

STATEMENT OF QUALIFICATIONS
ENGINEERING SERVICES FOR
LANDFILL AND DISPOSAL SITE REMEDIATION

Contract No. IWM-05018



Prepared for:

California Integrated Waste Management Board
c/o California Environmental Protection Agency's
Environmental Services Center
1001 "I" Street, 1st Floor
Sacramento, California 95814

Prepared by:

SCS ENGINEERS

3050 Fite Circle, #106
Sacramento, California 95827

January 10, 2006
File No. Q206-01



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Completion Checklist for
Engineering Services for Landfill and Disposal Site Remediation
Request for Qualifications - IWM05018

Please use this checklist to assist in your preparation of the SOQ package to ensure that the following items are included in your submittal:

- Enclosed Signed cover letter printed on company letterhead
- Enclosed One (1) unbound reproducible original SOQ package marked "Original"
- Enclosed One (1) electronic copy of the SOQ package on CD-R viewable thru Adobe Acrobat Reader
- Yes All documents submitted double-sided on paper with a minimum of 30% post-consumer recycled content fiber, as attested to in the cover letter
- Appendix B Evidence of a valid California Class A General Engineering Contractors License with a Hazardous Substance Removal (HAZ) Certification
- Appendix G Evidence of at least one registered Professional Civil Engineer (PE) who is currently licensed through the California Board for Professional Engineers and Land Surveyors
- Appendix G Evidence of at least one Registered Geologist (RG) who is currently licensed through the California Board for Geologists and Geophysicists
- Appendix A Current copy of Contractor's California Business License
- Appendix C Notarized Statement from Financial Institution
- Appendix D Audited or Reviewed Financial Statement
- Appendix F Resumes of Key Personnel
- Exhibit 1 Organizational Chart
- Section 4 Attachment A, Small Business/DVBE Participation Requirements Certification
- Section 4 Attachment B, Government Code Section 87100 Form
- Section 4 Attachment C, PCC Section 10162 Questionnaire, PCC Section 10285.1 Statement, and Non-Collusion Statement

NOTE - If any of the above items are missing from the submitted proposal package, your package will be considered incomplete and may be disqualified from the process.

The following forms are only required upon submittal as applicable pursuant to the provisions outlined in Section III, Minimum Qualifications, Subsections D and E:

- Section 4 Attachment D, Small Business/Disabled Veteran Business Enterprise (DVBE) Participation Summary
- Attachment E, Demonstration of Good Faith Efforts

SCS ENGINEERS

January 10, 2006
File No. 01247205

California Integrated Waste Management Board
c/o California Environmental Protection Agency's
Environmental Services Center
Attn: Tiffany Donohue
1001 "I" Street, First Floor
Sacramento, California 95814

**Subject: Statement of Qualifications
Engineering Services for Landfill and Disposal Site Remediation
Contract Number IWM-05018**

Dear Ms. Donohue:

SCS Engineers (SCS) is submitting the enclosed Statement of Qualifications (SOQ) in response to the above-referenced request for qualifications (RFQ) issued by your organization on November 18, 2005 and subsequent addenda.

We understand the selected consultant will provide California Integrated Waste Management Board (CIWMB) staff with the resources necessary to investigate, characterize and provide engineering survey and construction management services at closed, illegal, and abandoned landfill sites throughout California.

SCS is well qualified to assist the CIWMB with its Closed, Illegal and Abandoned (CIA) investigation program. The firm was founded in 1970 to provide solid waste consulting and engineering services. Thirty-six years later, solid waste remains as our core expertise and largest practice area, accounting for over 60 percent of our annual revenue. With over 130 employees in nine offices located throughout California, we have all of the landfill environmental and geotechnical investigation, waste characterization, and landfill and landfill gas (LFG) engineering and construction management experience and staffing required to successfully complete your projects on-time and within budget.

Our project team is made up of experienced staff professionals and subcontractors who are committed to meeting CIWMB project objectives and schedules.

The SCS Project Team can provide all necessary resources on a fast-track basis. Our staff includes a Program Manager located in Long Beach, and technical support Task Managers located throughout California to provide geographic coverage across the state. SCS maintains full-service engineering offices in Sacramento, the San Francisco Bay Area, Santa Rosa, the Central Valley, the Los Angeles metropolitan area, the North Coast, and San Diego.

The SCS Project Team offers the following:

Program Manager – Our team will be managed by Mr. Raymond H. Huff, R.E.A., who works in the SCS Long Beach office. He is the Closed Landfill project lead within SCS' California offices, with project management and coordination responsibilities for closed and inactive landfill projects throughout California. He has over 15 years of experience on a variety of projects related to landfill investigations, risk assessments, landfill closure and remediation, solid waste management, hazardous waste management, hazardous substance site investigation and remediation, air quality, as well as other environmental issues. Mr. Huff is experienced in managing multiple task and multiple site projects with a number of technical disciplines and subcontractors involved. Mr. Huff has also participated on the Landfill Gas Technical Advisory Group to the CIWMB. He will be available to the CIWMB on short notice and will be committed to providing the resources needed to complete each assignment on time and within budget.

Project Team – SCS has selected an experienced project support team. SCS personnel will fill key roles in project management and technical fields based on their experience in the required project disciplines and proximity to CIA sites. Our Task Managers will be matched to specific assignments based on their expertise and to provide the best statewide coverage possible. They will select technical support staff from a pool of qualified individuals and subcontractors.

Subcontractors – We are pleased to team with a group of subcontractors that enhance our capabilities and geographic coverage in California. SCS has made arrangements with a number of firms who can provide drilling, surveying/aerial photography, soils and materials testing, geophysical testing and hazardous materials handling/disposal services on an as-needed basis, depending on project location and scope. Our team members have certifications as Small Business or Disabled Veteran Business Enterprise. *SCS sees no difficulty in achieving CIWMB goals for Small Business and Disabled Veterans Business Enterprise (S/DVBE) participation.*

SUCCESSFUL PARTNERSHIP WITH THE CIWMB

The SCS Project Team has a track record of successfully completing projects as demonstrated in the SOQ. We are eager to continue this performance as a partner to the CIWMB on this important CIA program project. We are committed to maintaining close communications between SCS and CIWMB project managers.

RFQ REQUIREMENTS

This cover letter and accompanying qualifications statement constitute an irrevocable offer to allow the CIWMB to award an agreement for the project, and is valid for a 90-day period. The following information is also provided in accordance with the RFQ:

- a. Name and address of firm submitting qualifications:

Stearns, Conrad & Schmidt Consulting Engineers, Inc. (dba SCS Engineers)
3050 Fite Circle, Suite 106
Sacramento, California 95827

b. Name, telephone number and e-mail address of contact person:

Raymond H. Huff, R.E.A.
Program Manager
Tel (562) 426-9544
rhuff@scsengineers.com

c. Name, title, address, telephone number and e-mail address of individuals with the authority to negotiate and execute a binding agreement on behalf of the firm:

Patrick S. Sullivan, R.E.A.
Vice President
SCS Engineers
3050 Fite Circle, Suite 106
Sacramento, California 95827
(916) 361-1297
psullivan@scsengineers.com

- d. The paper used in the compilation of this SOQ package contains a minimum of 30 percent post-consumer recycled content fiber.
- e. The signatures affixed hereon certify that the submittal is an irrevocable offer good for 90 days as of the date of this writing.
- f. SCS Engineers is eligible to contract with the State of California pursuant to statutory requirements as identified in Section III, Subsection E, Compliance with Government Code 87100.
- g. SCS Engineers is in compliance with provisions of Section III, Subsection F of this RFQ regarding Public Contract Code Sections 10162 & 10285.1 & Non-Collusion.

CLOSING

SCS looks forward to your favorable consideration and an opportunity to discuss our qualifications in further detail.

Very truly yours,


Raymond H. Huff, R.E.A.
Project Manager
SCS ENGINEERS


Patrick S. Sullivan, R.E.A., C.P.P.
Vice President

Enclosures:

- 1 – Unbound, original SOQ
1 – Electronic copy of the SOQ package on CD-R viewable through Adobe Acrobat Reader

STATEMENT OF QUALIFICATIONS

A. GENERAL INFORMATION

1. Identification of company submitting this Statement of Qualifications:

Name of firm: **Stearns, Conrad & Schmidt, Consulting Engineers Inc. dba SCS Engineers (See Appendix A for a copy of SCS Engineers' business license)**

Address: **3050 Fite Circle, Suite 106**

City: **Sacramento** State: **California** Zip: **95827**

Telephone No.: **(916) 361-1297** Fax No.: **(916) 361-1299**

2. Persons authorized to execute an agreement for the company:

Name: **Patrick S. Sullivan**

Title: **Vice President**

3. Type of company (must be one of the following, check applicable):

Corporation Partnership Individual Joint Venture

Are you a certified small business? **NO**

If YES – Attach approval letter from Office Small Business Certification and Resources,
And list your small business ID No. _____

4. Taxpayer federal employer identification number: 

5. Year organized: **1970**

6. Under what other or former names has your company operated:

Name of former company: **Not applicable**

Dates of operation: **Not applicable**

7. Identify total number of current permanent employees: 514

Construction: 48

Administration: 110

Engineering: 352

Highest manpower level in past five years: 514

Lowest manpower level in past five years: 333

8. Identify parent company, if applicable:

Name of firm: Not applicable

Address: _____

City: _____ State: _____ Zip: _____

Telephone No: _____ Fax No.: _____

State in which incorporated: _____

9. Agent for Service of Process in California:

Name of firm: Not applicable

Address: _____

City: _____ State: _____ Zip: _____

Telephone No: _____ Fax No.: _____

10. If a corporation, complete the following:

Date of incorporation: 1972

State(s) in which incorporated: Virginia

11. If a partnership, complete the following:

Date of organization: **Not applicable**

Type of partnership: General Limited

List names and addresses of all partners:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

12. If a joint venture, list names and addresses of all partners in the joint venture:

Name: **Not applicable**

Address: _____

City: _____ State: _____ Zip: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

B. LICENSING/HEALTH & SAFETY INFORMATION

1. Class A General Engineering Contractor's license with a Hazardous Substance Removal Certification (HAZ) is required. Complete the following:

Licensee(s): Stearns, Conrad & Schmidt Consulting Engineers Inc.

License Number(s): 749678

Expiration Date(s): 5/31/2006

Please provide a copy of the current license. See **Appendix B**

2. Do you have a written company Illness and Injury Prevention Program (IIPP)?

Yes No

If yes, is it signed by a certified Industrial Hygienist? Yes No

Do you employ a full-time certified Industrial Hygienist? Yes No

3. What is your OSHA lost-time injury/illness incidence rate for the last 3 years? _____



4. What is your OSHA recordable injury/illness incidence rate for the last 3 years? _____



5. What is your Workers Compensation Insurance Experience Modification Rate (EMR) for the past 3 years? _____



C. FINANCIAL INFORMATION

1. Submit a **notarized written statement** from your financial institution(s) on letterhead stating the following information: **(See Appendix C)**

A. Name of company: **Union Bank of California**

B. Date account(s) were opened: **1991**

C. Does the company hold a line of credit? **Yes**

D. Does the company keep a well-balanced financial position at the bank?

Yes

2. Submit an **audited or reviewed** financial statement, including the Proposer's latest balance sheet and income and expense statement dated within the last 12 months showing the following items (annual reports will not be accepted and will be considered unresponsive): **(See Appendix D)**

A. Current assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);

B. Net fixed assets;

C. Other assets;

D. Current liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);

E. Other liabilities (e.g., capital, capital stock, authorized and outstanding share par values, earned surplus and related earnings);

F. Name of firm preparing financial statement and date thereof; and

G. Is this financial statement for the proposing organization? If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsiary).

3. Has your company or any of its principals petitioned for bankruptcy within the last 7 years?

Yes

No

If yes, enter the date(s): **N/A**

D. PROJECT EXPERIENCE

Include appropriate experience for both the submitting entity and any proposed subcontractors in this part of the Statement of Qualifications. Reproduce this page for each project listed and add a supplemental numbering system at the bottom of the page (e.g., six projects listed, first page would be SOQ-6, Sheet 1 of 6).

To be considered in the evaluation, projects must meet the following requirements:

- 1. Involves types of work listed in Section V, Scope of Work, of the RFQ.
- 2. Be successfully completed within the last 5 years.
- 3. Be of a minimum contract amount of \$100,000 for the submitting entity or \$25,000 for subcontractors.

Include the name and current telephone number of a client representative who is familiar with the project and can attest to the participation, quality of work, and timeliness of the submitting Contractor or subcontractor in performing the work.

Name of entity claiming experience: **For SCS see following pages, sheets SOQ-6, sheets 1-15. Experience and project citations for SCS subcontractors are in Appendix E**

Project name/location: _____

Name of client (owner or prime Contractor): _____

Client contact and current telephone number: _____

Contract amount (listed entity only): _____

Percent of work performed with your entity's resources: _____

Date work completed:

Type of work (mark all that apply):

- | | |
|---|--|
| <input type="checkbox"/> Remediation plans/specifications | <input type="checkbox"/> Waste characterization |
| <input type="checkbox"/> Property title/deed/history research | <input type="checkbox"/> Hazardous waste operations |
| <input type="checkbox"/> Site surveys | <input type="checkbox"/> CQA testing/monitoring |
| <input type="checkbox"/> Site grading design | <input type="checkbox"/> Construction management |
| <input type="checkbox"/> Drainage system design | <input type="checkbox"/> Community education/outreach programs |
| <input type="checkbox"/> Erosion control system design | <input type="checkbox"/> Geotechnical investigations |
| <input type="checkbox"/> Excavation/embankment design | <input type="checkbox"/> Other |

Brief description of the project and your company's participation:

Were liquidated damages applied to the project? Yes No

If yes, explain: _____

SCS ENGINEERS CLOSED, ILLEGAL AND ABANDONED LANDFILL EXPERIENCE

SCS Engineers is an award-winning environmental consulting and construction firm. Since our founding in 1970, SCS has delivered economically and environmentally sound solid and hazardous waste solutions to public and private clients throughout California, the United States, and abroad. High quality work, emphasizing practical innovation and cost-effective problem solving, is a hallmark of SCS Engineers.

