
Mr. Stenger directed and managed a team of professionals providing day-to-day engineering and regulatory compliance services for four coastal power plants in Central and Southern California. This work included providing as-needed services for Duke Energy's California environmental management group headquartered at Morro Bay, California.

LS Power, Various California Power Plant Sites – CA (Project Director: 2006 – Present)
Mr. Stenger directed TRC engineering and regulatory compliance services for four coastal power plants in Central and Southern California acquired by LS Power in 2006.

Sempra Energy, Energia Costa Azul LNG Terminal – Baja CA, Mexico (Project Manager: 2006 – Present)
Mr. Stenger managed the development of a comprehensive environmental compliance assurance program for this new 1 billion cubic ft per day liquid natural gas terminal near Ensenada, Baja California.

Orange County Integrated Waste Management Department (IWMD), Various Orange County Landfills – Orange County, CA (Project Manager: 1994 – 1996)
Mr. Stenger served as Project Manager for an on-call contract with the County IWMD to provide CEQA support for projects at active and closed County landfills.

Regional Water Quality Control Board & East Bay Municipal Utilities District, Penn Mine Restoration Project – Calaveras County, CA (Project Manager: 1998 – 1999)
Mr. Stenger managed field efforts to characterize the natural stream bed channel

buried beneath mine tailings. Contours of the natural drainage channel were developed based on field studies, geotechnical trenches and field mapping, and a conceptual channel restoration/revegetation plan was developed. This work was performed by TRC working as a subcontractor to IT Corporation.

Confidential Client, Hydrogeologic Evaluation of the Coastal Aquifer – San Luis Obispo County, CA (Project Manager: 2002)
Mr. Stenger managed the development of a detailed groundwater model for an approximately one-mile segment of a coastal aquifer near Morro Bay, California. A detailed aquifer model was compiled based on existing well logs, and 3-D groundwater modeling was completed to provide a basis for determining groundwater pumping and recharge effects on groundwater levels and ground water recharge to a coastal creek. Affects on recharge to the creek were considered due to evaluating the potential for impacts to endangered species that utilize the creek habitat.

Unocal Corporation, Former Guadalupe Oil Field – San Luis Obispo County, CA (Project Manager: 2000)
Mr. Stenger managed the design, construction, and implementation of a large-scale bioremediation test cell to reduce hydrocarbon concentrations in soil. TRC successfully reduced hydrocarbon concentrations to the level of the test goal using an engineered system designed for cost-effectiveness in large-scale applications.

Canyon Resources, Inc., Environmental Evaluations for the Briggs Project – Inyo County, CA (Project Role: 1994 – 1995)
Mr. Stenger managed hydrology and hydrogeology studies to support development of NEPA/CEQA documentation for this mining project in the Panamint Valley, California.

Avenal Energy, Duke Energy Avenal, LLC – Avenal, CA (Project Manager: 2000 – 2002)
Mr. Stenger managed an approximately 30-person team responsible for the development of the Application for Certification for this proposed new 600-megawatt combined-cycle power generating facility. The site for this proposed facility is located approximately two hours east of San Luis Obispo, California. The Application for Certification is a permit application and multi-media environmental impact analysis required by the California Energy Commission for licensing of new power plants greater than 50 megawatts in capacity.

Avenal Energy, Federal Power Avenal, LLC – Avenal, CA (Project Manager: 2006 – 2007)
Mr. Stenger managed updating of an Application for Certification to license this proposed new 600-megawatt combined-cycle power generating facility. The facility re-initiated the licensing process in 2006 under new ownership after licensing was put on hold by Duke Energy in 2002 due to market conditions.

Site Assessment and Remediation

LS Power Generation, LLC, Four California Coastal Power Plants – CA (Project Manager: 2006)
Mr. Stenger managed an assessment of environmental liabilities and an evaluation of the permitability of expanded operations for these plants as part of due diligence and transition planning for LS Power Generation, LLC's acquisition of existing power plants at Oakland, Moss Landing, Morro Bay, and Chula Vista, California.

Duke Energy Moss Landing, Post-Fire Response and Site Assessment – Monterey County, CA (Project Manager: 2005)
Mr. Stenger managed site stabilization and clean-up actions and post-cleanup site assessment following a fire at a bulk oil storage facility at Moss Landing, California.

San Luis Obispo County Department of Public Works, Huasna Mine Site – San Luis Obispo County, CA (Project Manager: 2006)
Mr. Stenger managed a site investigation of this former sand and gravel mine and asphalt batch plant that operated from the 1930s through the 1990s.

Chevron Pipeline Company, Estero Bay Marine Terminal – Morro Bay, CA (Project Manager: 2004)
Mr. Stenger managed a program to identify and characterize suspected asbestos-containing material and lead-based paint at a retired bulk oil tank farm.

Duke Energy, Morro Bay Power Plant – Morro Bay, CA (Project Manager: 2002 – 2004)
Mr. Stenger managed third-party oversight of asbestos abatement projects at two retired tank farm and active power generating units.

Unocal Corp., Evaluation of the Santa Maria Landfill – Santa Maria CA (Project Manager: 2004)
Mr. Stenger managed a detailed study to assess potential environmental risks related to the proposed disposal of petroleum-impacted soil at the Santa Maria municipal landfill.

Tosco Pipeline Company, Bradley Valve Box – Santa Barbara County, CA (Project Investigation: 2003)
Mr. Stenger performed investigation and sampling related to mitigation of an accidental release of crude oil from a failed pipeline valve.

San Luis Obispo County Department of Environmental Health, North County Auto Wrecking – San Luis Obispo, CA (Project Manager: 2005 –

2006)
Mr. Stenger managed a site investigation and remediation at a former auto salvage yard that had been shut down under a cease and desist order from the County Health Department due to illegal hazardous waste dumping.

Lake Nacimiento Resort – San Luis Obispo County, CA (Project Manager: 2006 – 2008)
Mr. Stenger managed a site investigation to determine lateral and vertical impacts of gasoline leakage from a gasoline fueling station at this lake resort.

Tosco Pipeline Company, Bell Pumping Station – Santa Barbara County, CA (Project Investigation: 2003)
Mr. Stenger performed investigation and sampling related to mitigation of an accidental release of crude oil contaminated water from an inactive pipeline.

Confidential Client and Site, Phase I Environmental Site Assessment – San Luis Obispo County, CA (Phase I ESA: 2005)
Mr. Stenger performed a Phase I Environmental Site Assessment of an approximately 7 acre coastal property. This work was performed in accordance with ASTM guidance for Phase I evaluations.

Operating Industries Inc., Oil Landfill – Montebello, CA (Project Supervisor: 1993)
Mr. Stenger performed and/or supervised technical studies and report preparation for various activities at a closed hazardous waste landfill being remediated under Superfund involvement including: hydrogeologic and water quality evaluations, geology and seismicity studies, trash prism characterizations, and landfill gas studies. He also prepared SHERPs, and a comprehensive Predesign Report synthesizing site characterization data and evaluating and selecting the remedial technologies to be employed.

Gold Fields Operating Company, Ortiz Mine – Ortiz, NM (Project Monitoring: 1992)
Mr. Stenger conducted monitoring and interpretation of trends of elevated trace/heavy metals and other chemical constituents in ground water at a closed precious metal mine near Ortiz, New Mexico. This program developed into a bioremediation-based remedy for combined in-situ ore residue treatment and shallow ground water mitigation.

Gold Fields Mining Corp., Shafter Mine – Shafter, TX (Project Investigation: 1992)
Mr. Stenger conducted a field investigation in support of an overall liability assessment pertaining to an exchange of ownership of an inactive silver mine in Western Texas.

Bethlehem Steel, Former Bethlehem Steel Site – Vernon, CA (Earth work

Surveillance and Sampling: 1986 – 1988)
Mr. Stenger conducted earth work surveillance and sampling during site cleanup at a former steel mill. His work involved oversight, sampling, and evaluation of the removal of contaminated soil from a parcel leased for auto salvage, removal of underground storage tanks, and mitigation of petroleum impacted soil from a previous locomotive refueling station.

Multimedia Permitting

Duke Energy, Morro Bay Power Plant – Morro Bay, CA (Permit Preparation: 2000 – 2001)
Mr. Stenger obtained all requisite permits for maintenance dredging at the power plant intake structure in Morro Bay Harbor, and for disposal of removed sediments. This project included all aspects of permitting and environmental evaluations necessary to conduct the proposed dredging and sediment disposal under the Clean Water Act, Endangered Species Act, Magnuson-Stevens (Sustainable Fisheries) Act, Rivers and Harbors Act, Coastal Zone Management Act, California Coastal Act, National Historic Preservation Act, and other relevant environmental laws and regulations. A project description was developed, including mitigation measures to minimize impacts, all necessary permit applications were compiled and submitted, and applications were supported by testimony in public hearings. Work also included management of technical studies for sediment characterization in accordance with joint EPA/U.S. Army Corps of Engineers guidance and evaluation of potential impacts on Essential Fish Habitat. Permits and approvals necessary to complete the project were successfully obtained from the U.S. Army Corps of Engineers, the California Coastal Commission, the Regional Water Quality Control Board, the State Lands Commission, and the City of Morro Bay.

Duke Energy, Moss Landing and Morro Bay Power Plants – Morro Bay and Moss Landing, CA (Permit Preparation: 2001)
Mr. Stenger developed permit applications for renewal of NPDES permits at these existing power plant sites.

Gold Fields Operating Company, Mesquite Gold Mine – Imperial County, CA (Project Manager: 1995)
Mr. Stenger managed development of Endangered Species Act Biological Assessments and mitigation measures.

Arid Operations, Inc., Mesquite Regional Landfill – Imperial County, CA (Report Preparation: 1995)
Mr. Stenger prepared the Report of Waste Discharge (ROWD)/Report of Disposal Site Information (RDSI) permit applications and supporting documents for the 600-million ton Mesquite Regional Landfill in Imperial County, California. Permitting for this project incorporated the potential for future electrical power generation from recovered methane. For this project, a first-of-its-kind

combination application was developed to simultaneously satisfy requirement of the Regional Water Quality Control Board and the California Integrated Waste Management Board. The combined application was praised by receiving agencies due to the clear and comprehensive manner in which it streamlined multi-agency permitting efforts. This combined submittal served as a model for the subsequently developed CCR Title 27 regulations for Joint Technical Documents for landfill permitting in California.

Chemical Waste Management, Inc., Kettleman Hills Facility – Kings County, CA (Permit Preparation: 1997)
Mr. Stenger prepared a comprehensive Resource Conservation and Recovery Act (RCRA) Part B permit application for renewal of the permit to treat, store, and dispose of hazardous waste at the Chemical Waste Management, Inc., Kettleman Hills Facility in Kings County, California. A focus of this effort was to streamline the application to specifically satisfy requirements prescribed by regulation while maximizing flexibility of permitted operations. The application included required site and operational information, contingency planning and emergency response provisions, and other applicable RCRA requirements.

Western Waste Industries, El Sobrante Landfill – Riverside County, CA (Permit Preparation: 1996)
Mr. Stenger obtained a National Pollutant Discharge Elimination System (NPDES) permit for discharge of treated ground water.

LS Power, Four California Power Plants – CA (Project Manager: 2006)
Mr. Stenger managed the transfer of environmental licenses and regulatory approvals for LS Power's acquisition of four California coastal power plants.

Duke Energy South Bay, LLC, South Bay Power Plant – Chula Vista, CA (Project Manager: 1999)
Mr. Stenger managed the transfer of environmental licenses, regulatory approvals, and environmental control plans for Duke Energy's acquisition of operational control of the South Bay Power Plant. This work included managing the updating and transfer of more than 70 multimedia environmental permits and other environmental documents on a short schedule necessary to meet the asset transfer deadline. All target dates were met keeping the transfer of these documents off of the critical path for the asset transfer to be completed.

Gold Fields Operating Company, Mesquite Gold Mine – Mesquite, Imperial County, CA (Project Geologist: 1987 – 2000)
Mr. Stenger served as Project Geologist and author for permitting documents, supporting production, and facility expansions at the Mesquite Gold Mine. More substantive expansions included: the 2,500-acre VCR expansion and an 8.5-mile realignment of State Highway 78, production increases totaling 5 million tons of ore per year above the originally permitted levels, exchange of adjacent land parcels for planned heap leach pad construction, and construction of

"satellite" leach pads near mine pits to optimize haul distances and improve economics of marginal-grade ore. His responsibilities included preparation of a combination Environmental Impact Report/Environmental Assessment (EIR/EA), various Conditional Use Permits, Plans of Operations, Waste Discharge Order and Air Quality permit amendment applications, participation in public hearings, and detailed coordination with federal, state, and local regulatory agencies in support of these documents.

NEPA/CEQA Environmental Analysis

Duke Energy, Morro Bay Power Plant – Morro Bay, CA (EA Preparation: 2000)
Mr. Stenger developed a draft Environmental Assessment and draft Mitigated Negative Declaration for use by the U.S. Army Corps of Engineers and the City of Morro Bay, respectively, for their use in approving permits for a maintenance dredging project at the power plant cooling water intake structure in Morro Bay Harbor.

Pacific Gas & Electric Company, Moss Landing to Metcalf Transmission Line Reinforcement Project – Monterey, Santa Cruz and Santa Clara Counties, CA (EA Preparation: 2004)
Mr. Stenger prepared Proponent's Environmental Assessment analyses for geologic resources and hazards and soils for this transmission line upgrade project.

Pacific Gas & Electric Company, East Bay Electric Distribution System Upgrade
Mr. Stenger prepared Proponent's Environmental Assessment analyses for geologic resources and hazards and soils for this electric distribution system upgrade project.

Santa Barbara County Department of Public Works, Tajiguas Landfill – Santa Barbara County, CA (Siting Alternatives Analysis: 2001)
Mr. Stenger performed a siting alternatives analysis for the draft Environmental Impact Report for expansion of this municipal landfill. This alternatives analysis included evaluation of potential sites for a new landfill, considering impacts on biological resources, water resources, land use consistency, and other environmental parameters.

Chemical Waste Management, Inc., Environmental Impact Report, Kettleman Hills Facility – Kings County, CA (EIR Preparation: 1997)
Mr. Stenger provided evaluation of existing data and preparation of the geology, water resources, and risk of upset sections of an EIR for the B-19 Landfill at the Kettleman Hills Facility. This project involved the conversion of remaining air space of the B-19 Landfill from Class I to Class II/Class III solid waste.

Chemical Waste Management, Inc., Kettleman Hills Facility – Kings County, CA (Declaration Production: 1998)
Mr. Stenger prepared a draft Mitigated Negative Declaration for a soil borrow project.

Canyon Resources, Inc., Briggs Gold Mine, Environmental Impact Statement/Environmental Impact Report – Inyo County, CA (Documents Preparation: 1994 – 1995)
Mr. Stenger served in preparation of a document including extensive and complex coordination with multiple agencies to assure that each agency's requirements and desires were satisfied. This document was unusual in that there was extensive involvement by five agencies: the county and BLM were co-lead agencies, the U.S. Army Corps of Engineers and National Park Service were co-cooperating agencies, and the Regional Water Quality Control Board exercised particular interest in water quality and solid waste issues associated with their role as a responsible agency. A hybrid EIS/EIR format was developed that fully integrated requirements of each of these agencies. There were numerous complex and controversial issues associated with this project including, but not limited to visual impacts and impacts to Wilderness and National Park areas in the vicinity. This EIS/EIR was challenged in court by opposition groups and no inadequacies were found. Agency approvals of the EIS/EIR were upheld.

Gold Fields Mining Corp., Mule Canyon Mine, Environmental Impact Statement – Lander County, NV (Project Manager: 1992 – 1993)
Mr. Stenger managed background studies and supporting technical report preparation. This EIS assesses environmental impacts of a new mine including several thousand acres of disturbance with multiple open pits and heap leaching and milling facilities. Involvement also included working with the third party contractor and BLM to assure defensibility of the EIS and consistency with NEPA. Associated responsibilities included authoring of a preliminary draft Reclamation Plan and managing the compilation of detailed reclamation estimates to support requisite bonding.

Gold Fields Operating Company, Environmental Impact Report/Environmental Assessment - Imperial County, CA (Project Manager: 1990)
Mr. Stenger served as Project Manager and one of two primary authors. He was also extensively involved in preparation of virtually all sections of this document. The combined EIR/EA was the first of its kind and a particular challenge because it evaluated impacts of a large (approximately 2,000 acre) mining project and the realignment of approximately 8.5 miles of an existing state highway. Extensive involvement was required by not only Imperial County and BLM as Lead Agencies, but also the California Department of Transportation (Caltrans) as a Responsible Agency. A special format was developed to accommodate the

needs of each of these agencies in a single document. Responsibilities associated with the preparation of this document also included participation in public hearings, negotiations with agencies regarding permit conditions, and other coordination/management activities.

Gold Fields Mining Corp., Mule Canyon Exploration Project, Environmental Assessment - Lander County, NV (Project Manager: 1991)
Mr. Stenger served as manager and primary author for this document, which addressed an advanced exploration project including up to four underground audits, 6.5 miles of access road, 560 drill sites, bulk sampling trenches, a test leaching facility, grading of sample laydown areas, and other disturbances. He also authored the associated Plan of Operations and Reclamation Plan, managed the preparation of detailed reclamation cost estimates and permitting/support documents, and participated in negotiations for permit conditions and bonding.

Chimney Creek Exploration Program, Environmental Assessment - Humboldt County, NV (Document Author: 1990)
Mr. Stenger served as co-author for this document, which addressed an extensive exploration/infill drilling program that included up to 1,600 mineral exploration drill holes and up to 50 test trenches. He also co-authored the associated Plan of Operations and Reclamation Plan.

Gold Fields Operating Company, Chimney Creek, South Pit Expansion, Environmental Assessment - Humboldt County, NV (Document Author: 1990)
Mr. Stenger served as co-author for this document which addressed a new open pit mine and a 4.5 million ton per year increase in ore processing at existing process facilities. He also co-authored the associated Plan of Operations and Reclamation Plan.

Environmental/Regulatory Compliance

Confidential Client - Various Sites, AZ, NV, TX, and Baja CA (Project Lead: 1995)
Mr. Stenger served as lead for a multi-media environmental and regulatory compliance audit team for comprehensive compliance audits of three natural gas fired combined cycle power plants and one coal-fired power plant.

Pacific Gas & Electric Company, Diablo Canyon Power Plant - San Luis Obispo County, CA (Plan Development: 1995)
Mr. Stenger developed a Storm Water Pollution Prevention Plan (SWPPP) for a nuclear power plant. This SWPPP was developed to conform to requirements of the pending update to the California NPDES General Permit for storm water discharges from industrial facilities. The facility currently discharges storm water under an Individual Permit and the SWPPP was prepared in anticipation of the

authorization for storm water discharge being removed from the Individual Permit upon renewal.

Riverside County Department of Public Works, El Sobrante Landfill - Riverside County, CA (Surface Water Quality Inspections: 1992)
Mr. Stenger performed surface water quality inspections and surface water compliance audits. These efforts included comprehensive evaluations for compliance with the Clean Water Act, Waste Discharge requirements, and the California State Water Resources Control Board General Permit for stormwater run-off from industrial sites.

Kennecott Corporation, Due Diligence Evaluations - Various Sites and Locations Nationwide (Due Diligence Review: 1992)
Mr. Stenger conducted environmental due diligence evaluations of precious metals, coal and asbestos mining properties, and oil/gas production and processing properties in California, Nevada, Colorado, Wyoming, Montana, Texas, Louisiana, Kentucky, and Tennessee prior to acquisition of these properties by Kennecott Corporation from NERCO. The due diligence review placed particular emphasis on the evaluation of potential past and current environmental liabilities, environmental permit compliance issues, and anticipated closure and reclamation requirements and costs.

Waste Industries, Inc., Landfill Facilities - Various Sites and Locations Nationwide (Environmental Evaluations: 1993)
Mr. Stenger conducted environmental evaluations of landfill facilities in South Carolina, Tennessee, and Mississippi. The review placed particular emphasis on the evaluation of potential past and current environmental liabilities, environmental permit compliance issues, and remaining air space, permitability of future expansions, and anticipated closure and reclamation requirements and costs.

California Steel Industries Inc., California Steel Industries - Fontana, CA (Environmental Audits: 1993)
Mr. Stenger performed environmental compliance audits at mining, steel mill, and steel finishing facilities to assess conformance with requirements of RCRA, the Clean Water Act, Clean Air Act, and other applicable federal and state environmental laws and regulations.

Various Clients - Various Sites (SPCC/SWPPP Preparation: 1997-2006)
Mr. Stenger prepared spill prevention, control and countermeasures (SPCC) plans and stormwater pollution prevention plans (SWPPPs) for various heavy industrial sites including power generating plants, mining facilities, steel mills, and steel finishing facilities.

Various Clients - Various Sites, CA and NV (Environmental Compliance Manuals: 1987-1992)

Mr. Stenger authored Environmental Compliance Manuals for several large gold mining operations in California and Nevada, and was also lead auditor for more than a dozen audits of gold mining and other heavy industrial facilities.

High Desert Power Project, LLC, High Desert Power Project - Victorville, CA (ECAMP Development: 2002-2003)
Mr. Stenger developed a comprehensive Environmental Compliance Assurance and Monitoring Plan (ECAMP) for this new combined-cycle power plant. The ECAMP addresses all routine compliance requirements relevant to operation of the project under the Clean Water Act, Clean Air Act, Oil Pollution Act, SARA Title III, RCRA, CERCLA, and other applicable federal and state laws and regulations.

Gold Fields Mining Corp., Various Procedures - Various Sites, CA and NV (Project Research: 1989)
Mr. Stenger provided research and compilation of hazardous materials handling procedures at gold mining and ore processing facilities in California and Nevada. He also conducted coordination with gold mining facility operations management in relation to the interpretation and real-time implementation of permit conditions and regulatory stipulations.

<u>Geology/Hydrogeology</u>

County Planning Department, San Luis Obispo County Water Pipeline Project - San Luis Obispo, CA (Geologic Study: 2005)
Mr. Stenger performed a geologic study to determine the likelihood of encountering naturally occurring asbestos during planned construction of an 8 mile water line.

County Planning Department, San Luis Obispo County Road Extension Project - San Luis Obispo, CA (Project Role: 2006)
Mr. Stenger performed a geologic study to determine the likelihood of encountering naturally occurring asbestos during planned construction of a County road.

Arid Operations, Inc., Mesquite Regional Landfill - Imperial County, CA (Project Manager: 1995-1997)
Mr. Stenger managed technical studies for development of the Mesquite Regional Landfill. These studies included geology, seismicity and hydrogeology investigations, geochemical evaluations, surface water engineering evaluations, and other key aspects of this projected 100-year development.

Arizona Department of Environmental Quality, Regulations for Water Resource Protection - Phoenix, AZ (Technical Expert: 1997)
Mr. Stenger served as technical expert for the Arizona Department of Environmental Quality for development of their Best Available Demonstrated

Control Technology (BADCT) guidance manual for protecting water resources from mining-related impacts. This manual implements Arizona aquifer protection regulations for all types of mining.

Gold Fields Operating Company, Mesquite Gold Mine - Imperial County, CA (Data Collection/Interpretation: 1990-1993)
Mr. Stenger provided data collection and interpretation, and co-authored a detailed hydrogeologic investigation of the Amos-Ogilby Basin area in support of Subchapter 15 requirements on the Mesquite Gold Mine, an open pit mining and heap leaching facility in Imperial County, California.

Gold Fields Operating Company, Mesquite Gold Mine - Imperial County, CA (Coordination and Interpretation: 1996)
Mr. Stenger provided coordination and interpretation of sampling and analysis programs at the Mesquite Gold Mine for characterization of mining wastes in support of Subchapter 15 requirements and overall environmental risk assessment.

Gold Fields Mining Corp., Geotechnical and Hydrologic Investigations - Various Sites, CA and NV (Project Manager: 1987-1992)
Participation in and management of geotechnical and hydrologic site investigations for designing heap leach, milling and tailings facilities at Gold Mines in California and Nevada.

Gold Fields Mining Corp., Vadose Zone and Ground Water Monitoring - Various Sites, CA and NV (System Design and Installation: 1987-1995)
Mr. Stenger helped in design and installation of vadose zone and ground water monitoring systems at precious metals mines in Southern California and Northern Nevada, including development of a state-of-the-art monitoring system for detection of hydrogen cyanide gas in soil pores.

Engineering Analyses/Feasibility Studies

Various Clients, Engineering Analyses/Feasibility Studies - Various Sites, CA (Alternatives Evaluation: 1997-2008)
Mr. Stenger developed alternatives evaluations and feasibility evaluations for various Environmental Impact Reports in accordance with CEQA and NEPA requirements.

Cabot Carbon/Koppers Industries, Inc., Gainesville Superfund Site, Engineering Analyses/Feasibility Studies - Gainesville, FL (Project Manager: 1998-1999)
Mr. Stenger managed development of a Feasibility Study to support remedial design development. This project included characterization studies and development and evaluation of a comprehensive array of potential remedial technologies for handling various organic and inorganic constituents and

creosote Dense Nonaqueous Phase Liquid (DNAPL) in soil and ground water at this wood treatment site.

Gold Fields Operating Corp., Mule Canyon Mine, Engineering Analyses/ Feasibility Studies - Lander County, NV (Project Manager: 1992-1993)
Mr. Stenger managed environmental, hydrologic, and geotechnical studies of a proposed mine site and surrounding vicinity in Northern Nevada to provide data for project design, feasibility studies, and environmental analyses. Work included geotechnical studies to locate borrow materials for construction (e.g., clay, gravel); faulting and seismicity studies to determine appropriate seismic design criteria; hydrogeologic studies to support analysis of potential impacts of project development on ground and surface water; locating and proving a 1,000 gallons per minute (gpm) water supply source; reconnaissance to evaluate alternatives for access road construction; geochemistry evaluations of sulfide ore bodies to determine potential for acid mine drainage; development of alternatives for waste rock handling and mine pit closure to mitigate acid rock drainage and pit water chemistry concerns; and other studies for environmental impact analysis. Alternative access road alignments and feasibility were an important part of this study due to the remote project location and steep rugged terrain encountered along road alignments from the closest settlements.

Engineering Analyses/Feasibility Studies, Oil Landfill, Operating Industries Inc. - Montebello, CA (Technical Studies: 1992-1993)
Mr. Stenger performed or supervised technical studies and report preparation for various feasibility and alternative evaluations for remediation at a closed hazardous waste landfill. Feasibility and alternative evaluations in part were focused on: hydrogeologic and water quality evaluations, geology and seismicity studies, trash prism characterizations, and landfill gas studies. He also prepared safety, health, and emergency response plans (SHERPs) and a comprehensive Predesign Report synthesizing site characterization data and evaluating and selecting the remedial technologies to be employed.

SPECIALIZED TRAINING

- OSHA 40-hour HAZWOPER Health and Safety Training, 1989

Ronald B. Thomas

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SUMMARY

Over 30 years in industrial and process construction throughout the U.S., Canada, Mexico, Central America and Western Europe, with over 20 years in supervision and management across all engineering and construction disciplines. Broad background in all facets of project planning, engineering, construction and start-up. Industry experience includes power generation, chemical process systems, plastics and rubber manufacturing. Experienced in both design-build and conventional execution methods. Extensive background in prototypes, retrofit and grass roots projects. Skilled in controlling costs, managing changes, maintaining schedules and project reporting.

PROFESSIONAL EXPERIENCE

Self Employed/Contract — 1997 - Present

Site Manager (October,2007- Present)
On contract to support the local construction permitting and engineering for the state and environmental permitting and all local construction management with a general contractor, involved with multiple planned sites for GE LM-6000 power plants in California. Projects range from single unit sites to four unit sites. All projects are EPC and include managing all site development, construction and balance of plant systems through commissioning and start-up.

Site Manager (July,2006 – October, 2007)
Contractor responsible for the retrofit of new HP/IP steam turbines, and inspection and maintenance of the LP turbines, valves, pumps, etc., reporting to OEM/Prime contractor. Managed installation during plant outage conditions, with crews consisting primarily of millwrights and machinists working 24 hr days, 7 days a week. Provided complete installation management including, but not limited to, contractor qualification, bidding and scheduling through start up. Contributed to development of processes, forms and procedures to support the formation of an entirely new installation group for North American projects. This included project planning, assigning resources, and coordination with integrated teams of project management, engineering, customers, suppliers and subcontractors.

Inspector/QC/Customer Service (October, 2005 – April, 2006)
On contract to assist in hurricane relief efforts in the New Orleans area. Initial responsibility was installation inspector and progressed to training other inspectors. Performed maintenance and assisted in organizing the temporary housing maintenance group. Designed and implemented a pre-delivery housing inspection program.

Site Superintendent/ Project Engineer (October, 2004 – September, 2005)
Managed submittals and obtained all City of San Diego construction permits and approvals, reporting to the Construction Manager. Provided supervision for the mechanical, piping and electrical construction subcontractors, and coordinated commissioning/start-up of a GE LM-6000 NexGen turbine/ generator, and all of the balance of plant systems and equipment. This included a maintenance/control room building and site control system. Responsible for negotiating subcontracts, monitoring and tracking all engineering and subcontractor changes including approval of costs and managing overall project schedule and budget during construction. Assembled all final documentation for customer turnover and project closure.