Our staff members include civil, environmental, geotechnical, mechanical, and chemical engineers, geologists, hydrogeologists, environmental scientists, earth scientists, and chemists. We provide a full range of closed, illegal, and abandoned landfill consulting and engineering services to our clients, from site investigations to remedial design to development and implementation of closure and post-closure monitoring and maintenance provisions.



Since 1970, SCS has successfully managed landfill investigation projects on time and within budget.

We offer not only technical expertise, but also the economic and regulatory experience to help closed and active landfill site owners become “good neighbors” in their communities, while keeping an eye on the bottom line.

The specialty services we offer and types of projects we perform applicable to the needs of the California Integrated Waste Management Board (CIWMB) for the Engineering Services for Landfill and Disposal Site Remediation Contract include:

- **Site Investigations and Monitoring:** Waste extent and characterization; contamination extent and characterization; geotechnical/slope stability analyses; geophysical studies; hydrology/drainage; landfill gas monitoring; groundwater, leachate and surface water quality monitoring; fast-track, emergency response and assessment of liquid spills, leachate seeps, waste releases and unknown waste materials; and preparation of corrective action plans.
- **Landfill/Environmental Engineering** – Environmental investigations; design and permitting of environmental controls including cover systems, grading, soil embankments, storm water management systems, groundwater monitoring and remediation systems, leachate and landfill gas collection and control systems; closure permitting; preparation of closure/post-closure construction plans; and construction cost estimating.

- **Civil Engineering** – Hydrologic evaluations, and grading, drainage and erosion control plans.
- **Landfill Closure:** Closure permitting, final cover design; closure/post-closure construction plans, specifications, and cost estimates; long-term monitoring, maintenance and corrective action; and post-closure planning.
- **Construction Management and Quality Assurance:** Construction management, administration, and oversight; Construction Quality Assurance (CQA) observation, testing, and documentation; and contract administration and client support for environmental control and remediation systems, and for closure, clean-closure, and site improvements.
- **Landfill Gas Management:** Landfill gas assessments; landfill gas monitoring system design and probe installation; landfill gas control and recovery system design; energy recovery from LFG, and landfill gas monitoring and control system operation, monitoring, and maintenance.

SCS' California landfill clients include public city and county landfill owners throughout the state; private landfill owners such as Allied Waste, Norcal Waste Systems, Republic Waste Industries, Waste Connections, and Waste Management; and numerous public and private property owners, whose land parcels include all or part of closed, illegal, and/or abandoned landfills. We also have provided landfill-oriented services for state and federal agencies including the CIWMB, the U.S. Environmental Protection Agency (U.S. EPA), and the U.S. Army Corps of Engineers.

The following pages highlight SCS Engineers' project experience specific to the needs of the CIWMB's Closed, Illegal and Abandoned Landfill Site Investigation Program.
Please refer to pages SOQ-6, sheets 3 through 17.

TABLE 1. SELECT SCS PROJECTS AND RELATED SERVICES

PROJECTS		Site Surveys (topo, boundary, etc.)	Title and Deed Searches	Site Grading	Excavation and Embankment Evaluation	Site Drainage	Erosion Control Systems	Geotechnical Investigations	Field Sampling and Characterization	Haz. Mat./Rad. Support and Disposal	Remediation Plans and Specs.	Remediation Permitting	CQA	Const. Mgmt.	Community Outreach	Presentations, Planning, Etc.	Emergency Response
Altamont Landfill & Resource Recovery	01-AA-0009								●	●	●	●	●	●			
American Avenue Disposal Site	10-AA-0009	●						●	●	●	●	●	●	●	●	●	●
Auburn Landfill	13-AA-0310	●		●	●	●	●		●				●	●			
Berkeley Landfill	01-AC-0001	●		●	●	●	●	●	●	●	●	●	●	●		●	●
Bishop Canyon	19-AR-5068			●	●	●	●	●	●		●	●	●	●		●	
BKK Public Dump-Carson	19-AQ-0014	●	●					●	●		●				●		
BKK Sanitary Landfill (Class I)	19-AF-0001	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●
Blanchard Street Dump	19-AA-0580	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●
Cal Compact Landfill	19-AQ-0012	●	●	●		●	●	●	●	●	●	●	●		●	●	●
City of Upland Disposal Site	36-AA-0005	●						●	●		●	●				●	
City of Clovis Landfill	10-AA-0004	●							●	●	●	●	●	●		●	
Cogen Dump	19-AA-0581	●	●				●	●	●		●		●	●	●	●	●
Crazy Horse Sanitary Landfill	27-AA-0007	●	●	●	●	●	●										
Cummings Road Landfill	12-AA-0005	●		●	●	●	●		●		●	●	●	●		●	●

TABLE 1. SELECT SCS PROJECTS AND RELATED SERVICES

PROJECTS		Site Surveys (topo, boundary, etc.)	Title and Deed Searches	Site Grading	Excavation and Embankment Evaluation	Site Drainage	Erosion Control Systems	Geotechnical Investigations	Field Sampling and Characterization	Haz. Mat./Rad. Support and Disposal	Remediation Plans and Specs.	Remediation Permitting	CQA	Const. Mgmt.	Community Outreach	Presentations, Planning, Etc.	Emergency Response
Fink Road Landfill	50-AA-0001	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Forward Landfill, Inc.	39-AA-0015	●					●		●	●	●	●	●	●	●	●	
Gardena Valley #6 (Ford Center)	19-AQ-0016			●		●			●								
Geer Road Landfill	50-AA-0002	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Gardena Valley #5 (Golden Eagle)	19-AQ-0011	●	●	●	●	●	●	●	●		●	●	●	●			
Highway 59 Disposal Site	24-AA-0001	●					●		●	●	●	●	●	●	●	●	●
Hillsborough/Sweetwater IDS	7-AA-0027	●		●		●	●		●				●	●			
Imperial Carson Mobile Home Park	19-AQ-0006								●	●	●	●	●	●			
Imperial Solid Waste Site	13-AA-0001	●		●		●	●		●								
Industry Hills Landfill	19-AA-5584-88	●		●	●	●	●	●	●		●	●	●	●		●	
Laguna Seca Landfill	27-AA-0016	●		●	●	●	●	●	●		●	●	●	●			
LaHabra Disposal Station #11	30-CR-0092	●	●		●	●	●			●						●	
Lane Road Disposal Station #21	30-CR-0063	●	●	●		●	●	●	●		●	●	●	●	●	●	●
Maxson Street Landfill	37-AK-0006								●		●	●	●	●			

TABLE 1. SELECT SCS PROJECTS AND RELATED SERVICES

PROJECTS		Site Surveys (topo, boundary, etc.)	Title and Deed Searches	Site Grading	Excavation and Embankment Evaluation	Site Drainage	Erosion Control Systems	Geotechnical Investigations	Field Sampling and Characterization	Haz. Mat./Rad. Support and Disposal	Remediation Plans and Specs.	Remediation Permitting	CQA	Const. Mgmt.	Community Outreach	Presentations, Planning, Etc.	Emergency Response
Milliken Sanitary Landfill	36-AA-0054			●							●	●	●	●			
South Miramar Sanitary Landfill	37-AA-0033			●		●	●										
West Miramar Landfill	37-AA-0020			●	●	●	●										
Mission Avenue SLF/City of Oceanside LF	37-AK-0001								●		●	●	●	●			
Shoreline Regional/Mountain View Landfill	43-AA-0006	●	●					●	●	●	●	●	●	●	●	●	●
Newport Terrace/Newport City #1	30-CR-0127	●							●		●	●	●	●		●	●
North Chollas BS	37-AA-0024			●	●	●	●	●		●	●						
South Chollas Landfill	37-AA-0022								●		●	●	●	●			
Operating Industries (OII) (Federal NPL Site)	19-AA-0836	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Norcal Waste Systems Ostrom Road Landfill	58-AA-0011	●					●	●	●	●	●	●	●	●	●	●	
Norcal Waste Systems Pacheco Pass Landfill	43-AA-0004	●	●			●		●	●		●	●	●	●			●
Paramount Dump	19-AK-0084														●	●	
Prima Deshecha Sanitary Landfill	30-AB-0019			●		●	●				●	●	●	●	●	●	
Sacramento City Landfill	34-AA-0018	●		●		●	●		●		●	●	●	●		●	●

TABLE 1. SELECT SCS PROJECTS AND RELATED SERVICES

PROJECTS		Site Surveys (topo, boundary, etc.)	Title and Deed Searches	Site Grading	Excavation and Embankment Evaluation	Site Drainage	Erosion Control Systems	Geotechnical Investigations	Field Sampling and Characterization	Haz. Mat./Rad. Support and Disposal	Remediation Plans and Specs.	Remediation Permitting	CQA	Const. Mgmt.	Community Outreach	Presentations, Planning, Etc.	Emergency Response
City of Santa Cruz Sanitary Landfill	44-AA-0001				●	●	●	●			●	●					
Santa Maria Landfill	42-AA-0016	●		●	●	●	●	●		●	●	●				●	
Santiago Canyon Sanitary Landfill	30-AB-0018								●		●	●	●	●			
South Gate Solid Fill (Miller Way Landfill)	19-AA-0042								●		●	●	●	●			
City of Sunnyvale Landfill	43-AA-0007	●		●		●	●	●	●	●	●	●	●	●	●	●	●
Tequesquite LF/City of Riverside LF	33-AA-0001			●		●	●		●				●	●			
Union Mine Disposal Site	09-AA-0003	●	●					●	●	●	●	●	●	●			
U.S. Pipe Foundry	01-AA-0128	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Villa Park DS #22/ Loma DS	30-CR-0020								●		●	●	●	●			●
West Contra Costa Landfill	07-AA-0001	●		●	●	●	●		●	●	●	●	●	●		●	●
Western Regional Landfill	31-AA-210	●		●		●			●		●	●	●	●		●	
Redwood Shores Landfill (Westport Landfill)	41-AA-0169			●		●			●		●	●	●			●	●
Woolner Oil Company (aka Long Beach Memorial)	19-AK-5018	●	●					●	●	●	●				●	●	●
YSDI Greenwaste Composting (former Marysville Landfill)	58-AA-0015	●		●			●	●	●	●	●	●	●	●		●	●

LANDFILL ASSESSMENT AND POST-CLOSURE CARE CAL-COMPACT LANDFILL (SWIS #19-AQ-0012)

Consultant:	SCS Engineers
Location:	Carson, California
Client:	CB Richard Ellis Herb Roth, (949) 476-1974 \$800,000 to date; \$350,000 annually
% Performed by SCS:	85



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	• Hazardous waste operations
• Site surveys	• CQA testing/monitoring
• Site grading design	• Construction monitoring
• Drainage system design	• Construction management
• Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	• Geotechnical investigations
• Other: Groundwater well installation	

BRIEF PROJECT DESCRIPTION

The Cal-Compact Landfill is an inactive landfill located in the City of Carson, near Los Angeles, California. The site is a former hazardous waste landfill that is being considered for commercial and retail development. The total landfill area encompasses about 157 acres. The average depth of waste fill is approximately 40 feet. The site is currently under the oversight of the DTSC.

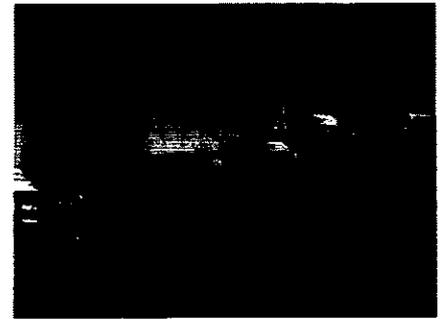
SCS ENGINEERS PROJECT ELEMENTS

SCS has been retained by the site owner to provide post-closure operations and maintenance (O&M) services for this site and to technical support and interface between the site owner and prospective purchasers/developers in regard to environmental matters. Overall site management includes the following activities, as well as various on-call support activities:

- Groundwater monitoring and reporting.
- Hydrogeological investigation.
- Storm water monitoring and reporting.
- Site security.
- LFG monitoring and reporting.
- Weed abatement.
- Erosion control.
- Street sweeping.
- Document archive development and maintenance.
- Due diligence technical support.
- Regulatory liaison.

**SITE INVESTIGATION AND ENGINEERING DESIGN
INDUSTRIAL LANDFILL CLOSURE (SWIS #01-AA-0128)**

Consultant:	SCS Engineers
Location:	Union City, California
Client:	Confidential Industrial Client [REDACTED] \$125,000 engineering fees; no liquidated damages applied
% Performed by SCS:	95



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	• Hazardous waste operations
• Site surveys	• CQA testing/monitoring
• Site grading design	• Construction monitoring
• Drainage system design	• Construction management
• Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	• Geotechnical investigations
• Other: CEQA and risk assessment; landfill and LFG investigation	

BRIEF PROJECT DESCRIPTION

SCS's client's facility produces ductile iron pipe, which is used by utilities for distribution of potable water. For over 50 years, industrial solid waste generated during the manufacturing process was disposed of at an approximate 7-acre, on-site landfill. Oversight agencies required that the landfill be closed via final grading and capping. The landfill was considered a priority site under the CIWMB CIA program.

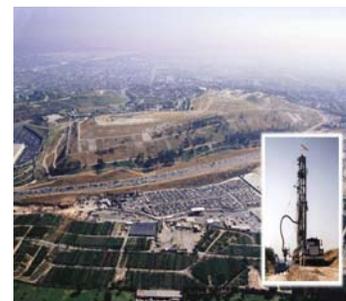
SCS ENGINEERS PROJECT ELEMENTS

SCS assisted with closure of the on-site landfill at the company's Union City, California plant. The landfill closure entailed final grading, slope stabilization, placement of final cover and drainage systems, and installation of a surface water detention basin. The landfill closure was in accordance with CCR Title 27 standards and local agency permit conditions. SCS's services included:

- Aerial photographic and topographic surveys.
- Site characterization studies, including waste sampling and combustible gas probe testing.
- Geotechnical/slope stability analysis: field investigation, lab analyses of soil and waste samples, and deep-seated pseudo-static, and dynamic deformation slope stability and veneer slope stability analyses.
- Preparation of detailed design plans and specifications for site remediation and closure (construction bid documents). The cover system includes a 60-mil HDPE liner.
- Turn-key construction services: grading and drainage, final cover placement, vegetative cover placement. Work was performed by SCS's 40-hour HAZWOPER trained operators.
- CQA services during construction (Summer 2002).

**LANDFILL GAS AND GROUNDWATER SERVICES
OII SUPERFUND SITE (SWIS #19-AA-0836)**

Consultant:	SCS Engineers
Location:	Montebello, California
Client:	New Cure, Inc. Dr. Les LaFountain, (323) 720-9775 \$1.5 million to date; no liquidated damages applied
% Performed by SCS:	



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	• Hazardous waste operations
• Site surveys	• CQA testing/monitoring
• Site grading design	• Construction monitoring
• Drainage system design	• Construction management
• Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	• Geotechnical investigations
• Other: CEQA and risk assessment; landfill and LFG investigation	

BRIEF PROJECT DESCRIPTION

SCS has provided services related to closure of the Operating Industries (OII) Landfill Superfund site. SCS’s principal role was in design, construction, and startup of major expansions of the landfill gas (LFG) extraction and combustion system. SCS also designed, built, and installed explosion-proof water pumps in 44 wells, ranging from 50 to 200 feet deep. The design phase required reanalysis of groundwater level and water quality data to identify flow systems and design wells to optimize both water and gas extraction. The shallow wells were designed to dewater the perched zone. SCS prepared construction specifications, logged the boreholes, and prepared as-built drawings.

In addition to the gas wells, SCS designed, oversaw installation of, and sampled six new or replacement groundwater monitoring wells. These wells were needed to delineate areas of known contamination. They were from 50 to 200 feet deep. Four of these wells were used for aquifer characterization: two 24-hour constant-discharge and two constant-head aquifer tests were run. The results of both drilling programs were used to better delineate low systems at the site in preparation for final remedy activities.

SCS ENGINEERS PROJECT ELEMENTS

SCS is providing the following services at the OII Landfill:

- Gas, water, and soil data review and analysis.
- Design and construction of hybrid wells.
- Gas and water sampling, including special tests for gas-affected water.
- Coordination with U.S. EPA and site managers.
- Design plans and specifications.
- Documentation and as-built drawings.
- Custom design of special-purpose aquifer tests, and data analysis.
- Construction oversight and quality assurance (CQA).

**LANDFILL GAS ENGINEERING, INVESTIGATION, AND REMEDIATION
LANE ROAD DISPOSAL STATION (SWIS #30-CR-0063)**

Consultant:	SCS Engineers
Location:	Irvine, California
Client:	National Golf Properties David P. Waite, (213) 974-1857 Jeffer, Mangles, Butler & Marmaro \$200,000 to date; no liquidated damages applied
% Performed by SCS:	85



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	• Hazardous waste operations
• Site surveys	• CQA testing/monitoring
• Site grading design	• Construction monitoring
• Drainage system design	• Construction management
• Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	• Geotechnical investigations
• Other: LFG investigation	

BRIEF PROJECT DESCRIPTION

Lane Road Disposal Station is a 115-acre former cut and cover landfill, which operated as an interim site for a 5-year period, from 1960 to 1965. At the time of closure, the site was located in an undeveloped area. Following the cessation of refuse filling activities, the site was closed, capped with a 4- to 5-foot-thick soil cap, and converted to a golf course, which opened in 1961. Later, in approximately 1976, two residential developments were constructed adjacent to the site. In order to place the residences, a portion of the landfill was excavated and a gas barrier system was installed along the entire eastern perimeter of the site.

The site is currently under enforcement with the CIWMB due to lateral LFG migration along the eastern boundary, toward adjacent residences. Perimeter migration monitoring probes located along that site boundary have methane concentrations in excess of regulatory limits.

SCS ENGINEERS PROJECT ELEMENTS

Project components completed by SCS include:

- Assessment of the integrity of the landfill cover via research and field investigation.
- Evaluation of LFG migration potential from the site, via installation of LFG perimeter migration probes and an internal sweep of adjacent residences. The assessment was conducted under the oversight of the CIWMB. The residential sweep was conducted on a fast-track basis, over Thanksgiving weekend.
- Preparation of a post-closure landfill cover maintenance plan which integrated golf course operations into the post-closure care documentation, which was approved by the RWQCB.

SCS is designing a perimeter LFG collection and control system to intercept subsurface, lateral LFG migration along the eastern perimeter of the site.



ON-CALL INVESTIGATION AND REMEDIATION SERVICES EAST VILLAGE REDEVELOPMENT AREA (VARIOUS SITES)

Consultant:	SCS Engineers
Location:	San Diego, California
Client:	Centre City Development Corporation
	David Allsbrook, (619) 533-7112 \$7.9 million to date; no liquidated damage applied
% Performed by SCS:	30



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	Hazardous waste operations
• Site surveys	CQA testing/monitoring
Site grading design	Construction monitoring
Drainage system design	• Construction management
Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	Geotechnical investigations
• Other: CEQA and risk assessment	

BRIEF PROJECT DESCRIPTION

SCS was selected over 22 firms to provide the Centre City Development Corporation (CCDC) with project management, environmental assessment, oversight of environmental consultants, and regulatory agency liaison services for their projects. SCS's role involves over 100 property owners, 175 parcels, numerous long-standing environmental problems, and a number of other environmental consultants and contractors, whose work SCS reviews.

SCS ENGINEERS PROJECT ELEMENTS

Initially, SCS prepared a multi-volume Phase I site assessment of 35 blocks, a Master Workplan that included a project-wide health risk assessment and development of risk-based corrective action levels, and a community health and safety plan. Site uses and features of potential concern included *contaminated fill material from a former "rubbish incinerator" and city landfill*, and numerous *burn ash pits from historical refuse disposal practices*. Potential contaminants of concern were industrial uses (foundries, tanneries, fuel oil pipelines, a dry cleaning operation, a refrigeration plant, fueling/service stations, boilers, iron works, a battery storage facility) and petroleum hydrocarbons (gasoline, diesel fuel, waste oil, fuel oil), heavy metals (lead, mercury, copper), inorganic solid waste, asbestos, and hydrocarbon and halogenated solvents in soil and groundwater.

SCS is conducting, or overseeing others who conduct, the investigation and remediation of soil and groundwater impacted from a variety of industrial and commercial facilities spanning over 120 years of developed use. These investigations/remediation involve geophysical surveys, preparation and implementation of sampling plans, rapid site assessment with direct-push drill rigs and mobile labs, exploratory trenching, in situ groundwater sampling, soil vapor surveys, and installation/development of groundwater monitoring wells. SCS also provided key liaison and assistance with the EIR documents and public comments regarding hazardous materials issues, including presentations. Because SCS provided consistent and thorough evaluation of the environmental conditions throughout this area, the Cal-EPA lead agency specifically requested that SCS remain the project manager for environmental issues through completion of the project.

**LANDFILL ASSESSMENT, RISK ASSESSMENT, AND REDEVELOPMENT
VICTORIAL REGIONAL PARK AND GOLF COURSE (SWIS #19-AQ-0014)**

Consultant:	SCS Engineers
Location:	Carson, California
Client:	Los Angeles County Peter Gutierrez, (213) 987-8209 \$350,000 to date; no liquidated damages applied
% Performed by SCS:	85



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	• Hazardous waste operations
• Site surveys	• CQA testing/monitoring
• Site grading design	• Construction monitoring
• Drainage system design	• Construction management
• Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	• Geotechnical investigations
• Other: CEQA and risk assessment; landfill and LFG investigation	

BRIEF PROJECT DESCRIPTION

Victoria Regional Park is a roughly 200-acre community park and golf course that overlies a portion of the 348-acre former BKK Main Street Landfill, which is adjacent to the 405 Freeway in Carson. In 1999, based on the results of an Initial Study, the Los Angeles County Department of Parks and Recreation determined to prepare a Focused EIR. The Focused EIR addressed areas of controversy raised by agencies and the public during the public participation (scoping) process, including subsidence of the land occupied by the golf course facility associated with the underlying landfill material, potential impacts to groundwater quality from changes in rate and amount of infiltration, short-term air quality impacts from construction of the course improvements, and potential hazards from exposure of people to potentially hazardous materials and by-products resulting from the underlying landfill.

SCS ENGINEERS PROJECT ELEMENTS

In addition to issues addressed in the EIR, the County received comments identifying potential concerns related to exposure of workers and golf course patrons to volatile organic compounds in association with methane released from the underlying landfill, asbestos, and/or contaminated landfill material. SCS conducted a health risk assessment to address these issues, which determined that landfill gas emissions in the vicinity of the Victoria Golf Course do not exceed the state or federal standards. The health risk assessment concluded that the potential health risks due to exposure to LFG should not be considered significant under CEQA, and no mitigation measures were recommended nor undertaken.

Since 2001, SCS has also reengineered existing structure and perimeter migration monitoring probe networks to satisfy current regulations and to meet monitoring requirements specified in the EIR. This resulted in the elimination of approximately 60 percent of the existing structure/perimeter migration monitoring probes, which reduced monitoring efforts and costs.

In 2003, SCS provided regulatory liaison to the USEPA and assisted in a feasibility study conducted in concert with the City of Carson Redevelopment Agency for the entire 348 acre BKK Main Street Landfill.



**LANDFILL ENGINEERING, RISK ASSESSMENT, AND REDEVELOPMENT
BKK LANDFILL (SWIS #19-AF-0001)**

Consultant:	SCS Engineers
Location:	West Covina, California
Client:	City of West Covina
	Colin Lennard, (213) 892-9224 (Fulbright & Jaworski) \$100,000; no liquidated damages applied
% Performed by SCS:	100



TYPE OF WORK

	Remediation plans/specifications		Waste characterization
•	Property title/deed/history research		Hazardous waste operations
•	Site surveys		CQA testing/monitoring
	Site grading design		Construction monitoring
	Drainage system design		Construction management
	Erosion control system design	•	Community education/outreach programs
	Excavation/embankment design		Geotechnical investigations
•	Other: CEQA and risk assessment; landfill and LFG investigation		

BRIEF PROJECT DESCRIPTION

The BKK Landfill is a closed site in West Covina comprised of both Class III municipal solid waste and Class I hazardous waste disposal areas. As part of an EIR for proposed closure and post-closure development of the Class III landfill, SCS completed a risk assessment, which evaluated the potential human health impacts due to current and future exposures to contaminants in LFG and other environmental media. The risk assessment was part of a larger CEQA impact analysis completed for the EIR.

SCS ENGINEERS PROJECT ELEMENTS

The risk assessment project included compilation and validation of data, statistical analyses, emissions estimates, fate and transport modeling of groundwater and surface water, air dispersion modeling, and risk calculations. Through reasonable risk estimates, SCS was able to demonstrate that the proposed redevelopment of the landfill (i.e., golf course and business park) could occur without causing adverse health effects above CEQA significance levels. SCS also completed the surface water and drainage, geology and hydrogeology, and air quality portions of the EIR. These tasks included a review and evaluation of all environmental data compiled for the site and determination of the impacts that the landfill and the proposed development might have on the public.

After completion of the EIR, SCS developed a series of mitigation measures for the various environmental issues identified in the above analyses. Those mitigation measures were eventually imposed as part of the CEQA approvals for the project. The project involved extensive research and coordination with regulatory agencies with jurisdiction over the Class III and closed Class I disposal areas.

SCS also conducted an LFG investigation, which included the soil monitoring at nearby homes for the presence of methane and/or other toxic constituents of LFG.