Start-up Coordinator/ Commissioning (March, 2004 – July, 2004)
Provided planning and direction to a team of technical advisors and construction contractors for the commissioning and start-up of a 3 unit (GE7FA), dual fuel power plant, reporting to the Commissioning contractor. Coordination included all "balance of plant" systems and equipment.

Superintendent (2001 – 2002/ 2002 – 2003))
As a member of a design-build project team, coordinated all trades for the construction, commissioning and start-up of a four unit (GE 7EA) power generating facility in Ohio (2001/2002) and a four unit site and a single unit site in Kansas (2002/2003). Responsibilities included supervision and management of mechanical and electrical subcontractors, including approval and management of all subcontractor budgets, schedules and change orders. These were grass roots plants including all "balance of plant" equipment and maintenance/control buildings and site utilities. acted as primary engineering liaison on site for the project during construction, and as commissioning coordinator.

Co-Lead Project Consultant (2000 - 2001)
Acted as part of a small team to lead the design, construction and start up a new plastic products manufacturing plant. Responsible for all phases of design, procurement and installation of a temporary manufacturing facility concurrently with the construction of a 400,000 square foot, grass roots facility. Responsibility included budget, schedule, hiring and training of new operating and maintenance personnel.

Project and Construction Engineer/Construction Manager/Consultant(1998 - 2000)
Responsible for management of subcontractors and engineering company personnel from qualification through start-up, on projects for the chemical and plastics industries. Projects included total construction responsibility for a grass roots PVC compounding plant and approximately $20mm in capacity increases and debottlenecking in an operating chemical catalyst facility. Smaller contracts include mechanical and electrical/instrumentation engineering, engineering reviews, and evaluation and recommendations (engineering studies) for existing process systems.

Pacific Engineering 1997 - 1998

Corporate Construction Manager (1997 – 1998)
Recruited to manage all construction and field service for a fast paced, full service design/build firm. Responsible for establishing and implementing policies and procedures resulting in proactive management of project execution from sub-contractor qualification through client sign-off. Responsible for multiple site management teams throughout the U.S.

BF Goodrich 1994 - 1997

Corporate Construction Manager, Specialty Chemicals Division (1994 – 1997)

- Responsible for all construction related activities for all capital projects within the division, both domestic and international. Duties included qualification of engineering and construction contractors, construction contract negotiation and management, coordination and supervision of contractors, managing for adherence to construction schedules and budgets, change order control, coordination of construction and start-up activities with the host plant and site supervision team. Responsible for construction on several major projects executed in Western Europe and initial studies for projects in Asia. Coordinated and supervised integrated project teams consisting of both direct and contracted employees, for the safe and efficient execution of projects throughout the U.S. and Western Europe.

- Recruited to fill a newly created position within the company with responsibility for establishing construction policies and procedures, including management and execution guidelines resulting in reduced costs and cycle times for capital projects. Acted as liaison between the corporate attorneys in the U.S. and Europe to product contract terms and conditions for domestic and international capital projects.

Werner & Pfleiderer **1984-1994**

Regional Construction Manager (1991- 1994)
Overall responsibility for construction site operations within a multi-state region, including Site Superintendent management, subcontractor management and construction services contract management. Presented construction expertise in turnkey project sales meetings with customers and assisted in developing turnkey project proposals.

Construction Site Superintendent/Field Engineer (1984 – 1994)
Responsibilities included on-site supervision for all phases of construction projects. Served as coordinator for functional checkout and start-up on several of these projects. Projects included prototypes, retrofits, capacity increases, and grass roots facilities in the food, plastics, rubber and chemical industries. Supervised over eight turnkey projects and provided customer training in operation and maintenance of these systems.

EDUCATION

Various college level courses in construction management.

Numerous seminar courses and workshops in construction management, project management and other project related topics.

PROFESSIONAL LICENSES

General Engineering Contractor – California (Qualified for Class A)
General Contractor – Virginia (Current Class A)
General Contractor – Louisiana
General Engineering Contractor – West Virginia
Electrical Contractor – Virginia (Current Class A, Master Electrician)

Class A contractor licenses maintained in a total of ten classifications in Virginia.
Virginia contractor license number 2705078334.

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Experience

Sep 05 – present **J-POWER USA DEVELOPMENT CO.** **Schaumburg, IL**
Vice President of Development

- One of four principals who built U.S. subsidiary of Electric Power Development Company of Japan. Acquired 2,500 MW of thermal generation since 2005.
- Originated and led J-Power's first power plant developments outside of Japan: 96 MW peaker for SDG&E and 382 MW baseload project for Public Service of Oklahoma.
- Facilitated first U.S. test of J-Power's "ReACT" emission control technology at Sierra Pacific Power Company's North Valmy Station.
- Responsible for assessing underlying market fundamentals of contracted assets and originating new contracts prior to term.

Mar 03 – Aug 05 **BLACK HILLS CORPORATION** **Golden, CO**
Managing Director – Corporate Development

- Restructured distressed power plant asset. Provided analysis that justified a $114 MM termination payment. Originated 10-year replacement contract with Nevada Power.
- Originated two new peaking projects in northern California for PG&E.

Feb 02 – Feb 03 **UBS WARBURG ENERGY** **Portland, OR**
Director – West Power Marketing

- Developed customer book for start-up of trading/marketing operations in the WECC.
- Engineered financing opportunities on distressed PPA's and commodity contracts.

Sep 98 – Feb 02 **ENRON NORTH AMERICA** **Houston, TX / Portland, OR**
Manager – Power Origination

- Lead originator/developer on a 240 MW peaker in Colorado for Xcel Energy.
- Developed 500 MW peaker in Indiana for Enron's trading desk.
- Optimized Enron's turbine position with back-to-back purchase and sale transactions.
- Developed and implemented cash flow plan to maintain Portland office's power trading operations post-bankruptcy. Managed west power cash requirements for power pre-pays to maintain in-the-money contracts.

Feb 93 – Jul 96 **U.S. NAVY – CINCUSNAVEUR** **London, UK**
Intelligence Requirements Officer

- Managed tasking requirements for reconnaissance assets in support of U.S. Sixth Fleet and NATO's operations in the former Yugoslavia.

Jun 87 – Feb 93 **U.S. NAVY – HELANTISUBRON LIGHT 34** **Norfolk, VA**
Helicopter Aircraft Commander/Detachment Maintenance Officer

- Pilot in command of three-member crew during tactical flight operations; supervised 20-person maintenance team for a two-aircraft shipboard helicopter detachment.
- Supported Operation Desert Storm and the Multinational Interdiction Force.

Education

Sep 96 – May 98 **TUFTS UNIVERSITY** **Medford, MA**
Fletcher School of Law and Diplomacy
Master of Arts in Law and Diplomacy, May 1998

Sep 83 – Jun 87 **MASSACHUSETTS INSTITUTE OF TECHNOLOGY** **Cambridge, MA**
Bachelor of Science in Civil Engineering, June 1987

URBANA PRESERVATION & PLANNING

WENDY L. TINSLEY
PRINCIPAL HISTORIAN / PRESERVATION PLANNER
wendy@urbanapreservation.com

Ms. Tinsley brings a solid background in history, architectural history and urban planning, with a particular emphasis on issues relating to historic preservation. Her statewide experience includes extensive historical resources survey work, design review under *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, single-site historic property research and documentation, and practice in municipal regulatory planning and cultural resources compliance issues including code compliance, revision and review, CEQA, NEPA, and Section 106 of the National Historic Preservation Act. As a preservation planning consultant she participates in the development and administration of local land use regulations, policies, programs and projects; prepares reports involving research and analysis of various planning issues; conducts site-specific project and design review; and facilitates project coordination between contractors, architects, developers, citizens and other stakeholders. Wendy meets the *Secretary of the Interior's Historic Preservation Professional Qualifications Standards* in the disciplines of History and Architectural History and the *draft standards* established for Historic Preservation and Land Use/Community Planning.

Ms. Tinsley was the founding President of the Jack London District Association, a non-profit community advocacy organization for the Jack London District, an emerging neighborhood located along the historic industrial waterfront of Oakland, California that is anchored by a ten-block district of intact historically and architecturally significant warehouse properties listed on the National Register of Historic Places. In this position Ms. Tinsley regularly facilitated community visioning workshops, presided over community meetings, corresponded and negotiated with City Staff and Council representatives, and development interests on behalf of the Jack London District.

Wendy has authored invited contributions for the *Encyclopedia of the City* publication and authored the United States Research Bibliography for the newly published book *The International Faces of Urban Sprawl*. She is currently completing a book on the planning and development history of San Diego, which will be a valuable reference resource to historic preservation and planning professionals, academics, and local historians.

Wendy served as a Board member of the Northern California Chapter of the American Planning Association (APA) from 2004 through 2006 where she was appointed as the San Francisco and East Bay Chair for the group's Regional Advisory Council. She currently serves as the California Representative for the APA National Urban Design & Preservation Division. In January 2007 she joined the instructor team at the University of California at San Diego's (UCSD) Urban Planning & Development professional certificate program, where she teaches courses on Historic Preservation Planning, Architectural History and City Planning, and serves as a program advisory group member to further historic preservation in local planning and development education curriculums.

Wendy has assisted jurisdictions in preservation planning program development efforts through:

- Crafting historic preservation ordinance language and related procedural and administrative guidelines;
- Reviewing existing programs for specialized use in historic preservation strategies;
- Establishing preservation incentive and benefit programs;
- Navigating proposed programs through the participatory process including educating advisory committees and established municipal historic preservation boards;
- Facilitating public workshops, and presenting conclusions and recommendations to city decision-makers;
- Conducting comprehensive historical resource/historic property surveys to identify and evaluate eligible properties and inform the current and long-range planning and development process.

She is currently the lead historic preservation consultant for the City of Chula Vista's Proposed Municipal Preservation Planning Program where she works closely with City Staff and the Interim-Historic Preservation Advisory Committee to develop a local historic preservation program including a historic preservation ordinance, historic design review guidelines, and incentives and benefits for historic property owners and project applicants. Additionally Wendy provides on-call historic preservation planning services for the Southern California Edison Company as part of the Tehachapi Renewable Transmission Project.

WENDY L. TINSLEY
PRINCIPAL HISTORIAN / PRESERVATION PLANNER
wendy@urbanapreservation.com

EDUCATION

Master of City Planning, Historic Preservation & Urban Design Concentration
Thesis Title: *How Cities Grow: A History Of San Diego Neighborhood Development Patterns, 1769-1955*
California State University, San Diego

Bachelor of Arts – History, Public History & Urban Studies Concentration
Senior Research Thesis: *Another Streetcar Suburb: The Development of Mission Beach, 1914-1930*
California State University, San Diego

PROFESSIONAL EXPERIENCE

Principal: Urbana Preservation & Planning, (Oakland & San Diego) 04/2005-present
Architectural Historian & Preservation Planner: Architectural Resources Group (San Francisco & Los Angeles), 10/2002-04/2005
Architectural Historian & Preservation Planner: Historic Research Services, (San Diego) 12/2001-10/2002
Historian & Historic Preservation Planner: Office of Marie Burke Lia, Attorney at Law, (San Diego) 01/2000-11/2001
Assistant Coordinator: SHPO/CHRIS-South Coastal Information Center, 07/1998-08/1999
Consultant, East Side Survey and Oral History Program: City of Oceanside Department of Planning and Land Use, 01/1999-06/1999
Consultant, National Register of Historic Places Travel Itinerary: City of San Diego Historic Site Board, 06/1998-06/1999
Research Assistant: SHPO/CHRIS-South Coastal Information Center, 12/1996-07/1998

SELECT RELATED EXPERIENCE / PROFESSIONAL SEMINARS / CONTINUING EDUCATION

Instructor: UCSD Urban Planning & Development Extension Certificate Program. Courses Taught:
Architectural History of San Diego – Winter Quarter 2008
Historic Preservation Planning –Winter Quarter 2007, Summer Quarter 2007, Winter Quarter 2008
Fundamentals of City Planning – Summer Quarter 2007
Seminar Facilitator / Panel Speaker: *Planning for Preservation: A Survey of Municipal Preservation Programs Throughout San Diego County*, UCSD Extension–UPD Cert. Program, 11/2006
Invited Speaker: *Local Historic Site Designation & The Mills Act Historic Property Tax Credit Program*, City of San Leandro (CA), 04/2005
Attendee: CA Preservation Foundation & CA Office of Historic Preservation, *Historical Resource Surveys for Local Governments*, San Diego (CA) 02/2004
Attendee: National Charrette Institute, *Introduction to Dynamic Planning* (Level 1 NCI Charrette Manager Certification Training), San Diego (CA) 10/2003
Attendee: CA Preservation Foundation, *Incentives for Historic Preservation Projects*, Berkeley (CA) 09/2003
Attendee: University of Southern CA, *Preservation Planning & Law*, Los Angeles (CA) 07/2003
Attendee: League of CA Cities, *Smart Growth Zoning Codes*, Lodi (CA) 12/2002
Invited Participant: *Second Natures, Redefining The Los Angeles Riverfront*, Los Angeles (CA) 01/2002 (2-Day Planning & Design Charrette hosted by MOCA & The Geffen)
Graduate Instructor: Urban Studies & Planning Program, University of CA at San Diego, Courses Taught: USP 124-Land Use Planning, Dr. Nico Calavita, 09/2001 – 12/2001
Graduate Teaching Assistant: City Planning Graduate Program, San Diego State University, Dr. Nico Calavita, 01/2000 – 08/2000, 09/2001 – 12/2001, 01/2002 – 05/2002
Selected Smart Growth Researcher: San Diego State University Foundation & City Planning Graduate Program, Dr. Roger Caves, 01/2001 – 08/2001 (Grant Topic: Planning for Sprawl in the U.S)
Attendee: *Section 106 An Introductory Course*, National Preservation Institute, San Francisco (CA) 04/1999

MEMBERSHIPS

American Planning Association (APA)
Society of Architectural Historians (SAH)
Society for American City and Regional Planning History (SACRPH)
National Trust for Historic Preservation (NTHP)
California Preservation Foundation (CPF)

WENDY L. TINSLEY
PRINCIPAL HISTORIAN / PRESERVATION PLANNER
wendy@urbanapreservation.com

BOARDS & COMMITTEES

Consultant Advisor – City of Chula Vista Interim Historic Preservation Advisory Committee, 2007
California Representative – Urban Design & Preservation Division, American Planning Association, 2007
Member – UCSD Extension Advisory Group Urban Planning & Development Certificate Program, 2007
President – Jack London District Association, 2005-2006
East Bay Co-Chair – Regional Advisory Council, APA Northern Section-CA Chapter, 2005-2006
San Francisco Chair – Regional Advisory Council, APA Northern Section-CA Chapter, 2004-2005

SELECT PUBLICATIONS

Article in-progress	*The General Plan and Historic Preservation; An Overview of Historic Preservation Elements in the State of CA.*
Article in-progress	*San Diego County's Municipal Preservation Report Card*
2006	"United States Research Bibliography" *The International Faces of Urban Sprawl: Lessons Learned From North America.* Fritz Wagner (ed.) Geography Dept. University of Waterloo: Waterloo, Ontario.
2005	"Courtyards" invited entry for *Encyclopedia Of The City.* Roger Caves (ed.) Routledge: London.
2005	"Robert Venturi" invited entry for *Encyclopedia Of The City.* Roger Caves (ed.) Routledge: London.