**LANDFILL GAS INVESTIGATION AND REMEDIATION
UPLAND LANDFILL (SWIS #36-AA-0005)**

Consultant:	SCS Engineers
Location:	Upland, California
Client:	City of Upland Steve Gapuzan, (909) 931-4274 \$115,000 to date; no liquidated damages applied
% Performed by SCS:	90



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
Property title/deed/history research	Hazardous waste operations
• Site surveys	• CQA testing/monitoring
Site grading design	Construction monitoring
Drainage system design	Construction management
Erosion control system design	Community education/outreach programs
Excavation/embankment design	• Geotechnical investigations
• Other: LFG investigation	

BRIEF PROJECT DESCRIPTION

The 34-acre former Upland Landfill operated as a pit fill from 1950 to 1979 and contains approximately 550,000 tons of mixed commercial and residential refuse. In 1981, following landfill closure, a perimeter landfill gas migration control system (consisting of 39 extraction wells) was installed along the south and east perimeter. In 1984, final cover was placed on the landfill consisting of a soil layer, subdrain system, and a vegetative layer.

SCS ENGINEERS PROJECT ELEMENTS

SCS was retained by the City of Upland to perform a variety of services for this site:

- Evaluation and reengineering of existing perimeter probe monitoring system and installation of additional boundary monitoring probes. SCS worked with the City of Upland, San Bernardino County, and the CIWMB to bring the Upland Sanitary Landfill into compliance with applicable perimeter monitoring probe regulations. The resulting solution included a reduction in the number of perimeter monitoring probes from 38 to 11 and an overall increase in the effectiveness of the system.
- Creation of a South Coast Air Quality Management District (SCAQMD) Rule 1150.1 Alternative Compliance Plan.
- Assessment of the existing LFG Collection and Control System in regard to observed gas migration issues along the southeastern perimeter of the site. SCS recommended modification to the operational cycle of the existing flare and installation of additional LFG extraction wells in proximity to the “hot” probes.
- SCS is currently under contract with the City of Upland to perform installation of additional perimeter landfill gas probes along the northern perimeter of the landfill, adjacent to a residential development.

**LANDFILL INVESTIGATION AND RISK ASSESSMENT
MISSION BAY LANDFILL (SWIS #37-AA-0026)**

Consultant:	SCS Engineers
Location:	San Diego, California
Client:	City of San Diego Ray Purtee, (858) 573-1208 \$650,000; no liquidated damages applied
% Performed by SCS:	85



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	Hazardous waste operations
Site surveys	CQA testing/monitoring
Site grading design	Construction monitoring
Drainage system design	Construction management
Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	Geotechnical investigations
• Other: Risk assessment; landfill and LFG investigation	

BRIEF PROJECT DESCRIPTION

The Mission Bay Landfill is a 115-acre site located in former wetlands near the mouth of the San Diego River along Mission Bay in San Diego. From 1952 to 1969, the site operated as a municipal landfill and received hydraulic fill from the dredging of Mission Bay. A preliminary review of site conditions revealed that the landfill boundaries, operational history, and landfill contents are uncertain. The landfill accepted municipal solid waste as well as liquid waste from industrial sources. Under current regulations, those liquid wastes would be considered hazardous waste.

SCS ENGINEERS PROJECT ELEMENTS

Initial tasks included thorough preliminary forensic evaluation of available historical site data and earlier site investigations in order to optimize the subsequent field investigation, which was designed to characterize the nature and extent of the landfill. Historical data was compiled, interpreted, and described in the assessment workplan with an initial Site Conceptual Model, choice of analytical methods appropriate for assessing metals in the Bay’s brackish/saline waters, and initial decisions of risk assessment goals. The components of the field program included a biological survey, geophysical surveys to locate drums and other metallic debris, a reconnaissance survey for landfill gases and near-surface vapors, sampling of surface soils and sediments, drilling of soil borings to determine the horizontal extent of waste, installation of four new monitoring wells, and sampling of the new and existing groundwater monitoring network.

The field investigation was followed by human health and ecological risk assessments, and given the highly visible and public nature of the landfill project; focus on risk communication has been, and continues to be, of primary importance. The draft report with several recommendations was submitted on August 31, 2005, and the public comment period remains open. This is an ongoing project that includes interface with the San Diego APCD, RWQCB, LEA, OEHHA and the Technical Advisory Committee established by the City.

LANDFILL INVESTIGATION, MITIGATION, AND REDEVELOPMENT COGEN AND BLANCHARD DUMPS (SWIS #19-AA-0581/0580)

Consultant:	SCS Engineers
Location:	Monterey Park, California
Client:	Los Angeles County Sherriff Dept. Gary Tse, (213) 974-1857 \$150,000; no liquidated damages applied
% Performed by SCS:	90



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	• Hazardous waste operations
• Site surveys	• CQA testing/monitoring
• Site grading design	• Construction monitoring
• Drainage system design	• Construction management
• Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	• Geotechnical investigations
• Other: Emergency response; landfill and LFG investigation	

BRIEF PROJECT DESCRIPTION

Cogen Dump is a 34-acre, former MSW landfill owned by three entities: two private landowners and a Los Angeles County agency. The site operated as a canyon fill from 1951 to 1957 and is currently undeveloped. The western boundary of the refuse abuts a hillside, and the eastern boundary is 150 feet below the top deck, at grade with the adjacent freeway. The Cogen Dump shares its southern border with the Blanchard Dump, a 20-acre former burn dump and disposal site. The maximum thickness of refuse along the western perimeter is 150 feet.

The site is under regulatory enforcement by the LEA in regard to previous documented subsurface combustion episodes, inadequate perimeter monitoring probe placement and subsurface gas migration violations along the northern perimeter of the site (toward an adjacent correctional facility). A full LFG assessment is currently being completed for the site.

SCS ENGINEERS PROJECT ELEMENTS

Project work completed by SCS includes:

- Emergency engineering and cover repair/grading in response to subsurface combustion that developed into a brush fire. Repair was made via import of clean fill soil, to patch cracks in the top of the landfill.
- Development of an LFG assessment workplan based on review of historic data and sampling of remaining perimeter migration monitoring probes. A new perimeter LFG migration system was comprised of 10 probes with a maximum depth of 210 feet below ground surface.
- CQA and drainage assessment/design associated with re-occupation of a portion of the Blanchard Dump formerly used as a jail. Activities also included methane sensor design and LFG assessment.

During investigation activities, the majority of the Cogen Dump was sold to a development company who is now working with SCS to evaluate the site for redevelopment potential.

**LANDFILL ASSESSMENT AND REMEDIATION
NATIONAL CITY HARBOR DISTRICT REDEVELOPMENT (SWIS #37-AR-0084)**

Consultant:	SCS Engineers
Location:	National City, California
Client:	City of National City Paul Desrochers, (619) 607-1876 \$185,000 to date; no liquidated damages applied
% Performed by SCS:	75



TYPE OF WORK

• Remediation plans/specifications	• Waste characterization
• Property title/deed/history research	Hazardous waste operations
• Site surveys	CQA testing/monitoring
Site grading design	Construction monitoring
Drainage system design	Construction management
Erosion control system design	• Community education/outreach programs
• Excavation/embankment design	Geotechnical investigations
• Other: Landfill and hydrologic investigation	

BRIEF PROJECT DESCRIPTION

SCS was selected over a number of national consultants for this multi-year, multi-site project. The project is partially situated on a *historical burn dump/landfill*, located immediately north of the Paradise Marsh, a portion of the Sweetwater National Wildlife Refuge Area. Undocumented refuse was historically placed and burned along the edge of Paradise Marsh, resulting in an extensive deposit of undocumented fill (historical burn dump) that is located along the Site boundary with the Marsh. The potential threat of landfill discharge to the Marsh has posed a significant redevelopment challenge for this vacant Brownfields site.

SCS ENGINEERS PROJECT ELEMENTS

SCS developed a remediation strategy that includes grading/terracing, excavation and off-site disposal, importing or relocating on-site soils, buffer zone revegetation, and storm water runoff controls. Specific project components have included;

- Review and evaluation of multiple and complex data sets from previous reports.
- Extensive hydrogeologic and geochemical analysis of brackish groundwater/surface water, including metals and solvents, from the landfill into the marsh/wetland.
- Ultra-low detection limit sampling and laboratory methods driven by ecological risk assessment criteria.
- A scoping ecological risk assessment that included a flora and fauna survey of the marsh.
- A remedial design, including stabilization and capping of the landfill, which has been conducted by the CIWMB as part of an approx. \$1,000,000 grant to the City for remediation of the former burn dump.

SCS has worked closely with the Cal-EPA designated lead agency, the County of San Diego Department of Environmental Health (DEH), as well as the U.S. Fish and Wildlife Service (USFW), RWQCB, and DTSC to have master workplans approved by all the appropriate and involved agencies. Subsequently, SCS worked with the CIWMB, and has already secured CIWMB funding to assist with stabilization and isolation of burn fill materials from sensitive receptors, including nearby marsh flora and fauna. Currently, SCS is preparing to implement post-remedial groundwater monitoring in collaboration with USFW.

E. LITIGATION/CLAIMS INFORMATION

1. List any projects in which your entity or any of its principals is **currently** involved in litigation. Identify lawsuits by name, number, parties, and your claim or participation. (Attach additional copies of this page if required)

SCS Engineers is a company with over \$80 million in annual gross revenues, doing business from 40 offices. For over 35 years, the firm has successfully provided professional services to satisfy clients throughout the United States and overseas. We stand behind our work. In the course of doing business, SCS is occasionally involved in litigation; current and past cases are listed on pages SOQ-7, sheets 1 through 6). In the opinion of SCS Engineers, these cases should not result in judgments, which in aggregate would have a material adverse affect on the company's financial condition.

Project name: See following pages

Project location: _____

Lawsuit name: _____

Lawsuit number: _____ Date of lawsuit: _____

County/state where filed: _____

Parties involved: _____

Lawsuit claim: _____

2. List any projects within the **last five years** in which your entity or any of its principals has been involved in litigation. Identify lawsuits by name, number, parties, and your claim or participation. (Attach additional copies of this page if required)

Project name: See following pages

Project location: _____

Lawsuit name: _____

Lawsuit number: _____ Date of lawsuit: _____

County/state where filed: _____

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Parties involved: _____

Lawsuit claim: _____

3. Has your company **ever** been terminated or unilaterally elected to terminate from a project before completion? If so, complete the following adding additional pages as necessary:

Project name: **No. Not applicable** _____

Project location: _____

Client: _____

Address: _____

Contact name/current telephone no.: _____

Date of termination: _____

Reason for termination: _____

Project name: _____

Project location: _____

Client: _____

Address: _____

Contact name/current telephone no.: _____

Date of termination: _____

Reason for termination: _____

F. PERSONNEL & ORGANIZATIONAL INFORMATION

Attach an organization chart indicating the Program Manager and other staff designations as required by the RFQ. Other personnel may be included in the organization chart. A resume is required for each person shown on the organization chart. Only personnel listed on the organizational chart may attend interviews and negotiation meetings. Each resume shall include, at a minimum, the following:

1. Current position in the firm.
2. Experience for at least the last 5 years.
3. Major projects and accomplishments.
4. Education and special training.
5. Professional Registrations, include certificate number(s).
6. Professional affiliations.

See Section 3 for information on the SCS Project Team organization and locations. Subcontractor certifications and qualifications are provided in Appendix E. Resumes of SCS Project personnel are provided in Appendix F

The SCS project team includes both registered Professional Civil Engineers (PE) and Registered Geologists (RG). Evidence of professional registration with the California Board for Professional Engineers and Land Surveyors, and California Board for Geologists and Geophysicists, respectively, is provided in Appendix G

G. ACKNOWLEDGMENT/AUTHORIZATION FORM

The undersigned acknowledges that submittal of this Statement of Qualifications constitutes an irrevocable offer for a 90-day period for the Board to award the Contract.

The undersigned acknowledges that he has read all of the requirements set forth in the Request for Qualifications, and that, if awarded the Contract, shall comply with said provisions.

The undersigned hereby authorizes and requests any person, firm, agency, or corporation to furnish any information requested by the Board in verification of the recitals comprising this Statement of Qualifications and also hereby authorizes the Board to contact such persons, firms, etc., in order to obtain information regarding the undersigned.

I declare under penalty of perjury that the foregoing is true and correct. This certification is made under the laws of the State of California.

Patrick S. Sullivan

Print Name of Authorized Representative

SCS Engineers

Name of Organization

Signature of Authorized Representative

Sacramento, California

Location Where Signed

Vice President

Title of Authorized Representative

January 10, 2006

Date Signed

(916) 361-1297

Telephone Number

Acknowledgment of Addenda:

Addendum No.

#1 (12/06/05)

Signature

SECTION 3.0

SCS TEAM ORGANIZATION

ORGANIZATION CHART

SCS has carefully considered the selection of our project team and believe that the team we have assembled will provide the CIWMB with all of the requisite disciplines and services throughout the state of California. Our team structure is presented in the accompanying organization chart (*Exhibit 1.*)

The SCS Project Team includes experienced professionals in the disciplines of: landfill environmental investigations, including waste extent and characterization, and landfill gas (LFG), leachate, groundwater, vadose zone, stormwater, soil, and air investigations; landfill geotechnical and geophysical investigations; landfill, LFG, civil, soils, and geotechnical engineering; surveying and topographic mapping; LFG monitoring and control; construction management and construction quality assurance; drilling; grading, drainage and erosion protection design; hazardous material sampling, testing and off-hauling; and health and safety compliance.

The SCS Project Team possesses these skills and disciplines in multiple locations throughout California. Our combination of depth and breadth of experience and geographic distribution will allow maximum flexibility in assigning staff to each project, and ensure that technical expertise is available to the CIWMB. For locations of SCS' California offices see *Exhibit 2.*

The SCS Team includes the following firms:

- **SCS Engineers – Prime Consultant.**
- **Subcontracting Team Members**
 - *Drilling Services:* **Layne Christensen Company** and **Gregg Drilling and Testing, Inc.** (Martinez and Signal Hill, CA).
 - *Surveying / Aerial Photography:* **I.K. Curtis, Inc.** (Burbank, CA - small business).
 - *Geotechnical Services:* **Hushmand Associates, Inc.** (Irvine, CA - small business).
 - *Soils / Materials Testing:* **Twining Laboratories Inc.** (Fresno, Monterey and Sacramento – DBVE).

PROGRAM MANAGER

Program Manager – Our team will be managed by Mr. Raymond H. Huff, R.E.A., who works in the Long Beach office. He has over 15 years of experience on a variety of projects related to landfill investigations, risk assessments, landfill closure and remediation, solid waste management, hazardous waste management, hazardous substance site investigation and remediation, air quality, as well as other environmental issues. He is the Closed Landfill project lead within SCS' California offices, with project management and coordination responsibilities for closed and inactive landfill projects throughout California. Mr. Huff is experienced in managing multiple task and multiple site projects with a number of technical disciplines and subcontractors involved. Mr. Huff has also participated on the Landfill Gas Technical Advisory Group to the CIWMB. He will be available to the CIWMB on short notice and will be committed to providing the resources needed to complete each assignment on time and on budget.

TECHNICAL SUPPORT

Technical support for the required project disciplines will come from other experienced SCS professionals. These individuals are shown in the Organization Charts, Exhibits Exhibit 1 and 2. Full resumes for all SCS professionals are provided in Appendix F of this statement of qualifications. As shown, our lead technical experts are registered professionals in their respective fields.

TECHNICAL QUALITY ASSURANCE

To assure the technical quality of each project performed, Mr. Huff will be assisted by Mr. Patrick Sullivan, Reviewing Principals, as shown on Exhibit 1. The Reviewing Principal will provide senior technical oversight as well as technical review on all deliverables.

REGIONAL FAST-TRACK RESPONSE

SCS Engineers, in conjunction with our construction division, SCS Field Services, and our subsidiary, Environmental Business Solutions, provides landfill engineering, monitoring, maintenance and post-closure aftercare services at landfill sites from Eureka to San Diego and points in between. SCS' project managers, technical support staff and field personnel are located throughout our nine engineering and field offices in California (see accompanying Exhibit 2 for SCS' office locations).

Our subcontractors also maintain offices throughout California. The strategic geographic distribution of our staff, in combination with SCS's 24-hour emergency response program, provides the CIWMB with fast-track investigation, engineering and remedial capabilities at Solid Waste Cleanup sites throughout the Golden State.

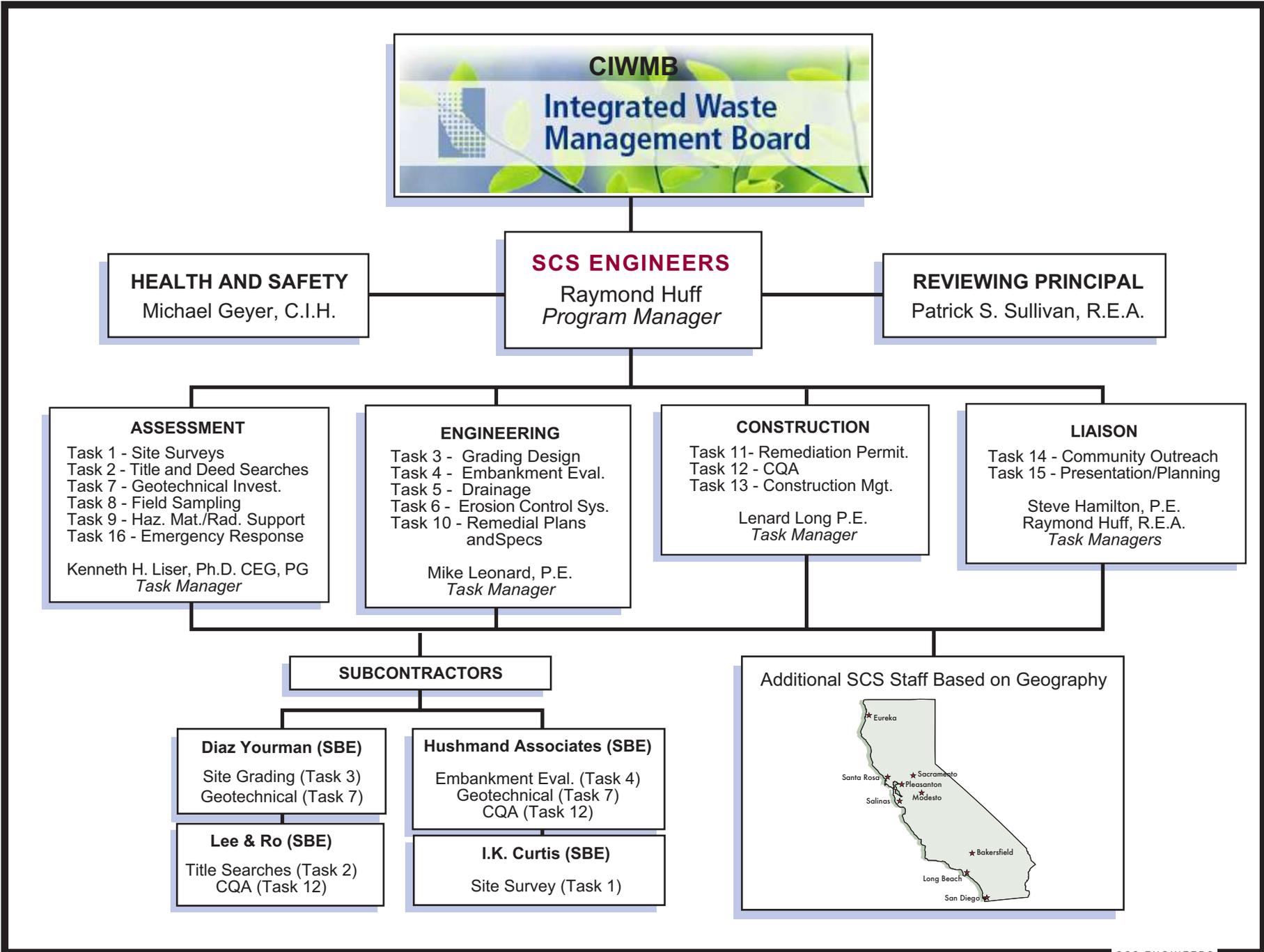


Exhibit 1. Project Organization Chart

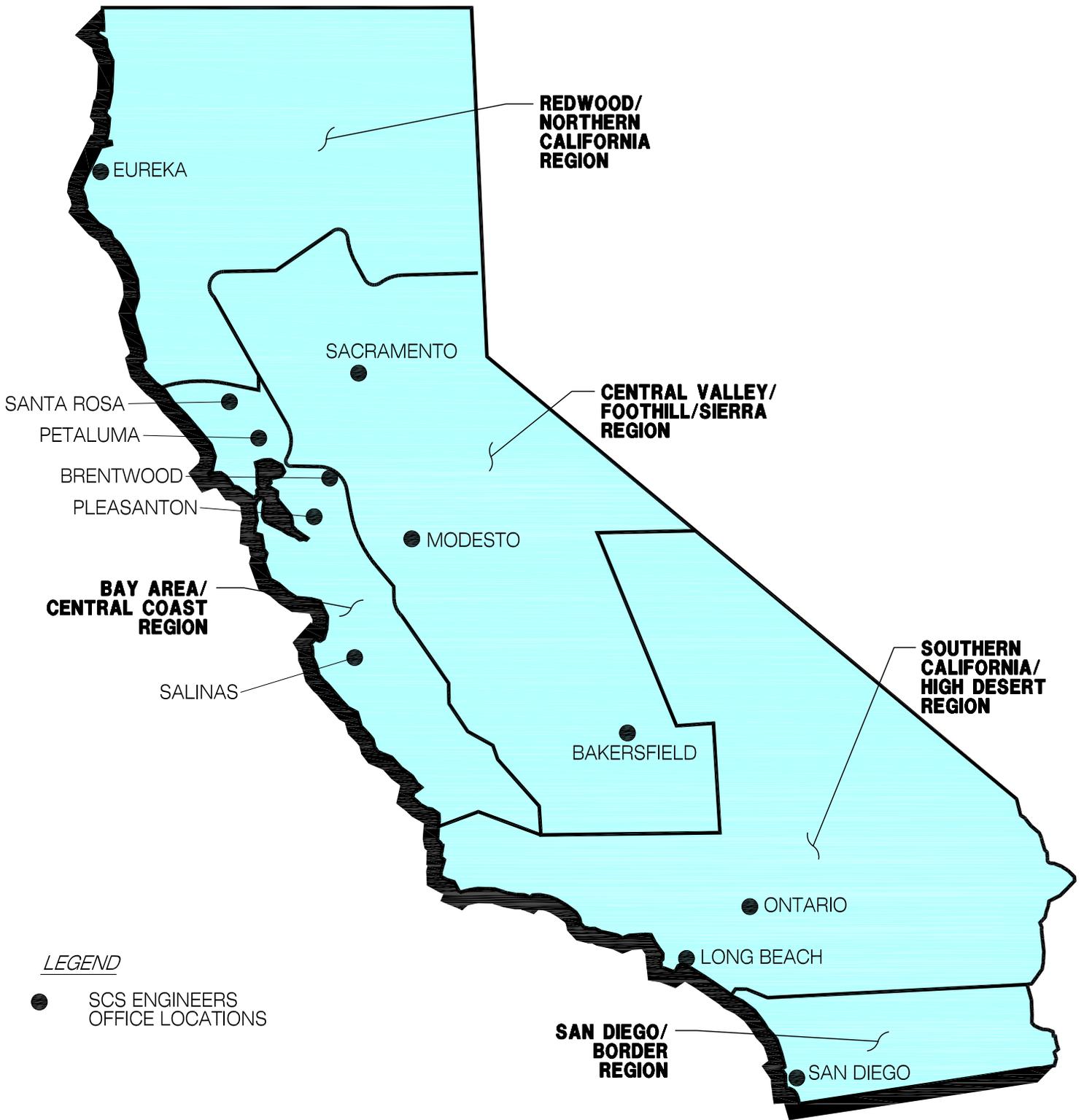


Exhibit 2. SCS Office Locations.

**CERTIFICATION OF
SMALL BUSINESS/DISABLED VETERAN BUSINESS ENTERPRISE (DVBE)
REQUIREMENTS**

The undersigned acknowledges that he has read all of the requirements set forth in the Request for Qualifications and, if awarded this Agreement, he will comply with the State's Small Business/DVBE requirements or make good faith efforts to meet these goals.

I certify under penalty of perjury that the foregoing is true and correct. This certification is made under the laws of the State of California.

SCS Engineers

Name of Organization

Long Beach, CA

Location where signed



Signature of Authorized Representative

Michelle P. Leonard, V.P.

1/10/06

Printed Name and Title

Date

COMPLIANCE WITH GOVERNMENT CODE, SECTION 87100

Government Code, Section 87100 provides: No public official at any level of state or local government will make, participate in making or in any way attempt to use his official position to influence a governmental decision in which he knows or has reason to know he or she has a financial interest. Contractors that provide recommendations and advice that may influence decision-making are required to comply with the disclosure requirements of the conflict of interest laws promulgated under the Political Reform Act.

The prospective contractors and subcontractors, if any, shall disclose any present or prior (within the last two years) financial, business, or other relationship with the Board. These disclosures will be made under penalty of perjury.

In addition to the disclosures required above, list current clients subject to any discretionary action by the Board, or who may have a financial interest in the policies and programs of the Board, and describe any current or planned work activities the contractor is performing for such clients. These disclosures will be made under penalty of perjury. The Proposer and its subcontractors (if any) will be required to file statements of economic interests with the Board upon award of the Contract. The Board will keep copies of the statements of economic interest and forward the originals to the Fair Political Practices Commission.

CURRENT CLIENTS MEETING ABOVE CRITERIA

<u>Client Name</u>	<u>Contract</u>	<u>Address</u>	<u>Phone</u>
See attached list – following page			

A determination by the Board that a conflict of interest exists as a result of the disclosed relationships will be grounds for disqualifying a Proposer.

Note: SCS Engineers works for various solid waste facility owner/operators or municipalities responsible for AB 939 compliance whose projects periodically require approval by the CIWMB, and who may have some financial interest in the Board's policies and programs. We have listed herein all current clients that we believe may meet the criteria under Government Code, Section 87100, i.e. those SCS clients that may have some discretionary items before the Board. SCS Engineers is of the opinion that our participation in the CIWMB's Landfill and Disposal Site Remediation program would not constitute either a real or perceived conflict of interest. SCS would be pleased to discuss details of our client relationships, if requested.