SELECT PROJECTS / REPORTS / DOCUMENTATION

In-Progress	*Foothill Ranch Historical Resource Review, Palmdale, CA*
In-Progress	*Section 106 Review 1425-1475 South Main Street, Walnut Creek, CA*
In-Progress	*Proposed Heidi Square Project Historical Resource, Preservation Planning & Subdivision Re-Design Consulting, San Lorenzo, CA*
In-Progress	*Lead Architectural History/Preservation Planning Consultant – Southern California Edison Company On-Call Contract for the Tehachapi Renewable Energy Project*
In-Progress	*City of Chula Vista Historic Preservation Program Development – Lead Consultant*
January 2008	*Historic Site Designation Report & Mills Act Property Tax Consulting - Ocean Beach Cottage Emerging Historic District Contributor, 4670 Del Monte Ave., San Diego, CA*
November 2007	*Historic Site Designation & Mills Act Historic Property Tax Consulting for the Olmstead Building Company's Calavo Gardens Project #531, Mt. Helix, CA*
October 2007	*Southern CA Edison Company's Del Sur-Saugus Transmission Line Historical Resource Review, Lancaster - Palmdale, CA*
October 2007	*Southern CA Edison Company's Antelope Substation Historical Resource Review, Lancaster, CA*
September 2007	*Historical Resource Review & Data Responses for the Proposed SDG&E Orange Grove Energy Project in Pala, CA*
September 2007	*Southern CA Edison Company's Kaiser Pass Cabin Historic Property Assessment, Fresno Co., CA*
August 2007	*USDA Forest Service Meeks Creeks Historic Bridge Assessment, Lake Tahoe, CA*
July 2007	*Historical Resource Analysis Report, 433 W. Meadow Drive, Palo Alto, CA*
May 2007	*Historic Preservation Assessment & New Project Planning and Design Consulting – 3994 Jackdaw Street, San Diego (CA)*
February 2007	*419 Park Way Historical Resource Analysis Report, Chula Vista, CA*
January 2007	*Upper Triangle Areas Historic Property Survey (Historic Context Statement and Architectural/Historical Documentation of 50 Properties over 15 City Blocks), Fresno, CA*
December 2006	*Historic Site Designation & Mills Act Historic Property Tax Consulting for the Charles Wakefield Cadman Residence, Mt. Helix, CA.*
November 2006	*Historical Resource Analysis of the 4303 Narragansett Avenue Property, San Diego, CA*
September 2006	*Section 106 Review of the 1333 Balboa Street Property, San Francisco, CA*
September 2006	*Section 106 Review of the Historic Delta-Mendota Canal, Los Banos, CA*
August 2006	*Historical Evaluation Report – 2959 East Avenue, Hayward, CA*
June 2006	*Historical Resource Analysis Report for the 418-450 10th Avenue Properties, San Diego, CA 92101*
May 2006	*Section 106 Review of the Cocoanut Grove Building – Santa Cruz Beach Boardwalk, Santa Cruz, CA*

May 2006	*Historical Resource Evaluation Report for the 70 15th Street Warehouse, San Diego, CA*
April 2006	*Historic Site Designation Report & Mills Act Property Tax Consulting - Ocean Beach Cottage Emerging Historic District Contributor, 4528 Saratoga Avenue, San Diego, CA*
March 2006	*City of Fresno Arts-Culture District Historic Property Survey (Historic Context Statement and Architectural/Historical Documentation of 90-100 Properties over 18 City Blocks), Fresno, CA*
March 2006	*South Mossdale Historic-Era House Evaluation, Lathrop, CA*
February 2006	*Westwind Barn Historic Preservation Study, Los Altos Hills, CA*
January 2006	*Section 106 Review of the 2654 Mission Street Property, San Francisco, CA*
January 2006	*Section 106 Review of the 325 Mowry Avenue Property, Fremont, CA 94536*
January 2006	*Section 106 Review of Ardenwood 34551 Ardenwood Bouevard, Fremont, CA 94555*
December 2005	*Section 106 Review of the 1230 N Street Property, Sacramento, CA 95814*
December 2005	*Section 106 Review of the Sacramento City College Water Tower, Sacramento, CA*
November 2005	*Section 106 Review of Fair Oaks Watts, 525 La Sierra Drive, Sacramento, CA*
November 2005	*Napa Valley College Bus Shelter West Historical Resource Analysis Report, Napa, CA*
October 2005	*Section 106 Review of the 1025 3rd Street Property, Sacramento, CA 95818*
September 2005	*City of Davis, Historic Anderson Bank Building Research, Documentation & Design Review Analysis, 203 G Street, Davis, CA*
September 2005	*Historical Resource Analysis Report, 1212 & 1214 Second Street, San Rafael, CA*
August 2005	*Historical Resource Analysis Report – Somky Property/Thompson's Soscol Ranch, Napa, CA 94558*
July 2005	*Walnut Creek Women's Club Environmental Impact Report, 1224 Lincoln Avenue, Walnut Creek, CA*
June 2005	*Tam Property Lot Split Historic Preservation Consulting, Castro Valley, CA*
May 2005	*Historical Resource Analysis Report, 7329-7331 Eads Avenue, San Diego, CA*
March 2005	*Ehlers Estate Historical Resource Analysis, 3222 Ehlers Lane, St. Helena, CA*
March 2005	*University of CA at Santa Cruz Preservation Consulting (Campus Wide Cultural Resources Inventory, Historic Context Statement – Campus Planning History)*
February 2005	*Hall Winery Historical Resource Analysis, St. Helena, CA*
January 2005	*Historical Resource Evaluation, 700 28th Avenue, San Mateo, CA*
January 2005	*Historical Resource Evaluation, 312 & 318 Highland Avenue, San Mateo, CA*
December 2004	*San Mateo Motel Historical Resource Report – Park Bayshore Townhomes – Environmental Impact Report* (Revised February 2005)
November 2004	*Historical Evaluation of the San Mateo Motel, 801 South Bayshore Boulevard, San Mateo, CA*
October 2004	*Stonegate Homes Subdivision Plan, and Single-and-Multi-Family Dwellings Design Review, San Mateo, CA*
September 2004	*University of CA at Santa Cruz, Getty Campus Heritage Grant Application*
September 2004	*City of Riverside Downtown Fire Station No.1 Cultural Resources Analysis, Riverside, CA*
August 2004	*Residential Remodel Design Review – Glazenwood Historic District Contributor, 929 Laurel Avenue, San Mateo, CA*
August 2004	*Odd Fellows Hall, Historic Structure Report, 113 South B Street, San Mateo, CA* (with Conservator Seth Bergstein)
July 2004	*Design Review Analysis – Schneider's Building, 208 East Third Street, San Mateo, CA 94401*
July 2004	*Embarcadero Cove Development Project Initial Study – Preliminary Historical Resource Analysis, Oakland, CA 94606*
July 2004	*Historical Resource Evaluation Report – 4830 Cape May Avenue, San Diego, CA 92107* (Revised January 2005)
June 2004	*City of Monterey Alvarado Street Mixed-Use Project - APE Survey, Monterey, CA*
June 2004	*City and County of San Francisco Historical Resource Evaluation Report – 450 Frederick Street, San Francisco, CA 94117*
June 2004	*Design Review Analysis – 117 Clark Drive, San Mateo, CA 94402*
May 2004	*Historical Evaluation of the 426 Clark Drive Residence, San Mateo, CA 94402*
April 2004	*City and County of San Francisco Historical Resource Evaluation Report – 1272 42nd Avenue, San Francisco, CA 94122*
April 2004	*City of Fresno Broadway Row Historical Resource Survey, Fresno, CA*
March 2004	*Historical Evaluation of the 117 Clark Drive Residence, San Mateo, CA 94402*

March 2004	*Historical Evaluation Of The Fresno Republican/McMahan's Building, 2030 Tulare Street, Fresno, CA 93721*
February 2004	*Crocker Bank Building Preservation Planning Considerations Memorandum*
January 2004	*Historical Evaluation of the 501 Walnut Street Residence, San Carlos, CA 94070*
January 2004	*Historical Evaluation of the 20 Madison Avenue and 29 Hobart Avenue Properties, San Mateo, CA 94402*
January 2004	*Historical Evaluation Of The Residence Located At 571 Valley Street, San Francisco, CA 94131*
January 2004	*Historical Evaluation Of The 3925 20th Street Residence, San Francisco, CA 94131*
November 2003	*Historical Evaluation of Commercial Building Located at 1022 El Camino Real, San Carlos, CA 94070*
November 2003	*Peer Review Statement for the K & T Foods Building, 451 University Avenue, Palo Alto, CA 94301*
November 2003	*Historical Evaluation of the Greer-O'Brine Property, 51 Encina Avenue, Palo Alto, CA, 94301*
November 2003	*Embarcadero Hotel Environmental Impact Report, Historical Resources Analysis and Design Review Statement*
October 2003	*City of San Leandro Historical Resources Survey, Historic Context Statement, Historic Preservation Ordinance, and Draft Historic Preservation Benefits/Incentive Program*
August 2003	*Palm Theater Environmental Impact Report, Historical Resources Analysis*
July 2003	*Historical Evaluation Of The First Christian Church Building, 2701 Flores Street, San Mateo, CA 94403*
June 2003	*Alameda Naval Air Station Reuse Project Historic Preservation Regulatory and Policy Memorandum* (Prepared for Alameda Point Community Partners-Master Developer for NAS Alameda)
May 2003	*Historical Evaluation Of The Residence Located At 606 Dorchester Road, San Mateo, CA 94403*
March 2003	*Ames Aeronautical Laboratory 40' x 80' Wind Tunnel National Register Nomination* (Prepared for NASA Ames Research Center)
March 2003	*Ames Aeronautical Laboratory 6' x 6' Supersonic Wind Tunnel National Register Nomination* (Prepared for NASA Ames Research Center)
March 2003	*Ames Aeronautical Laboratory Administration Building National Register Nomination* (Prepared for NASA Ames Research Center)
March 2003	*Historical Evaluation Of The Residence Located At 1015 South Grant Street, San Mateo, CA 94402*
February 2003	*8th & Market, 10 United Nations Plaza, Cell Site Impact Review*
February 2003	*Existing Conditions and Subdivision Design Alternatives For The Proposed Hayman Homes Tract No. 7267, Proctor Road, Castro Valley, CA*
February 2003	*Historical Evaluation Of The Residence Located At 336 West Poplar Avenue, San Mateo, CA 94402*
January 2003	*Historical Evaluation Of The Residence Located At 744 Occidental Avenue, San Mateo, CA 94402*
January 2003	*Historical Evaluation Of The 131 and 141 West Third Avenue Apartment Buildings, San Mateo, CA, 94402*
December 2002	*CA State Capitol Building, Sacramento, CA Wireless Antenna Site Review*
November 2002	*Wireless Antenna Site Review, Medical Arts Building, 2000 Van Ness Avenue, San Francisco, CA 94109*
October 2002	*Historical Evaluation Of The LeDucq Winery Estate, 3222 Ehlers Lane, St. Helena, CA 94574* (Revised June 2003)
October 2002	*Historical Assessment Of The St. Patrick's Parish Community Building Located At 3585 30th Street, San Diego, CA, 92104*
September 2002	*Historical Assessment Of The Building Located At 4257 Third Street, San Diego, CA, 92103*
April 2002	*Historical Assessment Of The Building Located At 3567 Ray Street, San Diego, CA, 92104*
October 2001	*Historical Assessment Of The Gustafson's Furniture Building Located At 2930 El Cajon Boulevard, San Diego, CA, 92104*
September 2001	*Historical Review Of Lots A, B, K & L, Block 93, Horton's Addition Lockling*

August 2001	*Core Inventory Of All Sites Appearing To Be More Than 45 Years Of Age Not Previously Documented* (Prepared For Centre City Development Corporation)
August 2001	*Urbana Project Abstract Bibliography* (Prepared for Dr. Roger Caves, San Diego State University and San Diego State University Foundation)
July 2001	*Historical Assessment Of The Kirkland Apartments Building Located At 2309 Fifth Avenue, San Diego, CA, 92103*
July 2001	*Historical Assessment Of The Building Located At 4230 Maryland Street, San Diego, CA, 92103* (With Kathleen A. Crawford)
June 2001	*Historical Assessment Of The 2525-2529, 2537-2547, 2561 First Avenue Residences, San Diego, CA 92103*
May 2001	*Update Of The November 1988 Historic Site Inventory Of Centre City East For Centre City Development Corporation*
April 2001	*East Village Inventory Of All Sites Appearing To Be More Than 45 Years Of Age Not Previously Documented* (Prepared For Centre City Development Corporation)
April 2001	*Update Of The May 1989 Historic Site Inventory Of Bayside For Centre City Development Corporation*
January 2001	*Historic Survey Report Of The Former Teledyne-Ryan Aeronautical Complex 2701 North Harbor Drive San Diego, CA 92101*(with Scott Moomjian)
January 2001	*Historical Assessment Of The Fletcher-Salmons Building 602-624 Broadway, San Diego, CA 92101*
December 2000	*Cultural Resource Report for The Winona Avenue Area Elementary School Preferred Site, Alternative 1 Site, and Alternative 2 Site*
November 2000	*Cultural Resource Report for The Edison/Hamilton/Parks Area Elementary School Preferred Site and Alternative Sites*
November 2000	*Cultural Resource Report for The Adams/Franklin Area Elementary School Preferred Site and Alternative Site*
October 2000	*The National Register of Historic Places Travel Itinerary; Old Town San Diego*
August 2000	*Cultural Resource Report for The Winona Avenue Area Elementary School Preferred Site and Alternative Sites*
July 2000	*Cultural Resource Report For The 52nd Street Area Elementary School Preferred And Alternative Sites*
July 2000	*Historical Assessment Of The 3658 Warner Street Residence, San Diego, CA 92106*
July 2000	*Historical Assessment Of The 367 Catalina Boulevard Residence, San Diego, CA 92106*
July 2000	*Historical Assessment Of The 906 West Lewis Street Residence, San Diego, CA 92103*
May 2000	*Historical Assessment Of The 501-503, 507 and 509 14th Street Residences, San Diego, CA 92101*
May 2000	*The San Diego Flume Company System Redwood Pipeline, San Diego County, CA*
March 2000	*Historical Assessment of The Society For Crippled Children's Hydrotherapy Gymnasium Located at 851 South 35th Street, San Diego, CA 92113*

KAREN M. VETRANO, Ph.D.