CURRENT CLIENTS MEETING ABOVE CRITERIA

<u>Client Name</u>	<u>Contract</u>	<u>Address</u>	<u>Phone</u>
Nevada County	Mr. Steve Porter	950 Maidu Avenue Nevada City, CA 95959	(530) 265-1416
Kern County/Waste Management Dept.	Mr. Tim Reed	2700 M Street, Suite 500 Bakersfield, CA 93301-2370	(661) 862-8855
Orange County	Ms. Sue Gordon	320 N. Flower Street, Suite 400 Orange, CA 92703	(714) 834-4118
Riverside County Department of Environmental Health	Mr. Chuck Strey	Riverside Co. Administrative Ctr., 9 th Floor, P.O. Box 1280 4080 Lemon Street Riverside, CA 92502	(909) 955-8982
Sonoma County Department of Transportation & Public Works	Mr. Ken Wells	575 Administration Dr., Room 117A Santa Rosa, CA 95403	(707) 527-2231
Santa Barbara Co. Public Works/Solid Waste	Mr. Mark Masoner	123 East Anapamu Santa Barbara, CA 93101	(805) 568-2690
City of Chula Vista Department of Public Works	Muna Cuthbert	276 4 th Avenue Chula Vista, CA 91910-2631	(619) 691-5278
City of Rancho Palos Verdes	Ms. Lauren Ramezani	30940 Hawthorne Blvd. Rancho Palos Verdes, CA 90275- 5391	(310) 544-5245
City of South Gate Dept. of Public Works	Mr. Mohammad Mostahkami	8650 California Ave. South Gate, CA 90280-3075	(323) 563-9537
City of Torrance Planning Department	Ms. Carolyn Chun	3031 Torrance Blvd. Torrance, CA 90503	(310) 618-5990

PUBLIC CONTRACT CODE SECTION 10162 - QUESTIONNAIRE

In accordance with Public Contract Code Section 10162, the Proposer shall complete, under penalty of perjury, the following questionnaire:

Has the Proposer, any officer of the Proposer, or any employee of the Proposer who has a proprietary interest in the Proposer, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state or local government project because of a violation of law or safety regulation? If the answer is yes, attach an explanation.

Yes

No

PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT

In accordance with Public Contract Code Section 10285.1, Proposer shall complete, under penalty of perjury, the following statement:

Has the proposer been convicted within the preceding three years of any offenses referred to in Public Contract Code Section 10285.1, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or federal antitrust law in connection with the bidding upon, award of or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University? The term "proposer" is understood to include any partner, member officer, director, responsible officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Yes

No

NONCOLLUSION AFFIDAVIT
(Title 23 United States Code Section 112 and
Public Contract Code Section 7106)

In accordance with Title 23, United States Code, Section 112, and Public Contract Code 7106 if federally funded, or Public Contract Code 7106 if state funded, the proposer declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the proposer has not directly or indirectly induced or solicited any other proposer to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any proposer or anyone else to put in a sham bid, or that anyone shall refrain from bidding; has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the proposer or any other proposer, or to fix any overhead, profit, or cost element of the bid price, or of that of any other proposer, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the proposer has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Note: The above Noncollusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of the Noncollusion Affidavit. Proposers are cautioned that making a false certification may subject the certifier to criminal prosecution.

SIGNATURE:



Signature of Authorized Representative

Michelle P. Leonard, Vice President

Printed Name and Title

SMALL BUSINESS AND DISABLED VETERANS ENTERPRISE PARTICIPATION SUMMARY							
MARK ONE FOR EACH FIRM USED			NAME OF FIRM	NATURE OF WORK	TOTAL AMOUNT OF WORK (Mark one for each firm used)		IS CERTIFICATION FORM ATTACHED?
PRIME BIDDER	SUBCONTRACTOR	SUPPLIER			SMALL	DVBE	
X			SCS Engineers	Landfill Remediation			N/A
	X		Diaz-Yourman & Associates	Geotechnical Consulting	Est. 10%		Yes
	X		Global Environmental Network	Environmental Safety & Hazmat		Est. 2%	Yes
	X		Hushmand Associates	Geotechnical Consulting	Est. 7%		Yes
	X		IK Curtis	Surveying/Aerial Photography	Est. 5%		Yes
	X		Lee & Ro, Inc.	Civil/title and Deed Search	Est. 7%		Yes
	X		Twining Laboratories	Soils/Materials Lab Testing		Est. 5%	Yes

Incomplete documentation will result in disqualification from further consideration in the evaluation of Proposers.

Please Note: This form is only required at the time of SOQ submittal if the prime contractor has identified sub-contractors to be used during the course of the agreement or if the prime contractor is certified as a small or disabled veteran business enterprise.

Project location(s) and specific scope of work for Contract No. IWM-03032 have yet to be determined. Actual utilization of subcontractors identified above may vary based on project location and scope, to be determined by the CIWMB. SCS Engineers is committed to meeting the Small Business and Disabled Veterans Business Enterprise project goals of 25% and 3%, respectively, as outlined in the Request for Qualifications.



Appendix F

Full Resumes – SCS Team



RAYMOND H. HUFF, R.E.A.
Senior Technical Manager

Education

B.A. – Whittier College, Philosophy/Geology
M.B.A. – Keller Graduate School of Management, Information Systems

Professional Licenses and Certifications

State of California Registered Environmental Assessor (No. 06857)
OSHA 40-Hour Hazardous Waste Site Operations (HAZWOPER) Health and Safety
Certification
OSHA 8-Hour HAZWOPER Supervisor Certification

Professional Affiliations

Solid Waste Association of North America (SWANA)
Landfill Gas Technical Advisory Group; California Integrated Waste Management Board

Professional Experience

Mr. Huff has over 14 years of experience in environmental consulting, specializing in regulatory compliance and assessment of landfill post-closure care as well as LFG issues. He is the Closed Landfill project lead within SCS's California offices, with project management and coordination responsibilities for closed and inactive landfill projects throughout California. Mr. Huff has also participated on the Landfill Gas Technical Advisory Group to the CIWMB.

Because of this expertise, Mr. Huff has been the project and task manager on a variety of projects related to landfill investigations, risk assessments, landfill closure and remediation, solid waste management, hazardous waste management, hazardous substance site investigation and remediation, air quality, as well as other environmental issues.

Examples of specific projects that Mr. Huff has managed include the following:

- **Environmental Monitoring and Post-Closure Care, Cal-Compact Landfill, Carson, California (SWIS # 19-AQ-0012).** The site is a former hazardous waste landfill that is being considered for redevelopment. The site is currently under the oversight of the DTSC. Project tasks have included LFG assessment, LFG engineering, design of methane protection systems, and development of a LFG monitoring program. In addition, Mr. Huff is currently the Site Manager for post-closure care services at the site, including LFG monitoring, LFG system O&M, groundwater sampling and analysis, cover maintenance and repair, site security, storm water sampling/analysis and inspections, and regulatory liaison with DTSC.

RAYMOND H. HUFF, R.E.A., (continued)

- **Landfill Investigation, Regulatory Compliance and LFG Engineering Activities, Upland Sanitary Landfill, Upland, California (SWIS # 36-AA-0005).** Project activities at the site have included design and installation of a perimeter probe migration monitoring system, LFG collection and control system evaluation and engineering, air emissions sampling and analysis, and development of alternative regulatory compliance plans under SCAQMD Rule 1150.1, including regulatory liaison with CIWMB CIA staff.
- **Investigation and Remediation of Former Landfill Site, Long Beach Memorial Medical Center, Long Beach, California (SWIS # 19-AK-5018).** Mr. Huff is project manager for the investigation of potential contamination derived from a landfill site adjacent to the Long Beach Memorial Medical Center. The area is the proposed site of an expansion of the hospital and includes oil field wastes and municipal waste disposal. The investigations have included soil and soil vapor analyses and an evaluation of the lateral and vertical extent of waste disposal. The next phase of the project will include excavation and removal of the contaminated material and CEQA support during the development of the hospital expansion.
- **Landfill Gas Assessment, Cover Maintenance, and Monitoring, Cogen Cramer Landfill, Los Angeles, California (SWIS # 19-AA-0581).** The site is located adjacent to residential development and two Los Angeles County correctional facilities. Project tasks include emergency cover repair associated with a subsurface combustion event, LFG migration assessment, and preparation of LFG and cover assessment workplan for installation of LFG migration probes and ongoing cover maintenance. Project included regulatory liaison with the Los Angeles County LEA, CIWMB, USEPA and SCAQMD. In addition, methane monitoring is conducted associated with the use of one of the closed jail facilities for TV and movie productions.
- **Landfill Gas Assessment, Cover Maintenance, and Monitoring, Lane Road Disposal Site, Irvine, California (SWIS # 30-CR-0063).** The site is located adjacent to residential development and has been redeveloped into a golf course. Project tasks have included LFG assessment, including methane testing in nearby homes, installation of LFG migration probes, cover repair and ongoing cover maintenance, preparation of LFG assessment and cover maintenance plan, regulatory liaison with the Orange County LEA, SARWQCB, OCIWMD, CIWMB, and SCAQMD. Future tasks will include the design and installation of LFG collection and control system to prevent migration onto residential properties.
- **Environmental Investigations and Risk Assessment at the Former BKK Main Street Landfill in Los Angeles County (SWIS # 19-AQ-0014).** This landfill is a closed site that may have received both hazardous and non-hazardous wastes; it is currently occupied by two golf courses and other commercial and residential developments and is being considered for additional redevelopment. Project work at this facility has included

RAYMOND H. HUFF, R.E.A., (continued)

completion of soil vapor surveys, installation and monitoring of LFG migration probes, LFG sampling/analysis, oversight of cover and subsurface soil and groundwater sampling, completion of a human health risk assessment, CEQA assistance, and negotiations with regulatory agencies. The site is currently being considered for listing on the National Priorities List (NPL) as a potential Superfund site. Oversight of the landfill is provided by EPA Region IX, DTSC, and the Los Angeles County landfill LEA.

- **Landfill Investigation, LFG Engineering, Human Health Risk Evaluation and Impact Assessment, Proposed Residential Developments, Adjacent to the Otay Landfill, Chula Vista, California (SWIS # 37-AA-0010).** Project activities at the site have included an evaluation of LFG migration, LFG engineering and testing, air quality permitting and compliance, soil and LFG sampling and analysis, human health risk assessment and nuisance/odor evaluation, CEQA assistance, operations and maintenance of the LFG collection and control system, and other landfill engineering and construction services. The risk assessment and odor/nuisance analysis was completed to support residential development adjacent to the landfill.
- **Landfill Investigation and Human Health Risk Evaluation/Impact Assessment, Proposed Residential Development, Adjacent to a Landfill Site, Union City, California.** The project included completion of various soil, LFG, and groundwater investigations and development of two risk assessments to support the development of residences adjacent to the landfill as well as clean closure of portion of the site for additional residential development on-site. SCS also provided CEQA assistance for the proposed developments.
- **Human Health Risk Evaluation and Impact Assessment, Proposed Commercial Developments, On and Adjacent to the BKK Landfill Site, West Covina, California (SWIS # 19-AF-0001).** The BKK site includes two landfills: one municipal solid waste landfill and one hazardous waste site, which are under the oversight of DTSC. Mr. Huff completed various investigations and data reviews/analyses of soil, surface water, groundwater, LFG, and air quality. The data were used for the completion of a human health risk assessment in support of the CEQA process for a proposed golf course and business park development on the Class III landfill.
- **Investigation, Risk Assessment, and Remediation Feasibility Study, Mission Bay Landfill, San Diego, California (SWIS # 37-AA-0026).** For this site, Mr. Huff developed the LFG sampling portion of the site assessment workplan of the former landfill site, which is located next to a river, bay, and amusement park and is used heavily for recreational purposes. The field investigations will be followed by a risk assessment, and given the highly visible and public nature of the landfill project; focus on risk communication will be of primary importance. Ultimately, several candidate risk-based remediation methods applicable to the site will be identified with typical costs associated with each method.

RAYMOND H. HUFF, R.E.A., (continued)

This is an ongoing project that includes interface with the SDAPCD, RWQCB, LEA, and DTSC.

- **Air Quality Impact Analysis, Human Health Risk Evaluation, and CEQA Assistance, Regional Landfill Project, Salinas Valley Solid Waste Authority, Monterey County, California.** Regional air quality impacts, including a human health risk assessment, were evaluated as part of an EIR for four different combinations of the expansion of three regional landfills and the placement of 10 regional transfer stations throughout the Salinas Valley. One of the landfills contained hazardous waste, including burn ash, which also had to be evaluated for potential health risks. The risks assessments included an evaluation of risks from diesel exhaust from mobile equipment and vehicles.
- **NSPS LFG Sampling and Analysis, Multiple Landfill Sites in Kern County, California.** For this project Mr. Huff conducted NSPS Tier 2 landfill gas sampling and analysis in accordance with federal NSPS regulations at four landfills in Kern County. Mr. Huff performed field investigations in 1998 and resampled three of the four landfills in 2003 in accordance with federal resampling procedures set forth in NSPS regulations. In addition to conducting the field investigations, Mr. Huff completed statistical analyses of raw analytical data and authored the final data reports submitted to the USEPA.
- **Human Health Risk Assessment for a Proposed Residential Development at a Former Crude Oil Tank Farm in Norwalk, California.** For this project, Mr. Huff performed an assessment which included a human health risk assessment and an evaluation of the potential human health impacts associated with neighboring crude oil storage facility to support residential redevelopment of the site. The risk assessment included evaluation of a disposal area for oil field wastes and was performed as part of the CEQA process for site redevelopment.

Selected Publications and Presentations

Huff, Raymond; Leonard, Michelle; and Sullivan, Patrick S., *Composting Emissions Update and New Southern California Regulations*, Presentation at the Annual Solid Waste Association of North America (SWANA) WASTECON Conference in St. Louis, Missouri, October 2003.