EDUCATION

Ph.D., Toxicology, University of Connecticut, 1992
B.S., Toxicology, Northeastern University, 1986

AREAS OF EXPERTISE

Dr. Karen M. Vetrano has 18 years of experience encompassing:

- Human Exposure and Risk Assessment
- Ecological Hazard Characterization and Risk Assessment
- Environmental Fate and Transport
- Toxicological Evaluations
- TSCA PMN Submissions
- Exposure Assessments
- Odor Evaluation
- Indoor Air Quality Investigations
- Expert Testimony and Litigation Support

REPRESENTATIVE EXPERIENCE

Dr. Vetrano manages TRC's Risk Assessment and Toxicology Practice as well as the Odor Evaluation and Control Groups. She supervises projects that include human health and ecological risk assessments, toxicological evaluations, exposure assessments, labeling and preparation of material safety data sheets (MSDS), odor evaluation, indoor air quality and industrial hygiene program reviews.

Dr. Vetrano provides management and technical support for the various components of human exposure and health risk assessments under such programs as Superfund, Resource Conservation and Recovery Act (RCRA), California Proposition 65, the Massachusetts Contingency Plan (MCP) (as well as other individual State programs) and EPA's Brownfield Program. The general components in these assessments include validation of data, modeling of environmental concentrations, identification of relevant land uses and activities, assessment of chemical intakes, evaluation of chemical toxicity and characterization of potential health risks from chemical exposures.

Human Exposure and Risk Assessment – Hazardous Waste Sites

FAA Technical Center, Human Exposure and Risk Assessment – NJ (Task Manager and Lead Risk Assessor: 1996-Present)
Dr. Vetrano is performing a qualitative and quantitative assessment of risks to human and ecological receptors potentially impacted by activities conducted at a federal facility site in New Jersey. She is providing technical support in the quantification of risks from multiple exposure pathways (dermal absorption

following contact with soil and water, and ingestion of contaminated soils and drinking water sources) and current and future land use scenarios. She also conducted risk assessments at numerous AOCs on site.

Confidential Client, Former Illegal Dump Site, Human Health Risk Assessment – NJ (Task Manager and Lead Risk Assessor: 2003-Present)
Dr. Vetrano is currently serving as Task Manager for a comprehensive baseline human health risk assessment for a former illegal dumping site in New Jersey. PCBs are the primary contaminant of concern. A human health risk assessment to evaluate recreational exposures to surface water, soils, local game will be conducted. The results of the risk assessment will be used by the client to develop potential remedial solutions at the site.

Confidential Client, Phosphate Mine, Human Health Risk Assessment – Southeastern ID (Task Manager and Lead Risk Assessor: 1996-Present)
Dr. Vetrano completed a comprehensive baseline human health risk assessment for a former phosphate mine located near the Blackfoot River in southeast Idaho. Tailings from the mining operation resulted in the leaching of selenium into surface waters of a nearby stream. A human health risk assessment to evaluate recreational exposures to surface water, soils, local game was conducted. The results of the risk assessment are being used by the client to develop potential remedial solutions at the site.

Confidential Client, Railroad Yard, Human Health Risk Assessment – Iowa (Task Manager and Lead Risk Assessor: 2002-Present)
Dr. Vetrano is currently serving as Task Manager for a comprehensive baseline human health risk assessment for a railroad yard in Iowa. Chlorinated solvents are the primary contaminant of concern. A human health risk assessment to evaluate exposures to soils, sediments, surface water and ground water is being conducted. An indoor air quality survey and risk assessment was conducted for the locomotive rebuild facility under which a plume of PCE is located. Results of the study indicated that there are no significant volatilization issues within the facilty.

Confidential Client, Former Refinery Site, Human Exposure and Risk Assessment – MT (Project Manager and Lead Risk Assessor: 1999-Present)
Dr. Vetrano conducted a human exposure and risk assessment pertaining to ground water contamination at a former refinery. Residential and school indoor air concentrations were directly measured and incorporated into a human health risk assessment. Dr. Vetrano represented the client in meetings with state regulatory agency as well as public meetings. She also provided expert witness support during litigation.

Confidential Client, Former MGP Site, Human Exposure and Risk Assessment – Eastern MA (Task Manager and Lead Risk Assessor: 2001-2003)
Dr. Vetrano conducted a Method 3 risk assessment under the MCP at a former MGP site, which is to be the future site of a middle school. The general components in this assessment included validation of data, modeling of environmental concentrations, identification of relevant exposure scenarios, assessment of chemical intakes, evaluation of chemical toxicity and characterization of potential health risks from chemical exposures. EPA's Johnson and Ettinger Model was used to evaluate the risks from indoor air from the volatilization of constituents into indoor air. The results of the risk assessment were used to assess whether a level of no significant risk existed with respect to the soil and ground water conditions present at the site.

Confidential Client, Former Tie Treating Facility, Human Exposure and Risk Assessment – NM (Task Manager and Lead Risk Assessor: 1996-2002)
Dr. Vetrano conducted a human exposure and risk assessment pertaining to soil and ground water contamination at a former tie treating facility. She provided technical support in the quantification of risks from multiple exposure pathways (dermal absorption following contact with soil and water, and ingestion of contaminated soils and drinking water sources, and inhalation of volatiles from soil and ground water using EPA's Johnson and Ettinger models) and current and future land use scenarios. Risk assessment provided risk-based clean up levels to be used in the feasibility study. Dr. Vetrano represented the client in meetings with state regulatory agency and EPA Region VI.

Confidential Client, Manufacturing Facility, Human Exposure and Risk Assessment – Southern CT (Task Manager and Lead Risk Assessor: 1998-1999)
Dr. Vetrano conducted a human exposure and risk assessment pertaining to ground water contamination at a manufacturing facility. Residential indoor air concentrations were modeled from the volatilization of VOCs from ground water and incorporated into a human health risk assessment using the Johnson and Ettinger model. Additionally, direct measurement of indoor air concentrations from the facility itself were also incorporated into the evaluation of risk to current workers.

Confidential Client, Brownfield Site, Human Exposure and Risk Assessment – Southern CT (Task Manager and Lead Risk Assessor: 1999-2000)
Dr. Vetrano conducted a human exposure and risk assessment pertaining to soil contamination at a former manufacturing facility. An immediate hazard evaluation was conducted due to presence of elevated soil contaminants on-site and the use of the site as a play area for nearby resident children. The results of

the evaluation prompted the municipality to fence off the site to prohibit access to the site. Dr. Vetrano participated in public meeting to discuss risk assessment results.

U.S. Naval Education and Training Center (NETC), Human Health Risk Assessments – Newport, RI (Risk Assessor: 1992)
Dr. Vetrano performed multiple pathway health risk assessments on five Superfund sites at the NETC. She provided technical support in the quantification of risks from multiple exposure pathways (inhalation of fugitive dusts and volatile gases, dermal absorption following contact with soil, sediment and water, and ingestion of contaminated dusts, soils, sediments, shellfish, and drinking water sources) and current and future land use scenarios.

Naval Construction Battalion Center (NCBC), Health Risk Assessments – Davisville, RI (Risk Assessor: 1993)
Dr. Vetrano performed multiple pathway health risk assessments on Superfund sites at the NCBC. She provided technical support in the quantification of risks from multiple exposure pathways (inhalation of fugitive dusts and volatile gases, dermal absorption following contact with soil, sediment and water, and ingestion of contaminated dusts, soils, sediments, and drinking water sources) and current and future land use scenarios.

Confidential Client, Utility Site, Human Exposure and Risk Assessment – Eastern MA (Risk Assessor: 1998)
Dr. Vetrano conducted a Method 3 risk assessment under the MCP. The general components in this assessment included validation of data, modeling of environmental concentrations, identification of relevant exposure scenarios, assessment of chemical intakes, evaluation of chemical toxicity and characterization of potential health risks from chemical exposures. The results of the risk assessment were used to assess whether a level of no significant risk existed with respect to the soil and ground water conditions present at the site.

Confidential Client, Shooting Range, Human Exposure and Risk Assessment – Western MA (Risk Assessor: 1996-2002)
Dr. Vetrano conducted a Method 1 risk assessment under the MCP. The general components in this assessment included validation of data, modeling of environmental concentrations, and identification of relevant exposure scenarios pertaining to lead and PCB exposure. The results of the risk assessment were used to assess whether a level of no significant risk existed with respect to the soil conditions present at the site.

Confidential Client, Trucking Facility, Human Exposure and Risk Assessment – Eastern MA (Risk Assessor: 1998-1999)
Dr. Vetrano conducted a Method 1 risk assessment under the MCP. The general components in this assessment included validation of data, modeling of environmental concentrations and identification of relevant exposure scenarios. The results of the risk assessment were used to assess whether a level of no significant risk existed with respect to the soil and ground water conditions present at the site.

Confidential Client, Trucking Facility, Human Exposure and Risk Assessment – Western MA (Risk Assessor: 1998-1999)
Dr. Vetrano conducted a Method 1 and Method 3 risk assessment under the MCP. The general components in this assessment included validation of data, modeling of environmental concentrations, identification of relevant exposure scenarios, assessment of chemical intakes, evaluation of chemical toxicity and characterization of potential health risks from chemical exposures. The results of the risk assessment were used to assess whether a level of no significant risk existed with respect to the soil, ground water and indoor air conditions present at the site.

Confidential Client, Consumer Product Company, Human Exposure and Risk Assessment – NJ (Project Manager and Risk Assessor: Present)
Dr. Vetrano is conducting a human exposure assessment of a class of consumer products to support a Safe Use Determination under Proposition 65. She monitored for alpha-quartz exposure during the use of numerous brands of the product. She also calculated a time weighted exposure for dust and alpha-quartz exposures and evaluated the potential health risks resulting from alpha-quartz exposure during the use of this product.

Confidential Client, Trade Association, Human Exposure and Risk Assessment – Washington, DC (Project Manager and Risk Assessor: 1996-1998)
Dr. Vetrano conducted a human exposure assessment of a class of consumer products to support a Safe Use Determination under Proposition 65. She monitored for alpha-quartz exposure during the use of numerous brands of the product. Dr. Vetrano also calculated a time weighted exposure for dust and alpha-quartz exposures and evaluated the potential health risks resulting from alpha-quartz exposure during the use of this product.

Confidential Client, Product Evaluation, Human Exposure and Risk Assessment –CT (Project Manager and Risk Assessor: 1998)
Dr. Vetrano conducted a human exposure assessment for a consumer product to determine labeling requirements under Proposition 65. She monitored for alpha-quartz, carbon monoxide and polyaromatic hydrocarbon exposure during the use

of this consumer product. Dr. Vetrano conducted a risk assessment under Proposition 65 to determine whether a level of no significant risk existed with the use of this product. She also calculated a time weighted exposure for alpha-quartz exposure and evaluated the potential health risks resulting from alpha-quartz exposure during the use of this product.

Confidential Client, Chemical Manufacturer, Human Exposure Studies to MTBE, Specialty – PA (Toxicologist: 1994-2000)
Dr. Vetrano assisted in the development and management of human exposure studies to methyl tertiary butyl ether (MTBE) in conjunction with Yale University's Pierce Laboratory. Additional tasks involved in this project included the evaluation of risks to human subjects exposed to gasoline vapors in controlled exposure studies. An extensive literature search and evaluation of adverse effects reported from inhalation exposure to gasoline, C4C6 alkenes (olefins) and simple ethers were also conducted. While human data was emphasized, animal data was also used.

Human Exposure and Risk Assessment – Air Toxics

Confidential Client, Munitions Incinerator, Multipathway Human Health and Ecological Risk Assessments – NV (Project Manager and Lead Risk Assessor: 2006-Present)
Dr. Vetrano is currently providing technical expertise to assess the risks from the emissions from munitions incinerators located in Nevada. A protocol for the multiple pathway human health and ecological risk assessments, which follow current EPA and state guidance for hazardous waste incinerators/combustion emissions, has been submitted and approved by the appropriate regulatory agencies. Once the Trial Burn has been conducted, Dr. Vetrano will perform site-specific risk assessment modeling and provide technical expertise in the areas of identification and assessment of multiple routes of exposure, including inhalation, ingestion of locally produced foodstuffs (vegetables, beef and dairy) and locally caught fish.

Confidential Client, Specialty Chemicals Manufacturer, Multipathway Human Health and Ecological Risk Assessments – NY (Task Manager and Lead Risk Assessor: 1996-Present)
Dr. Vetrano is currently providing technical expertise to assess the risks from the emissions from a rotary kiln and a fixed box incinerator located in upper state New York. A protocol for the multiple pathway human health and ecological risk assessments, which follow current EPA and state guidance for hazardous waste incinerators/combustion emissions, was been prepared and submitted to the appropriate regulatory agencies. Upon approval, Dr. Vetrano prepared a site-specific risk assessment which included risk assessment modeling and provided technical expertise in the areas of identification and assessment of multiple

routes of exposure, including inhalation, ingestion of locally produced foodstuffs (vegetables, beef and dairy) and locally caught fish. Constituents of potential concern included metals (including mercury), chlorine, volatile organic compounds, semivolatile organic compounds, PCBs and dioxins. She worked closely with the client to ensure a technically sound product suitable for EPA and state agency submission.

Confidential Client, Cement Plant, Toxicological Evaluation – Ravena, NY (Project Manager and Toxicologist: 2005)
Dr. Vetrano provided a toxicological evaluation of emissions from a cement plant that proposed to burn TDF as fuel. She represented the client during public meetings and responded to public comments as part of the successful permitting process.

Confidential Client, Human Exposure and Risk Assessment, 90 Church Street Site – New York, NY (Project Manager and Lead Risk Assessor: 2002-2003)
Dr. Vetrano conducted a human exposure and risk assessment pertaining to indoor environmental contamination as a result of the World Trade Center disaster. She evaluated indoor air and dust wipe sample data obtained from eight floors of the building. The data was incorporated into a site-specific human health risk assessment following EPA guidelines. The human health risk assessment was conducted to provide a site-specific evaluation of the current environmental conditions in the workspaces and common areas at 90 Church Street in order to support insurance claims for clean-up of the building interior. Dr. Vetrano evaluated and commented on contractor's proposed clean-up plans and clean-up levels.

Confidential Client, Human Exposure and Risk Assessment, One Liberty Plaza Site – New York, NY (Project Manager and Lead Risk Assessor: 2001-2002)
Dr. Vetrano served as Task Manager for a human exposure and risk assessment pertaining to indoor environmental contamination as a result of the World Trade Center disaster. She evaluated indoor air and dust wipe sample data obtained from eight floors of the building. The data was incorporated into a site-specific human health risk assessment following EPA guidelines. The human health risk assessment was conducted to provide a site-specific evaluation of the current environmental conditions in the workspaces and common areas at One Liberty Plaza in order to determine whether or not it was safe to re-occupy the workspace. Dr. Vetrano participated in employee public meetings to present findings of the human health risk assessment and answer concerned employee questions.

Confidential Client, Proposed Power Plants, Exposure Assessment and Multipathway Human Health Risk Assessments – Various Sites, NY (Lead Risk Assessor: 2000-2005)
Dr. Vetrano provided technical expertise to assess the risks from the emissions from proposed power plants to be located in New York State. She evaluated the proposed short-term and long-term air emissions as required under the Stipulations as part of the Article X submission to the state. As part of this evaluation, she has identified risk-based air concentration benchmarks required for the evaluation. If required, multiple pathway human health risk assessments, which follow current EPA and state guidance for hazardous waste incinerators/combustion emissions, were conducted. Dr. Vetrano performed site-specific risk assessment modeling and provided technical expertise in the areas of identification and assessment of multiple routes of exposure, including inhalation, ingestion of locally produced foodstuffs (vegetables, beef and dairy) and locally caught fish.

Confidential Client, Specialty Chemical Manufacturers, Multipathway Human Health Risk Assessments – Various Sites (Project Manager and Lead Risk Assessor: 1994-2002)
Dr. Vetrano served as a Task/Project Manager for ten separate projects, which assessed the risks from the emissions from hazardous waste incinerators located around the United States. Specific locations included New York, Tennessee, Louisiana, Kansas, Missouri, and West Virginia. She prepared a Risk Assessment Protocol and conducted multiple pathway human health risk assessments which followed current EPA and state guidance for hazardous waste incinerators/combustion emissions. Dr. Vetrano identified current and future land uses and activities in areas around the site through site visits and verbal/written contact with various state, county and local agencies. Recreational use of ponds and streams, beef and dairy farming and residential land use were among the local land uses and activities identified. Dr. Vetrano performed site specific risk assessment modeling and provided technical expertise in the areas of identification and assessment of multiple routes of exposure, including inhalation, ingestion of locally produced foodstuffs and locally caught fish, dermal exposure and ingestion of mother's milk. She worked closely with clients to ensure a technically sound product suitable for EPA and state agency submission.

Confidential Client, Alternative Fuel Burning Cement Kiln, Human Health Risk Assessment – NY (Risk Assessor: 1994)
Dr. Vetrano performed an assessment of the risks to human health from the emissions from a cement kiln, requested for compliance under RCRA. The multiple pathway human health risk assessment involved the quantitation of doses and risks from current and future activities based on a realistic maximum exposure scenario.

Ecological Hazard Characterizations and Risk Assessments

Confidential Client, Petroleum Refinery, Ecological Endangerment Assessment – WY (Risk Assessor: 1998-2002)
Dr. Vetrano performed a semi-quantitative evaluation of constituent levels in river sediments to assess the impact to aquatic receptors. The goal of this evaluation was to aid in the placement of a permanent impermeable barrier wall along the bank of the river as an Interim Measure to prevent residual contaminants in bank soils and sediments from adversely impacting the quality of the river.

FAA Technical Center, Ecological Risk Assessment – NJ (Risk Assessor: 1999)
Dr. Vetrano performed a qualitative and quantitative assessment of risks to ecological receptors potentially impacted by activities conducted at a federal facility site in New Jersey. She assisted in the selection of potential constituents of concern in surface soil, sediments and surface water. Potential impacts were evaluated for both aquatic and terrestrial receptors using a combination of chemical and toxicity data collected in the field and a food chain modeling approach to assess bioaccumulation potential of the constituents of concern.

Confidential Client, Industrial Facility, Ecological Risk Assessment – NJ (Risk Assessor: 1999)
Dr. Vetrano performed a qualitative and quantitative assessment of risks to ecological receptors potentially impacted by activities conducted at an industrial site in New Jersey. She assisted in the selection of potential constituents of concern in surface soil, sediments and surface water. Potential impacts were evaluated for both aquatic and terrestrial receptors using a combination of chemical and toxicity data collected in the field and a food chain modeling approach to assess bioaccumulation potential of the constituents of concern.

U.S. Naval Education and Training Center (NETC), Ecological Risk Assessments – Newport, RI (Risk Assessor: 1993)
Dr. Vetrano performed ecological risk assessments on five Superfund sites at the NETC. She provided technical support in the quantification of risks to aquatic and terrestrial receptors using a combination of chemical and toxicity data collected in the field and food chain modeling.

Confidential Client, Alternative Fuel Burning Cement Kiln, Ecological Risk Assessment – NY (Risk Assessor: 1994)
Dr. Vetrano performed an assessment of the risks to ecological receptors from the emissions from a cement kiln, requested for compliance under RCRA. The ecological assessment involved a variety of inorganic and organic pollutants whose presence in water, air, soils and sediments was evaluated in relation to the at risk plant and animal (both aquatic and terrestrial) receptor species.

Confidential Client, Environmental Endangerment Assessment, Long Island Sound – CT (Risk Assessor: 1993)
Dr. Vetrano performed numerous water discharge assessments for Long Island Sound and tidal rivers, focusing upon the potential for drilling mud releases to damage benthic habitats. She evaluated the potential environmental endangerment by this drilling mud on the habitats, food sources and reproduction of the affected benthic organisms as well as subsequent re-colonization of the impacted areas by these species.

Toxicological Evaluations

Confidential Client, City Agency, Health Review, New York (Project Manager and Toxicologist: 2007-present)
Dr. Vetrano is currently performing an assessment of the physical and health risks of the use of crumb rubber from recycled tires in synthetic turf playing fields. Dr. Vetrano is conducting a comprehensive review of the literature to identify the hazards associated with the use of crumb rubber as well as the data gaps. A sampling protocol to address the data gaps will be developed subsequent to the development of a report to assist the City Agency in making recommendations on the use of crumb rubber.

Confidential Client, Toy Manufacturer, Art Materials Labeling Review – Colchester, CT (Project Manager and Toxicologist: 2/2006)
Dr. Vetrano performed an assessment of chronic risks associated with the ingredients of three paints used in children's art supplies. The assessment was conducted in accordance with ASTM Practice D-4236.

Confidential Client, Toy Manufacturer, Art Materials Labeling Review – Irwindale, CA (Project Manager and Toxicologist: 8/2003)
Dr. Vetrano performed an assessment of chronic risks associated with the ingredients of crayons used in children's art supplies. The assessment was conducted in accordance with ASTM Practice D-4236.

Confidential Client, Consumer Product Manufacturer, Toxicological Support and Preparation of Material Safety Data Sheets (MSDSs) – Cincinnati, OH (Project Manager and Toxicologist: 1994-1998)
Dr. Vetrano provided toxicological support to a nationwide consumer product manufacturer by reviewing toxicological study and chemical analysis reports for the review and revision of, or preparation of, product MSDSs for compliance with OSHA and SARA Title III.

The Chlorine Institute, Inc., Review of Toxicological Literature and Preparation of Health Effects Summary Document – Washington, DC (Project Manager and Toxicologist: 1997-1998)
Dr. Vetrano performed a comprehensive review of the toxicological literature for the health and environmental effects of molecular chlorine. She prepared a health effects summary document which has been published by the Chlorine Institute as Pamphlet 90: Molecular Chlorine: Health and Environmental Effects (November, 1998).

Center for Disease Control, Agency of Toxic Substances and Disease Registry Peer Review Services – Atlanta, GA (Toxicologist: 1994-1998)
Dr. Vetrano provided peer review expertise for the Center for Disease Control, Agency of Toxic Substances and Disease Registry (ATSDR) to meet the requirements of CERCLA Section 104(I)(13). She provided a review of grant proposals written by state health officials or university affiliated investigators and evaluated project strengths and weaknesses, the extent of feasibility and appropriateness of the proposed research plan, and demonstration that the results will add significant new information to the scientific community and have the potential for publication.

Center for Indoor Air Research, Peer Review Services – MD (Toxicologist: 1994-1998)
Dr. Vetrano provided peer review expertise for the Center for Indoor Air Research (CIAR). She provided a review of grant proposals written by state health officials or university affiliated investigators and evaluated project strengths and weaknesses, the extent of feasibility and appropriateness of the proposed research plan, and demonstration that the results will add significant new information to the scientific community and have the potential for publication.

Confidential Client, Specialty Chemicals Manufacturer, Review of Toxicological Literature and Studies and Preparation of Toxicological Profiles – WV (Toxicologist: 1994-1996)
Dr. Vetrano provided support to a nationwide specialty chemicals manufacturer by reviewing toxicological study protocols and reports, preparing health effects statements for pre-manufacturing notification for proposed products and toxicological summary reports for current products. Summary reports are based on a review of toxicological literature for each product and an evaluation of the results of recent toxicological studies. Reviews and revises the material safety data sheets (MSDSs) for products for compliance with OSHA and SARA Title III.

Silicones Environmental Health and Safety Council of North America (SEHSC), Critical Review of Data – Washington, DC (Study Manager and Toxicologist: 1994-1996)
Dr. Vetrano managed the extensive review and summary of the health and safety studies submitted on the 56 siloxanes covered in the TSCA Section 8(d) Reporting Rule. She assisted in the organization and summarization of environmental and toxicological data from the greater than 2000 reports that were submitted on these chemicals into data summaries, compiled by siloxane class, to provide overview information. Dr. Vetrano provided succinct, accurate summarizations of health and environmental impacts of individual materials, and by class, prepared summary text, and reviewed the database used to track the thousands of studies/reports.

Confidential Client, Major Adhesives Manufacturer, Chemical Toxicity Review – CT (Project Manager and Toxicologist: 1994-1996)
Dr. Vetrano performed an annual review of the toxicity of more than 500 chemicals used in adhesive manufacturing. She utilized toxicological expertise in the evaluation and interpretation of the toxicological data for these chemicals.

Environmental Research Group (ERG)/EPA, Toxicological Literature Evaluation – Washington, DC (Toxicologist: 1992)
Dr. Vetrano performed a comprehensive review of the toxicological literature for contact-site carcinogens for ERG/EPA. She provided technical support by critically evaluating the existing toxicological literature for contact-site carcinogens and conducted literature searches using online computer toxicology databases.

EPA's Office of Air Quality Planning and Standards, Toxicological/ Pharmacokinetic Database Evaluation – Washington, DC (Toxicologist: 1992)
Dr. Vetrano assisted in developing a route-to-route extrapolation of cancer potency factors used in risk assessments. She provided technical support by critically evaluating toxicological and pharmacokinetic databases to determine the validity of extrapolating oral-based cancer potency estimates to the inhalation route. She focused on hazardous air pollutants listed in the Clean Air Act Amendments.

Confidential Client, Specialty Chemical Manufacturer, Toxicological Support Services – Newtown Square, PA (Project Manager and Toxicologist: 1993-1996)
Dr. Vetrano provided toxicological support services required to conduct an ethyl tertiary butyl ether (ETBE) testing program to acquire toxicology data in advance of its potential use as a fuel oxygenate. She assisted in the design of the testing program that was devised to screen for effects in standardized subchronic,

reproductive, developmental, neurotoxicity, pharmacokinetic and mutagenicity studies. As part of the support services, Dr. Vetrano had been involved in protocol development, study placement at toxicological facilities, project oversight, and data and report reviews.

TSCA PMN Submissions

Confidential Client, Specialty Materials Manufacturer, PMN Preparation Services – Rogers, CT (Project Manager and Toxicologist: 2000, 2005)
Dr. Vetrano provided PMN preparation services required to request a Low Volume Exemption (LVE) for their materials. Dr. Vetrano also applied to the Chemical Abstract Services (CAS) for assignment of a CAS Index name and number. The Client successfully obtained the LVEs from the EPA.

Odor Evaluation

Dr. Vetrano manages TRC's Olfactory Laboratory and serves as the panel moderator for TRC's volunteer sensory panel for evaluation of odorous emissions from a number of sources including manufacturing facilities, wastewater treatment and sludge composting facilities, waste disposal facilities, paper pulp mills and petroleum refineries. She is currently serving as Task Manager for an odor monitoring project for a local waste to energy plant. Dr. Vetrano has also conducted odor evaluation studies for the determination of dilution to threshold values for specific chemicals as well as comparative testing for odor control products.

Confidential Client, National Hog Producer, Odor Monitoring – MO (Project Manager: 2007-Present)
Dr. Vetrano serves as Project manager for the largest on-going odor monitoring project in the United States. The Project is staffed by over 40 trained odor monitors, who conduct ambient odor monitoring at fixed locations in support of the client in litigation proceedings. Odor readings are conducted every 15 minutes over daily odor monitoring periods using the Nasal Ranger™. The data has been used to successfully used to defend the client in a lawsuit regarding hog odors.

Confidential Client, Waste to Energy Plant, Odor Monitoring – CT (Task Manager: 1999-Present)
Dr. Vetrano serves as Task Manager for the maintenance of a 24-hour odor complaint hotline. As part of this task, Dr. Vetrano coordinates the hotline response team as well as responds to odor complaint calls from local citizens and deals with facility personnel. Additionally, Dr. Vetrano coordinated and served on the weekend odor monitoring team. TRC provided necessary trained personnel support intensive odor monitoring on weekend nights. The odor monitoring patrol followed a previously identified route map that was continually

monitored during the course of each shift. The route was known to include locations of odor detection previously identified to the client during TRC's ongoing support of the odor complaint hotline and included towns and specific neighborhoods surrounding the facility. In addition to these locations, other odor sources were monitored during the course of the patrol shift.

Confidential Client, Waste Water Treatment Plant, Odorous Emissions Testing – Hartford, CT (Project Manager: 2000-Present)
Dr. Vetrano performs odor threshold studies on a municipal wastewater treatment plant. The program evaluates the significant sources of odor to determine potential contributions to local community odor levels. She conducts odor evaluations to evaluate the efficacy of online odor control systems.