Huff, Raymond and Sullivan, Patrick S., *Unique Landfill Gas Issues on Urban Inactive Landfills*, Conference Proceedings, 27th Annual Solid Waste Association of North America (SWANA), Landfill Gas Symposium in San Antonio, Texas, March 2004.

Huff, Raymond and Sullivan, Patrick S., *Air Quality and Odor Impacts from Landfill-Related Emissions*, Conference Proceedings, Water Environment (WEF) and Air and Waste Management Association (AWMA) Odor and Air Emissions 2004, Bellevue, Washington, April 2004.

PATRICK S. SULLIVAN, R.E.A., C.P.P.
Project Director

Education

B.A. - Harvard University, Biology/Ecology

Professional Licenses and Certifications

State of California Registered Environmental Assessor (No. 05952)
South Coast Air Quality Management District, Certified Permitting Professional (No. A
1716)
OSHA 40-Hour Health and Safety Certification for Hazardous Waste Workers

Professional Affiliations

Solid Waste Association of North America (SWANA): Chairman, Rules and Regulations
Committee of Landfill Gas (LFG) Division
Waste Industry Air Coalition (WIAC); Chairman
Air and Waste Management Association (AWMA); Vice Chairman, Mother Lode
Chapter
California Biomass Collaboration; Executive Board; Representing Landfill Industry
Landfill Gas Technical Advisory Group; California Integrated Waste Management Board
(CIWMB)
Water Environment Federation
Society for Risk Analysis

Professional Experience

Mr. Sullivan has over 16 years of experience in the area of environmental engineering, specializing in landfill and LFG issues. He is the Solid Waste Practice Leader within SCS's California offices. Mr. Sullivan is the National Partner for SCS's company-wide Risk Assessment program, the lead technical expert for risk assessment in California, and is one of the national experts on risk assessment and toxic exposure issues for landfills. He is also the primary Air Quality technical expert for SCS in California and the National Partner for SCS's company-wide air quality compliance program. Mr. Sullivan is a company Vice President and Project Director for projects related to LFG engineering, air quality permitting and compliance, landfill investigation and risk assessment as well as other landfill engineering services.

Because of this expertise, Mr. Sullivan has been the project manager and lead technical expert on a variety of projects related to landfill investigations, risk assessments, landfill closure and remediation, solid waste management, hazardous waste management, hazardous substance site investigation and remediation, air quality, as well as other environmental issues.

PATRICK S. SULLIVAN, R.E.A., C.P.P. (continued)

Examples of specific projects that Mr. Sullivan has managed include the following:

- **Landfill Gas Assessment, Cover Maintenance, and Monitoring, Cogen Cramer Landfill, Los Angeles, California.** The site is located adjacent to residential development and two County correctional facilities. Project tasks include LFG assessment, installation of LFG migration probes, emergency cover repair and ongoing cover maintenance, extent of waste investigations, preparation of LFG and cover assessment workplans, and regulatory liaison with the Los Angeles County LEA, CIWMB, and SCAQMD. In addition, methane monitoring is conducted associated with the use of one of the closed jail facilities for TV and movie productions.
- **Landfill Gas Assessment, Cover Maintenance, and Monitoring, Lane Road Disposal Site, Irvine, California.** The site is located adjacent to residential development and has been redeveloped into a golf course. Project tasks have included LFG assessment, including methane testing in nearby homes, installation of LFG migration probes, cover repair and ongoing cover maintenance, extent of waste investigations, preparation of LFG assessment and cover maintenance plan, regulatory liaison with the Orange County LEA, RWQCB, CIWMB, and SCAQMD. Future tasks will include the design and installation of LFG collection and control system to prevent migration onto residential properties and additional landfill cover.
- **Environmental Investigations and Risk Assessment at the Former BKK Main Street Landfill in Los Angeles County.** This landfill is a closed site that may have received both hazardous and non-hazardous wastes; it is currently occupied by two golf courses and other commercial and residential developments and is being considered for additional redevelopment. Project work at this facility has included completion of soil vapor surveys, installation and monitoring of LFG migration probes, LFG sampling/analysis, extent of refuse investigation, oversight of cover and subsurface soil and groundwater sampling, completion of a human health risk assessment, CEQA assistance, and negotiations with regulatory agencies. The site is currently being considered for listing on the National Priorities List (NPL) as a potential Superfund site. Oversight of the landfill is provided by EPA Region IX, DTSC, and the Los Angeles County landfill LEA.
- **Environmental Monitoring and Post-Closure Care, Cal-Compact Landfill, Carson, California.** The site is a former hazardous waste landfill that is being considered for redevelopment. The site is currently under the oversight of the DTSC. Project tasks have included LFG assessment, LFG engineering, design of methane protection systems, and development of a LFG monitoring program. In addition, Mr. Sullivan currently oversees the completion of post-closure care services at the site, including LFG monitoring, LFG system O&M, groundwater sampling and analysis, cover maintenance and repair, site security, storm water sampling/analysis and inspections, and regulatory liaison.

PATRICK S. SULLIVAN, R.E.A., C.P.P. (continued)

- **Human Health Risk Evaluation and Impact Assessment, Proposed Remediation, 38th Street Burn Dump, San Diego, California.** The project included a human health evaluation of a former burn dumpsite, including a risk-based assessment of possible remedial scenarios for site redevelopment. Contaminants at the site included organics, heavy metals, and other landfill-related contaminants from the burn ash.
- **Environmental Investigations at the Ostrom Road Landfill in Wheatland, California.** Project work at this site has included sampling/analysis of LFG, assessment of LFG migration using soil-vapor techniques, sampling and monitoring of LFG migration probes, installation of additional migration probe for LFG monitoring and compliance, design and installation of a LFG collection and control system to mitigate LFG migration and groundwater impacts, O&M of the LFG and leachate systems, air quality permitting and compliance, as well as other engineering and permitting assignments.
- **Landfill Investigation and Human Health Risk Evaluation/Impact Assessment, Proposed Residential Development, Adjacent to a Landfill Site, Union City, California.** The project included completion of various soil, LFG, and groundwater investigations and development of two risk assessments to support the development of residences adjacent to the landfill as well as clean closure of portion of the site for additional residential development on-site. SCS also provided CEQA assistance for the proposed developments. In addition, Mr. Sullivan oversees LFG engineering services, O&M of the on-site LFG collection and control system, and various air quality compliance activities.
- **Human Health Risk Evaluation and Impact Assessment, Proposed Commercial Developments, On and Adjacent to the BKK Landfill Site, West Covina, California.** The BKK site includes two landfills: one municipal solid waste landfill and one hazardous waste site, which are under the oversight of DTSC. Mr. Sullivan provided oversight for the completion of various investigations and data reviews/analyses of soil, surface water, groundwater, LFG, and air quality. The data were used for the completion of a human health risk assessment in support of the CEQA process for a proposed golf course and business park development on the Class III landfill.
- **Burn Dump Investigation in San Joaquin County, California.** As part of this project, Mr. Sullivan provided technical oversight for investigations of a burn dump site, which included soil investigations, trenching investigations to determine extent of refuse, LFG migration assessment, waste sampling/analysis, hazardous waste determination, and other project tasks. The project site was slated for residential development; therefore, all project elements we completed in consideration for this type of development.
- **Investigation, Risk Assessment, and Remediation Kaiser Ventures Inc. Facilities, Fontana, California.** For the former Kaiser Steel plant in Fontana, RI/FSs, RAPs, and

PATRICK S. SULLIVAN, R.E.A., C.P.P. (continued)

Remedial Designs were prepared for three on-site operable units under DTSC's oversight. Mr. Sullivan was responsible for a number of individual soil, groundwater, surface water, and waste investigations at the Kaiser site, including treatability studies, risk assessments, RAPs, and hydrogeological studies, storm water pollution prevention plans, and spill prevention, control, and countermeasure (SPCC) plans. These projects included investigations of two landfill sites, with both hazardous and non-hazardous wastes, including soil, waste materials, hazardous waste, groundwater, and surface water issues.

- **Investigation, Risk Assessment, and Remediation Feasibility Study, Mission Bay Landfill, San Diego, California.** For this site, Mr. Sullivan is currently managing a significant forensic investigation and site assessment of the former landfill site, which is located next to a river, bay, and amusement park and is used heavily for recreational purposes. This work has included investigations of extent of refuse, cover thickness, LFG composition and migration, soil, surface water, groundwater, and other environmental media associated with Mission Bay. The field investigations will be followed by a risk assessment, and given the highly visible and public nature of the landfill project; focus on risk communication will be of primary importance. Ultimately, several candidate risk-based remediation methods applicable to the site will be identified with typical costs associated with each method. This is an ongoing project that includes interface with the SDAPCD, RWQCB, LEA, and DTSC.
- **Landfill Engineering, LFG Migration Assistance, and Human Health Risk Assessment, Geer Road Landfill, Modesto, California.** Mr. Sullivan has managed and been involved with a variety of project at the Geer Road site including closure design and CQA services, cover repair, LFG engineering, air quality compliance, human health risk assessment, LFG system O&M, LFG and groundwater monitoring, as well as acted as an expert witness in defending the landfill against a citizen lawsuit. Project work is under the jurisdiction of the landfill LEA and RWQCB.
- **Investigation and Remediation of Former Landfill Site, Long Beach Memorial Medical Center, Long Beach, California.** Mr. Sullivan has managed an investigation of potential contaminated derived from a landfill site adjacent to the Long Beach Memorial Medical Center. The area is the proposed site of an expansion of the hospital and includes oil field wastes and municipal waste disposal. The investigations have included soil and soil vapor analyses and an evaluation of the lateral and vertical extent of waste disposal. The next phase of the project will include excavation and removal of the contaminated material and CEQA support during the development of the hospital expansion.
- **Landfill Investigation, LFG Engineering, Human Health Risk Evaluation and Impact Assessment, Proposed Residential Developments, Adjacent to the Otay Landfill, Chula Vista, California.** Project activities at the site have included an

PATRICK S. SULLIVAN, R.E.A., C.P.P. (continued)

evaluation of LFG migration, LFG engineering and testing, air quality permitting and compliance, soil and LFG sampling and analysis, human health risk assessment and nuisance/odor evaluation, CEQA assistance, operations and maintenance of the LFG collection and control system, and other landfill engineering and construction services. The risk assessment and odor/nuisance analysis was completed to support residential development adjacent to the landfill.

Publications and Presentations

Sullivan, Patrick S. and Zbozinek, Jasenka V., *Exposure Assessment and Toxic Distribution Modeling in Toxic Tort Litigation: Air and Soil Pathways*. Seminar Proceedings, Phoenix Chapter of the State of Arizona Bar Association, One-Day Technical Meeting, November 1996.

Sullivan, Patrick S. and Lister, Kenneth H., *Use of Screening Level Risk Assessment for Risk-Based Corrective Action*. Conference Proceedings, Association for the Environmental Health of Soils, 7th Annual West Coast Conference on Contaminated Soil and Groundwater, February 1997.

Sullivan, Patrick S., Nuno, Julio A., and Lister, Kenneth H., *The Use of Risk-Based Corrective Action in Site Mitigation Projects*. Conference Proceedings, Environmental Engineering Conference, Canadian Society of Civil Engineers/American Society of Civil Engineers (CSCE/ASCE), July 1997.

Albert, Lon; Kubis, Elizabeth L., and Sullivan, Patrick S., *Ongoing Challenges of Emission Inventories at Municipal Solid Waste Landfills*, Conference Proceedings, Emission Inventory Conference, Air and Waste Management Association (AWMA), October 1997.

Kubis, Elizabeth L., Rankin, Sue, and Sullivan, Patrick S., *Strategic Planning for Landfill Gas and Air Quality Compliance at Municipal Solid Waste Landfills*, Conference Proceedings, 28th Annual Solid Waste Association of North America (SWANA), Western Regional Symposium, April 1999.

Pierce, Jeff and Sullivan, Patrick S., *NSPS, NESHAPs, NSR, and Title V: The Impact of Federal Air Quality Regulations on Landfill Construction and Operation*, Conference Proceedings, 28th Annual Solid Waste Association of North America (SWANA), Western Regional Symposium, April 1999.

Sullivan, Patrick S., *A Practical Approach to Clean Air Act Compliance for Landfills*, Presentation at the Annual Solid Waste Association of North America (SWANA), WASTECON Conference, Reno, Nevada, October 1999.

PATRICK S. SULLIVAN, R.E.A., C.P.P. (continued)

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Sullivan, Patrick S., *U.S. EPA's Urban Air Toxics Strategy*, Conference Proceedings, Conference Proceedings, 10th Annual Technical Conference, Air and Waste Management Association (AWMA) Golden Empire Chapter, Golden West Section, Bakersfield, California, March 2000.

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Sullivan, Patrick S., *Risk Characterization in Site Characterization and Remediation Design*, Conference Proceedings, Convergence 2000 Environmental Engineering and Pipeline Engineering Conference, American Society of Civil Engineers (ASCE), Kansas City, Missouri, July 2000.

Nuno, Julio A. and Sullivan, Patrick S., *Site Characterization*, Presentation at Convergence 2000 Environmental Engineering and Pipeline Engineering Conference, American Society of Civil Engineers (ASCE), Kansas City, Missouri, July 2000.