Confidential Client, Waste Water Treatment Plants, Odorous Emissions Testing – Various (Project Manager: Present)
Dr. Vetrano performs odor threshold studies on municipal wastewater treatment plant facilities. Programs evaluate the significant sources of odor to determine potential contributions to local community odor levels. In some cases, emissions were known to contain reduced sulfur compounds, volatile organic compounds, semivolatile organic compounds, and ammonia. In some cases, a toxicological evaluation was conducted to assess the potential adverse effects to the odor panelists. Compound concentrations were compared to known standards (ceiling limits) and samples were diluted to yield concentrations below the ceiling limits, if appropriate.

Confidential Client, Engineering Firms, Odorous Emissions Testing – Various (Project Manager: Present)
Dr. Vetrano performs odor threshold studies for various environmental engineering firms. Samples are collected and sent to TRC's Olfactory Laboratory for odor evaluation.

Confidential Client, Specialty Chemical Company, Determination of Odor Thresholds – Belle, WV (Project Manager: 2006-Present)
Dr. Vetrano is designing odor threshold determination studies for Phenylacetic acid to be used as part of the health and safety plan of the manufacturer. Odor values to be used in industrial hygiene practices for potential early warning properties. She is working with analytical lab to overcome analytical challenges.

Confidential Client, Consumer Product Manufacturer, Odorous Emissions Testing – Jacksonville, IL (Project Manager: 2006)
Dr. Vetrano performed odor threshold studies on emissions from a consumer product manufacturer. She managed personnel in the conduct of neighborhood odor surveys and conduct of odor monitoring to assist facility in identification and source of odors and mapping of odorous events in the surrounding community.

Confidential Client, Municipal Landfill, Odorous Emissions Testing – MA (Project Manager: 2005-2006)
Dr. Vetrano performed community odor surveys in neighboring areas surrounding the municipal landfill, following complaints by the town. She conducted surveys and mapped areas of odor in the neighborhood.

Confidential Client, Paper Manufacturer, Odorous Emissions Testing – CT (Project Manager: 2002)
Dr. Vetrano performed odor threshold studies on emissions from a paper manufacturing facility. Programs evaluated the significant sources of odor to determine potential contributions to local community odor levels and evaluate the efficacy of online odor control systems.

Confidential Client, Corn Processing Facility, Odorous Emissions Testing – IL and Brazil (Task Manager: 1993-1994)
Dr. Vetrano performed odor threshold studies on emissions from various aspects of corn processing. The results from the two facilities will be compared and used to design emission control technologies for the Illinois plant.

Confidential Client, Medical Clinic, Anesthesiology Department, Determination of Odor Thresholds – Rochester, MN (Project Manager: 2001)
Dr. Vetrano conducted odor and recognition threshold studies on the common gaseous anesthetic, isoflurane. Due to the nature of the anesthetic, concentrations can build up in the operating suite as a result of off-gassing from a patient's exhalations. Odor values to be used in industrial hygiene practices for potential early warning properties.

American Petroleum Institute, Determination of Odor Thresholds – Washington, DC (Project Manager: 1993)
Dr. Vetrano conducted odor and taste threshold studies on the gasoline oxygenate tertiary amyl methyl ether (TAME) for the American Petroleum Institute (API). She conducted the project and served as the panel moderator for TRC's volunteer sensory evaluation panel. Dr. Vetrano performed an evaluation on aerosolized and aqueous samples to determine air and water odor detection and recognition threshold values. She conducted a taste test on the aqueous samples for the determination of an aqueous taste threshold. These studies focused on gasoline oxygenates mandated by the Clean Air Act Amendments and led to the design of odor threshold studies on oxygenated fuels.

American Petroleum Institute, Determination of Odor Thresholds – Washington, D.C. (Project Manager: 1994)
Dr. Vetrano conducted odor threshold studies for API to examine the effect of oxygenate addition on the odor of gasoline blends. Three blends of gasoline were evaluated for their odor detection and recognition in air. The gasolines

were then combined with the gasoline oxygenates MTBE, ETBE and TAME to evaluate the effect of the oxygenates on the gasolines' odor detection and recognition thresholds (API Publication No. 4592, January, 1994).

Confidential Client, Chemical/Petroleum Corporation, Determination of Odor Thresholds – PA (Project Manager: 1993)
Dr. Vetrano performed odor and taste threshold studies on gasoline oxygenates for a major petrochemical company. She conducted the project and was the panel moderator for TRC's volunteer sensory evaluation panel. She performed an odor evaluation on aerosolized and aqueous samples to determine air and water odor detection and recognition threshold values. Dr. Vetrano conducted a taste test on the aqueous samples for the determination of an aqueous taste threshold. These studies focused on a gasoline oxygenate mandated by the Clean Air Act Amendments, as well as possible substitutes for this oxygenate. These studies led to the design of comparative odor threshold studies on oxygenated fuels from the "lower 48" states and Alaska. She also conducted studies, in conjunction with the University of Alaska, on the effect of cold on the odor thresholds of oxygenated "lower 48" and Alaskan fuels.

Confidential Client, Specialty Chemical Firm, Determination of Odor Thresholds – CT (Project Manager: 1994)
Dr. Vetrano developed odor detection and recognition threshold values for various chemicals to be used as part of the health and safety plan of the manufacturer. Odor values used in industrial hygiene practices for potential early warning properties.

Confidential Client, Chemical/Petroleum Corporation, Determination of Odor Thresholds – TX (Project Manager: 1993)
Dr. Vetrano performed odor threshold studies on gasoline additives for a major petrochemical company. She performed comparative odor threshold studies on gasoline with and without the additives, to determine at which concentrations of the additives the odor of gasoline would be changed.

Comparative Product Testing

Confidential Client, Consumer Product Manufacturers, Comparative Product Testing – Various (Project Manager: 1994-1996)
Dr. Vetrano designed and performed comparative odor evaluation studies to evaluate the efficacy of consumer odor control product versus competing brands. Products evaluated included carpet fresheners, underarm deodorants, foot powders and cat litter. She provided litigation support for false advertising claims made by competitors.

Indoor Air Quality Investigations

Dr. Vetrano manages and conducts indoor air quality (IAQ) investigations of commercial and institutional buildings. IAQ surveys typically identify potential sources of indoor air pollutants, survey occupant health status, evaluate air handling system(s), and determine the types and levels of chemicals present in the indoor environment. Typical IAQ surveys include sampling for carbon dioxide, carbon monoxide, temperature and relative humidity, total dust, volatile organic chemicals, formaldehyde and mold/spores.

Confidential Client, Consumer Product Manufacturer, Industrial Hygiene Program Review – Stamford, CT (Project Manager and Toxicologist: 2001-Present)
Dr. Vetrano is currently serving as Project Manager for the review and revision of the industrial hygiene program for a major consumer product manufacturer. She provided toxicological expertise in evaluating raw materials for toxicity to workers to aid in the design of a personal protection equipment program.

Expert Testimony and Litigation Support

Confidential Law Firm, Toxicological Support – NY (Project Manager and Toxicologist: 2005-Present)
Dr. Vetrano is providing toxicological support and Expert Witness services for a lawsuit in which plaintiff is contending his occupational exposure to metals caused his colon cancer. She reviewed corporate MSDSs, hazardous communications information, and internal documentation as well as plaintiff's medical information. She provided expert reports and provided testimony in a deposition.

Various Confidential Law Firms, Toxicological Support – NY (Toxicologist: 2005-Present)
Dr. Vetrano is providing toxicological support in a number of lead poisoning cases. She is representing defendants, by providing blood lead modeling to determine if living spaces are a source of lead poisoning or if alternative sources of lead are possible.

Confidential Client, Major Petrochemical Firm, Risk Assessment Support – TX (Project Manager and Lead Risk Assessor: 2004-Present)
Dr. Vetrano is providing risk assessment support in response to litigation. Community is suing firm as a result of 1955 gasoline spill which contaminated groundwater under the town. Risk assessment conducted showing no vapor intrusion into homes and thus no risk. Dr. Vetrano is providing expert testimony as needed.

Confidential Client, Consumer Product Manufacturer, Comparative Odor Evaluation – NJ (Project Manager: 1994)
Dr. Vetrano designed and performed comparative odor evaluation studies to evaluate the efficacy of consumer odor control product versus competing brand as part of a false advertising suit. She represented the client and provided testimony in deposition and court room.

SPECIALIZED TRAINING

- Dose-Response Modeling for Occupational and Environmental Risk Assessment. Continuing Education Course. Society of Toxicology Annual Meeting. Seattle, WA. March 2008.
- Nanotoxicology: The Science of Developing a Safe Technology. Continuing Education Course. Society of Toxicology Annual Meeting. Seattle, WA. March 2008.
- Vapor Intrusion Attenuation Workshop - A Study of Observed Vapor Intrusion Attenuation. 14th Annual West Coast Conference on Soils, Sediments and Water, Marriott Mission Valley, San Diego, California. March 15-18, 2004
- Risk Assessment for Metals. Continuing Education Course. Society of Toxicology Annual Meeting, San Francisco, CA, March 2001
- Mid-America Toxicology Course. Kansas City, Missouri, May 2000
- Practical Issues in the Use of Probabilistic Risk Assessment. EPA and the University of Florida, Tampa, FL, April 2000
- OSHA 40-Hour HAZWOPER Training (29 CFR 1910.120)
- MSDS: Preparing for the Next Wave of Hazard Communication Requirements. Annapolis, MD, Nov. 9-10, 1998
- Overview of Uncertainty Analysis. Continuing Education Course. Society of Toxicology Annual Meeting, Seattle, WA, March 1998
- Risk Communication: Making Risk Management More Effective. Continuing Education Course. Society of Risk Analysis Annual Meeting, New Orleans, LA, December 1996
- International Harmonization: Update on Scientific and Regulatory Issues. Part II: Toxic Substances and Environmental Issues. Continuing Education Course. Society of Toxicology Annual Meeting, Dallas, Texas, March 1994
- Toxicokinetics: Study Design and Data Analysis. Continuing Education Course. Society of Toxicology Annual Meeting, Dallas, Texas, March 1994
- Risk: Science, Assessment and Management Mini-Course, Conducted by the Office of Continuing Education and the Center for Risk Analysis, Harvard School of Public Health, Boston, MA, 1993
- Risk Communication: Problems, Perceptions and Practice. Continuing Education Course. Society of Toxicology Annual Meeting, Dallas, Texas, February 1991

- Environmental Toxicology. Continuing Education Course. Society of Toxicology Annual Meeting, Dallas, Texas, February 1991.

PROFESSIONAL AFFILIATIONS

- Society of Toxicology
- Northeast Chapter of the Society of Toxicology, past Councilor, 1997-1999
- Society for Risk Analysis, New England Chapter, Secretary, 2000 - present
- Society for Risk Analysis

SELECTED PUBLICATIONS

Vetrano, K.M., "Molecular Chlorine: Health and Environmental Effects," *Reviews of Environmental Contamination and Toxicology*, 170:75-139, 2001.

Vetrano, K.M., "Pamphlet 90: Molecular Chlorine: Health and Environmental Effects," Prepared for the *Chlorine Institute,* Edition 2, November 1998.

Vetrano, K.M., "Odor Threshold Studies Performed with Gasoline and Gasoline-Combined with MTBE, ETBE, and TAME," Prepared for the *American Petroleum Institute*, Publication No. 84145920, 1994.

Vetrano, K.M., Morris, J.B. and Hubbard, A.K., "Silica Induced Inflammation and Fibrosis in Mice is Altered by Acute Exposure to Nitrogen Dioxide," *Journal of Toxicology and Environmental Health* 37:389406, 1992.

Vetrano, K.M., "The Modulation of Silica-Induced Pulmonary Inflammation and Fibrosis by Acute Nitrogen Dioxide Exposure in the C57Bl/6 Mouse," *University of Connecticut,* 1992.

Vetrano, K.M., and Hubbard, A.K., "The Modulation of Silica Induced Pulmonary Inflammation by Acute Exposure to Nitrogen Dioxide," *The Toxicologist,* 11:337, 1991.

Ginsberg, G.L., Hauchman, F.S., Vetrano, K.M., Bement, C.L., and Koch, W.H., "The Feasibility of Route-to-Route Extrapolation (RRE) of Cancer Potency Factors for Aniline, Dioxane, Isophorone and Benzyl Chloride," *The Toxicologist,* 11:903, 1991.

Wooten, V., Brown, D.R., Callahan, B., Vetrano, K.M., Schatz, R.A., Melia, J. and Mulligan, T., "Behavioral and Biochemical Alterations Following in Utero Exposure to Methylmercury," *Neurobehavioral Toxicology and Teratology*, 7(6): 767773, Nov. Dec. 1985.

SELECTED PRESENTATIONS

Vetrano, K.M., "Crystalline Silica Exposure Assessments," *Sorptives Mineral Institute's Annual Meeting*, May 1997.

Vetrano, K.M., "Odorous Emissions and Their Relationship to Human Health," New *England Society for Risk Analysis*, Boston, MA, September 1993.

Vetrano, K.M., "Odor Thresholds in Relation to Risk Assessment," *New England Section and Connecticut Chapter Air and Waste Management Association*, Hartford, CT, October 1993.

Ginsberg, G.L., Koch, W.H., Vetrano, K.M., Bement, C.L. and Hauchman, F., "Factors That Govern the Feasibility of Dose Route Extrapolation: An Analysis of 10 Clean Air Act Carcinogens," *Society for Risk Analysis*, Baltimore, MD, December 1991.

Vetrano, K.M., and Hubbard, A.K., "The Modulation of Silica Induced Pulmonary Inflammation by Acute Exposure to Nitrogen Dioxide," *Society of Toxicology Annual Meeting*, Dallas, TX, February 1991.

Ginsberg, G.L., Hauchman, F.S., Vetrano, K.M., Bement, C.L., and Koch, W.H., "The Feasibility of Route-to-Route Extrapolation (RRE) of Cancer Potency Factors For Aniline, Dioxane, Isophorone and Benzyl Chloride," *Society of Toxicology Annual Meeting*, Dallas, TX, February 1991.

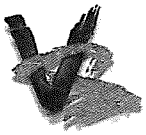
Vetrano, K.M. and Hubbard, A.K., "Pulmonary Inflammatory Response of C57Bl/6 BG/BG (beige) Mice to Instilled Glass Fibers or Silica Crystals," *World Conference on Lung Health*, Boston, MA, May 1990. Also presented at the *Northeast Chapter of the Society of Toxicology Meeting*, Weston, MA, June 1990.

Hubbard, A.K., Lombard, K.M., Pokhrel, P.K. and Vetrano, K.M., "Mechanisms Underlying Outcome of Particle Induced Pulmonary Inflammation," *Connecticut Lung Research Conference*, Southbury, CT, April 1990.

Vetrano, K.M., Reece, K.D., Brown, D.R. and Smith, L.W., "An Industrial Example of a Health Hazard Determination Procedure," *Northeast Chapter of the Society of Toxicology/ Autogenesis Association of New England Joint Meeting*, Storrs, CT, October 1985.

Wooten, V., Brown, D.R., Callahan, B., Vetrano, K.M., Schatz, R.A., Melia, J. and Mulligan, T., "Behavioral and Biochemical Alterations Following in Utero Exposure to Methylmercury," *The Symposium and Workshop Design*

Considerations in Screening for Behavioral Teratogens, Cincinnati, OH, September 1985.



VANDERMOST CONSULTING SERVICES, INC.
Government Affairs Community Relations Regulatory Assistance

H. CERI WILLIAMS-DODD, Ph.D. *CBiol MIBiol*

EDUCATION

Ph.D., Biosciences, Cardiff University of Wales, 2003
M.S., Monitoring, Modeling and Management of Environmental Change, University of London, King's College, 1999
B.S., Ecology and Environmental Management, Cardiff University of Wales, 1998

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Chartered Biologist, (#004004551), Institute of Biology, London, 2004

AREAS OF EXPERTISE

Dr. H. Ceri Williams-Dodd has technical experience in the following general areas:

- Project Management
- Environmental Permitting and Compliance
- Biological Resources
- Habitat Restoration
- Multiple Species Habitat Conservation Plans
- California Environmental Quality Act

REPRESENTATIVE EXPERIENCE

Dr. H. Ceri Williams-Dodd has a strong biological background with proven skills in management, strategic planning, report writing, communication, budgets and proposals. Her experience is broad ranging, including delineating jurisdictional waters, conducting habitat assessments and general plant and wildlife surveys, construction and biological monitoring, mitigation monitoring and reporting, designing and preparing mitigation plans with an emphasis in vegetation restoration, Hybrid Functional Assessments, regulatory permitting and compliance (California Department of Fish and Game, U.S. Army Corps of Engineers, Regional Water Quality Control Board, and U.S. Fish and Wildlife Service), Biological Assessments and Section 7 consultations, compliance with Habitat Conservation Plans (particularly the Western Riverside County Multiple Species Habitat Conservation Plan), training and education programs, technical document review, California Environmental Quality Act overview, and preparing response to comments on environmental documents. Dr. Williams-Dodd has published scientific research papers in accredited journals with additional papers in progress.

Residential Developments

Project Manager/Senior Biologist for the following projects based in Southern California: **Azusa Land Partners, Rosedale – Azusa (2004-2007); Capital Pacific**

Homes, Sierra Peaks – Corona (2003-2007); Centex Homes, Tomlinson Park – Brea (2003-2007); Concorde Development, Whispering Hills – San Juan Capistrano (2003-2007); D.R. Horton, Country Roads – French Valley (2003-2007); D.R. Horton, Sky View Ridge – Murrieta (2003-2007); D.R. Horton, Country Roads – French Valley (2004-2007); French Valley Airport, LLC, French Valley Airport – French Valley (2006-2007); Galstain Family Trust, Hillarides – Chino Hills (2004-2007); Harvest Development, Vellano – Chino Hills (2003-2007); Irvine Company/GeoSoils, Inc., Santiago Hills II – Irvine (2003-2007); Irvine Company, Lower Peters Canyon – Irvine (2003-2007); John Laing Homes, Newport Hills TT 28886 & 28886-1, Lake Elsinore (2003-2007); John Laing Homes, Summerly – Lake Elsinore (2004-2007); Lumos Communities, Back Basin – Lake Elsinore (2005-2007); Nexus Residential Communities, Oak Springs Ranch – Wildomar (2005-2007); Oak Hills Investment Co, LLC, TT 16902 – Phelan (2003-2007); RS Development, Temescal Wash – Lake Elsinore (2006-2007); SunCal, Northlake Development – Castaic (2003-2007); Talega Phase I & Phase II – San Clemente (2003-2007); Van Daele Development, Oakmont II – Wildomar (2003-2007); Taylor Woodrow Homes, Ivy House – Wildomar (2005-2007); Armada LLC, Chino Hills Dairy & 80-acre site – Chino Hills & Ontario (2006); Coast Royale, Ceanothus – Laguna Beach (2005-2006); D.R. Horton, Clinton Keith Road – Wildomar (2005-2006); Fieldstone Chow, Chino Hills Project – Chino Hills (2003-2006); Landmark, Desert Hot Springs – Coachella Valley (2006); Lennar/Newland Communities, Spencer's Crossing – French Valley (2004-2006); Meritage homes, Pine Valley Estates, San Bernardino (2003-2006); Oak Tree Industries, Inc., TT 28859 – Sun City (2005); Pelican Properties – Perris (2005-2006); Shea Homes, Tonner Hills – Brea (2005-2006); D.R. Horton, Dry Creek Ranch – French Valley (2003-2005); Rancon, Meadowlark Lane TT 31998 & 31999 – Murrieta (2004-2005); Beazer Homes, TT 30656 – Wildomar (2003-2004); John Laing Homes, Burns Ranch – Menifee (2004)

Regulatory permitting and compliance: Dr. Williams-Dodd was responsible for conducting jurisdictional waters delineations, regulatory permitting with California Department of Fish and Game, U.S. Army Corps of Engineers, and Regional Water Quality Control Board, and compliance with permit conditions, including submittal of information, compliance reports, notification of construction/mitigation activities, preparing and conducting Workers Education Programs, and Homeowners education brochures. She was also responsible for preparing 2080.1 applications for California Department of Fish and Game, preparing Biological Assessments and facilitating Section 7 consultations with the U.S. Fish and Wildlife Service, preparing compliance documents for the Western Riverside County Multiple Species Habitat Conservation Plan and coordinating approvals, preparing response to comment letters, and conducting Hybrid Functional Assessments. As part of the permitting process, Dr. Williams-Dodd was also responsible for reviewing technical biological documents and reports pursuant to the California Environmental Quality Act (CEQA), assisting with the CEQA process, and reviewing biological survey reports. She has also conducted due

diligence level site assessments, and reviews of the Coachella Valley Multiple Species Habitat Conservation Plan.

Mitigation Plans, Monitoring and Reporting: Dr. Williams-Dodd was responsible for compiling plant palettes, designing and writing Habitat Mitigation and Monitoring Plans focusing on riparian and coastal sage scrub vegetation communities, and five year monitoring and reporting of mitigation sites, including obtaining approvals of completion from the agencies. Monitoring of the mitigation sites included planning and conducting qualitative and quantitative assessments of plant cover, growth and wildlife usage, supervising maintenance contractors, and recommending remedial measures to allow for the successful establishment of native habitat.

Biological Surveys: Dr. Williams-Dodd was involved in biological construction monitoring, Least Bell's vireo surveys and noise monitoring, burrowing owl surveys, plant habitat assessments, general wildlife habitat assessments, and assisting with California gnatcatcher surveys.

Commercial and Office Developments, Bridges and Repair Projects

City of Murrieta, Murrieta 18 Office Campus Project – Murrieta, CA (Project Manager: 2007)
Dr. Williams-Dodd was responsible for managing preparation of an Initial Study and associated coordination, including consultation regarding the Western Riverside County Multiple Species Habitat Conservation Plan.

City of Santa Clarita, Bank Stabilization Project – Santa Clarita, CA (Project Manager: 2007 – ongoing)
Dr. Williams-Dodd is responsible for biological monitoring of a restoration site and associated surveys and reporting.

Project Manager/Senior Biologist for the following projects based in Southern California: **Golden Triangle/RS Development, Clinton Keith Road – Wildomar (2006-2007); Rancon, Clinton Keith Self Storage – Wildomar (2003-2007); Rancon, Village Walk Center – Murrieta (2003-2007); Regency Centers, French Valley Village Center – French Valley (2006-2007); D.R. Horton, Gabion Repair Project – Mission Viejo (2005-2006); Gate-King, Industrial Park – Santa Clarita (2006); Taylor Woodrow Homes, La Novia Bridge – San Juan Capistrano (2004-2006); City of Mission Viejo, Oso Creek Emergency Repairs – Mission Viejo (2004-2005); Neil Nadler, Inc., Industrial park – Castaic (2004-2005); Centra Realty Corporation, Ortega Ranch – San Juan Capistrano (2004); Irvine Company, Lambert Channel Repairs – Irvine (2003-2004)**

Dr. Williams-Dodd was responsible for regulatory permitting and compliance; and mitigation plans, monitoring and reporting as described under **Residential**

Developments above, in addition to planning and conducting Functional Assessments.

Churches, Schools and Parks

Project Manager/Senior Biologist for the following projects based in California: **City of Murrieta, Sports Complex – Murrieta (2003-2007); Las Virgenes Unified School District, A.C. Stelle Middle School – Calabasas (2003-2007); Las Virgenes Unified School District, Yerba Buena Elementary School – LA County (2003-2007); Murrieta Valley Unified School District, Vista Murrieta High School – Murrieta (2003-2007); St. Kilian Church, Second Access Driveway – Mission Viejo (2003-2007); Calvary Chapel, Church and Recreation Facility – Murrieta (2005-2006); Murrieta Valley Unified School District, High School #3 – Murrieta (2006); Murrieta Valley Unified School District, High School #4 – Murrieta (2006); Robert Mitchell & Associates, Oak Demonstration Garden – Bakersfield (2003-2006); Friess Construction, Shea Riding Center, San Juan Capistrano (2005); City of Mission Viejo, Youth Athletic Park – Mission Viejo (2003-2004). Also: Plantlife International – Wiltshire, U.S. (Assistant Project Manager: 1998-1999)**

Dr. Williams-Dodd was responsible for regulatory permitting and compliance; and mitigation plans, monitoring and reporting as described under **Residential Developments** above.

Pipeline, Power, Mining and Infrastructure Projects

Shea Baker Ranch Associates, LLC, Alton Parkway Extension Project – Orange County, CA (Senior Biologist: 2008 - ongoing)
Dr. Williams-Dodd is responsible for conducting jurisdictional delineations and developing the mitigation plan, in addition to Section 7 Consultation including preparation of a Biological Assessment.

Burlington Northern Santa Fe Railway, Microwave Cell Tower Project – San Bernardino County, CA (Senior Project Biologist: 2007 - ongoing)
Dr. Williams-Dodd is responsible for coordinating with the County of San Bernardino and overseeing biological surveys and reporting, and preparation of environmental documents.

Castaic Lake Water Agency, Sand Canyon Water Pipeline Project – Santa Clarita, CA (Project Manager: 2007 – ongoing)
Dr. Williams-Dodd is responsible for biological monitoring of a restoration site and associated surveys and reporting.

Granite Construction, Granite Esparto Mining – Yolo County, CA (Senior Project Biologist: 2007)

Dr. Williams-Dodd was responsible for overseeing biological surveys, conducting a jurisdictional waters and wetland delineation, and preparing a biological assessment.

J-Power USA, Orange Grove Power Plant Project – San Diego County, CA (Senior Project Biologist: 2007 – ongoing)
Dr. Williams-Dodd is responsible for overseeing biological surveys and reporting, conducting jurisdictional waters and wetlands delineations, and responding to County and California Energy Commission Data Requests.

Power Engineers, Riverside Transmission Reliability Project – City of Riverside, CA (Project Manager: 2007 – February 2008)
Dr. Williams-Dodd was responsible for coordinating biological survey requirements, reports and MSHCP compliance

WesPac, LAX Jet Fuel Pipeline – LA vicinity, CA (Senior Project Biologist: 2007-ongoing)
Dr. Williams-Dodd is assisting with the CEQA process, including coordinating and compiling technical reports for biological, hazardous materials, land use and cultural resources.

Habitat Restoration Projects, Native Habitat Maintenance and Plant Propagation

Architerra, Cucamonga Basin #6 Project – County of San Bernardino, CA (Senior Biologist: 2008 – Ongoing)
Dr. Williams-Dodd is responsible for assisting in compliance with regulatory permits and the Habitat Mitigation and Monitoring Plan, developing the planting palettes, advising on design aspects, and meetings with the regulatory agencies.

Lewis Operating Corp, Mill Creek Wetlands Recreation and Restoration Demonstration Project – City of Ontario, CA (Senior Biologist: 2008 – Ongoing)
Dr. Williams-Dodd is responsible for jurisdictional delineations, preparation of the Biological Technical Report for the CEQA document, including general habitat and wildlife surveys and vegetation mapping, in addition to developing the planting palettes.

***Biological Consultant for the following*: Horticultural Specialists, Inc. – San Juan Capistrano, CA (2005-2007); Native Grow Nursery – Brea, CA (2006-2007); SunCal, Marblehead Project – San Clemente, CA (2006-2007)**
Dr. Williams-Dodd trained and supervised a field crew to maintain a variety of riparian and coastal sage scrub mitigation habitats in Murrieta, Wildomar and Chino Hills pursuant to Habitat Mitigation and Monitoring Plans. She has also provided biological consulting on native plant propagation methods and species selection, plant inspections, pest control, and general nursery management issues. Dr. Williams-Dodd was also responsible for coordinating, advising, and supervising native plant propagation pursuant to a Habitat Mitigation Plan.

TEACHING EXPERIENCE

Cardiff University School of Biosciences – Cardiff, UK (Assistant Teacher: 1999-2003)

Dr. Williams-Dodd was an assistant teacher for undergraduate biology courses in advanced statistics, computing, ecology, genetics, laboratory protocol and safety training.

SPECIALIZED TRAINING

- Wetland Delineation Course, 2005
- Plant Identification for Coastal Southern California Course, 2005
- Identifying and Appreciating Native Grasses Workshop, 2005
- CEQA Basics Workshop, 2003
- CEQA Advanced Workshop, 2007

PROFESSIONAL AFFILIATIONS

- Institute of Biology, London, U.K.

SELECTED PUBLICATIONS AND PRESENTATIONS

Williams, H.C., Ormerod, S.J., & Bruford, M.W. (2006). Molecular systematics and phylogeography of the cryptic species complex *Baetis rhodani* (Baetidae, Ephemeroptera). *Molecular Phylogenetics and Evolution* 40: 370-382.

Williams, H.C., Wilcock, H.R., & Bruford, M.W. (2002). Microsatellite loci for the mayfly *Baetis rhodani* (Baetidae, Ephemeroptera). *Molecular Ecology Notes* 2: 411-412.

Manel, S., Williams, H.C., & Ormerod, S.J. (2001). Evaluating presence-absence models in ecology: the need to account for prevalence. *Journal of Applied Ecology*, 38, 921-931.

Williams, H.C., Ormerod, S.J., & Bruford, M.W. (in progress). Chapters 4 to 6 from PhD thesis: "The Genetic Structure and Dispersal of the Mayfly *Baetis rhodani* in relation to acidification and inter-catchment distance". *Molecular Phylogenetics and Evolution* and *Molecular Ecology*.