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Huff, Raymond and Sullivan, Patrick S., *Unique Landfill Gas Issues on Urban Inactive Landfills*, Conference Proceedings, 27th Annual Solid Waste Association of North America (SWANA), Landfill Gas Symposium in San Antonio, Texas, March 2004.

Clarke, Steve and Sullivan, Patrick S., *Estimating the Trend in NMOC Generation and Emissions After Closure of MSW Landfills*, Conference Proceedings, 27th Annual Solid Waste Association of North America (SWANA), Landfill Gas Symposium in San Antonio, Texas, March 2004.

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Sullivan, Patrick S., *The Role of LFGTE in California's RPS and the California Biomass Collaborative*, Presentation at the 8th Annual U.S. EPA Landfill Methane Outreach Program (LMOP) Conference and Project Expo, Baltimore, Maryland, January 2005.

Sullivan, Patrick S., *Where Should I Put My Organic Waste: Bioreactor Landfill or Composting Facility*, Conference Proceedings, National Solid Waste Management Association (NSWMA)/Environmental Industries Association (EIA) Waste Expo in La Vegas, Nevada, May 2005.

Sullivan, Patrick S., *LFG and Development on and Adjacent to Landfills in California*, Presentation at the 34th Annual Solid Waste Association of North America (SWANA), Western Regional Symposium, San Luis Obispo, California, May 2005.

MICHAEL L. LEONARD, Sr., P.E., R.E.A.
Project Director

Education

B.S. - University of Illinois (Full Scholarship, Honors Graduate), Civil Engineering, 1972

M.S. - University of Illinois, Civil Engineering, 1974

Graduate Course in Technical Management, California Institute of Technology, 1986

Hazardous Materials Certificate Course, Chemistry of Hazardous Materials, University of California, Irvine, 1994

Professional Licenses and Certifications

OSHA 40-Hour Hazardous Waste Worker Training Certificate, 1984

Construction Quality Management Certificate, U.S. Army Corps of Engineers, 2003

Registered Civil Engineer - California (No. 31181), Utah, Texas, Illinois, Arizona, Hawaii

Registered Environmental Assessor - California (No. 1960)

Professional Experience

Mr. Leonard has more than 30 years of technical engineering experience combined with over 15 years of experience in landfill projects. For major private and public solid waste entities engaged in numerous engineering projects, he has served as the Design Engineer of Record, Project Manager, CQA Officer, and Construction Manager. His experience includes many closed landfill projects in Southern California, including the evaluation of 15 sites previously operated by Orange County, a burn dump site in San Diego County, and ongoing projects involving redevelopment of several closed sites for beneficial use. He has prepared plans and cost estimates for "clean closure" of landfills, designed closure caps, and managed the construction of landfill closures. Mr. Leonard's unique experience of both designing landfill closures and serving as a Construction Manager for landfill projects gives him a valuable perspective on cost effective and doable solutions.

Relevant experience, including burn dump and landfill closure projects, is as follows:

- Project Manager for preparation of the redevelopment plans for the La Habra landfill/Vista Grande Park site.
- Design Engineer for the closure cap and re-use of the former Grijalva Landfill as a park and recreational center by the City of Orange.

MICHAEL L. LEONARD, Sr., P.E., R.E.A. (continued)

- Environmental Site Assessment (EA) for transfer of Julian Burn Dump site from BLM to San Diego County on contract with San Diego County Solid Waste including presentation of recommendations for modifications to the facility to provide appropriate protections to the buried burn materials.
- For the Waste Disposal, Inc. (WDI) Superfund site located in Santa Fe Springs, California, Mr. Leonard was Engineer-of-Record for the closure plan preparation. Closure included site grading, cap construction, drainage facilities and monitoring systems.
- Design and construction QA of base liner and closure cap for contaminated soil cell (5-acre) constructed for onsite storage/disposal of PCB containing soil at the Koppers Co. (wood treatment operations) site located very near the Feather River in Oroville, California.
- Providing technical support the development of the Los Angeles County Sheriff Departments development of facilities located on and adjacent to the abandoned Blanchard Landfill.
- Primary author of the Post-Closure maintenance plan prepared by SCS for the Rancho San Joaquin Golf Course/former Lane Road landfill located in Irvine, California.
- Evaluation of existing LFG controls and recommendations for upgrades to improve LFG recovery at Chiquita Canyon Landfill for a proposed LFGTE plant (SCS).
- On subcontract to Techlaw/EPA Region 9, responsible for technical review of the plans for clean closure of several small dump sites located on the Lawrence Livermore site in northern California including development of alternatives to hauling the material to Utah preparation of cost estimates for the various alternatives.
- Preparation of the Preliminary Closure and Post-Closure Maintenance Plan and Cost Estimates for the original 94-acre El Sobrante landfill, Riverside County, California.
- Lead Engineer during review of Closure and Post-Closure Maintenance Plans and Cost Estimates for all Riverside County Landfills as part of an assessment of potential financial liabilities for the County. The client was Waste Management, Inc. (previously USA Waste).
- At OII Landfill in Monterey Park, California, Mr. Leonard served as QA/QC officer reviewing the preliminary closure plans, including various cap, gas control, and groundwater remediation systems.
- On the proposed Mesquite Regional waste-by-rail project, Mr. Leonard served as Senior Technical Reviewer of the RDSI, which included Preliminary Closure and Post-Closure LFG projects.

MICHAEL L. LEONARD, Sr., P.E., R.E.A. (continued)

- Project Manager and Responsible Engineer during design upgrades to bring the El Sobrante LFG system to operating status. Also, served as overall PM during construction, startup, operation and monitoring of the system for 5 years (TRC).
- Preliminary design of LFG collection systems for expansions of the Toland Road Landfill for VRSD and Tajiguas Landfill for Santa Barbara County.
- Construction Manager for three years (1997 to 2000) at the Olinda Alpha Landfill in Orange County. Over \$15 million of infrastructure improvements and major planning documents were completed. Responsible for review and update of the site Master Plan and input to the updates of the RDSI and ROWD. The client was Orange County Integrated Waste Management Department.
- Senior Technical Lead during permitting, design and construction support for the first modern lined landfill built in South America, i.e., the Gran Santiago Regional Landfill located 50 miles outside of the capitol of Chile. Tasks included preparation of excavation, liner/LCARS, and fill plans as well as Construction Sequence Plans. Environmental Monitoring Plans and Closure and Post-Closure Maintenance Plans and cost estimates were prepared under his supervision.
- Senior Technical Manager for conceptual design of the major expansion to the Tajiguas Landfill located in Santa Barbara County, California. Responsible for preparation of excavation, lining/LCARS and fill plans and Construction Sequencing as well as cost estimates for build-out of the landfill, closure and post-closure maintenance. The client was Santa Barbara County Department of Public Works, Solid Waste Services Division.
- Senior Technical Manager for conceptual design of the major expansion to the Toland Road Landfill located in Ventura County, California. Responsible for preparation of excavation, lining/LCARS and fill plans, slope stability, drainage controls, LFG system planning, and all other aspects of landfill design (at concept level) required by CCR Title 27. The client was the Ventura Regional Sanitation District.
- Project Manager for performance of the Geotechnical Investigation and recommendations for design of Phase V of the Sycamore Landfill (located in San Diego County and operated by a subsidiary of Allied Waste, Inc.) build-out as well as for the proposed major expansion, which was subsequently approved. The client was initially San Diego County Solid Waste Management Department and changed to Allied Waste after their purchase of the landfill. The reviewing agencies included the County of San Diego LEA and the RWQCB.

KENNETH H. LISTER, Ph.D., C.E.G., C.H.G.
Senior Technical Manager

Education

B.S. - University of California, Los Angeles, 1967
Geology

M.S. - University of California, Los Angeles, 1970
Geology

Ph.D. - University of Kansas, Lawrence, 1974
Geology

Professional Licenses

Professional Geologist - California, 1987 (No. 4338)
Certified Engineering Geologist - California, 1991 (No. 1581)
Certified Hydrogeologist - California, 1995 (No. 79)
Registered Geologist - Arizona, 1989 (No. 23684)
Certified Petroleum Geologist - AAPG, 1986 (No. 2977)

Affiliations

American Association of Petroleum Geologists (Environmental Issues Committee)
Geological Society of America (Hydrogeology and Engineering Geology Divisions)
National Water Well Association
American Society of Testing and Materials (Committee on Environmental Assessment)

Professional Experience

Dr. Lister has 30 years of professional experience in geology and hydrogeology. His experience includes groundwater investigations at active and inactive industrial facilities; active, inactive, and planned solid waste disposal sites; and state and federal Superfund sites. Projects in which Dr. Lister has participated include the following:

- Landfill closure projects, including studies of geologic conditions, evaluation of existing cover and other containment systems, and preparation of permit documents. Project work has involved close cooperation with design staff, regulatory agency personnel, landfill owners, and community representatives.
- Investigations of surface and groundwater quality at landfills, including design of groundwater monitoring systems, direction of well drilling and installation, sampling and analysis, interpretation of data, and preparation of reports.

KENNETH H. LISTER, Ph.D., C.E.G., C.H.G. (continued)

- laboratory tests; determination of well location and spacing by means of capture zone analysis; preparation of remedial action plans, including specifications for extraction and air sparging wells; and determination of operations, maintenance, and test programs.
- Studies of proposed sites for new landfills, including hydrogeological assessments of sites for protection of water quality. Work included installation of monitoring wells, groundwater sampling on a local and regional basis, conducting aquifer tests, and descriptions of groundwater regimes for environmental evaluation and permitting.
- Investigation of vadose and saturated zone contamination at industrial sites throughout Southern California, including Remedial Investigations (RI) and Feasibility Studies (FS).
- Research into state-of-the-art groundwater investigation techniques and management of field investigative projects, resulting in preparation of journal articles, reports, and guidance documents on the practical application of these techniques.
- Investigation of groundwater flow patterns in relation to migration of hydrocarbons, including regional subsurface studies of variations in permeability and porosity, potential migration pathways, and geochemical and geophysical indications of migration.

Specific projects that Dr. Lister has been involved with at SCS include the following:

- Technical Advisor for multi-year groundwater monitoring at the El Sobrante, Nu Way (Arrow and Live Oak) and Bradley Landfills in Riverside and Los Angeles Counties. The projects have involved data collection and document preparation for evaluation monitoring programs, engineering feasibility study, and corrective action. At El Sobrante, SCS also prepared an amendment to the Joint Technical Document and implemented corrective action for groundwater.
- Technical Advisor for multi-year groundwater monitoring at the Altamont, Tri-Cities, and Redwood Landfills in Alameda and Marin Counties. The projects have involved data collection and interpretation and document preparation for detection and evaluation monitoring programs. At Altamont, SCS designed and implemented corrective action modifications for groundwater.
- Technical Advisor for statistical analysis of groundwater data from the Brand Park Landfill, Glendale, California.
- Technical Advisor for groundwater assessment for the Valley Development Company, City of Industry, California.
- Project Manager for closure of the Miller Way Landfill in South Gate, California.

KENNETH H. LISTER, Ph.D., C.E.G., C.H.G. (continued)

- Project Manager for groundwater monitoring system design and permit compliance for a drinking water treatment sludge monofill for the Metropolitan Water District of Southern California.
- Project Manager for hydrogeological, topographical, and public safety aspects of CEQA compliance and expansion design for the Prima Deshecha Landfill in southern Orange County, California.
- Preparation of groundwater monitoring aspects of the final closure and post-closure plan for the Santa Maria Landfill operated by the City of Santa Maria.
- Task Manager for cover sampling and geotechnical testing for redevelopment activities at the closed Sheldon Arleta Landfill in Los Angeles.
- Hydrogeological review of the Lopez Canyon Landfill operated by the City of Los Angeles, including review of post-closure monitoring plans and preparation of a facilities evaluation document for the local community group.
- Hydrogeological and other geological tasks for closure of the Bishops Canyon Landfill for the City of Los Angeles. This landfill was redeveloped as a mixed-use recreational facility by the City.
- Hydrogeological and other tasks for development of a contingency plan for the closed 28th Street Landfill, Sacramento, California.
- Technical reviewer for groundwater assessment at the Healdsburg Disposal site in Sonoma County, California.
- Technical reviewer for groundwater monitoring at the Loomis and Meadow Vista Landfills in Placer County, California.
- Project Manager for technical oversight for feasibility study and conceptual design of landfill closure for Nanji Island Landfill, the principal municipal solid waste facility in Seoul, South Korea. Tasks included conducting an intensive week-long session in Seoul for Daewoo Engineers to develop concepts and determine final closure design recommendations.
- Task Manager for geological and hydrogeological aspects of landfill permitting and California Environmental Quality Act (CEQA) compliance for the Eagle Mountain project, a proposed 100-year-life, rail-haul landfill in central Riverside County.
- Project Manager for groundwater monitoring and permitting of the Peck Road Gravel Pit solid waste disposal facility in Monrovia. In addition, plans were prepared and

KENNETH H. LISTER, Ph.D., C.E.G., C.H.G. (continued)

construction oversight was provided for the clean closure of the adjacent San Marino Landfill, which has been incorporated into the Peck Road site.

- Project Manager for permitting/notification of a limited-volume transfer station in Lakewood, California.
- Technical Advisor for post-closure and redevelopment activities at the Lane Road Disposal Station in Irvine, California, and the BKK Main Street Landfill in Carson, California.
- Project Manager for closure, including design of groundwater monitoring systems at several waste management units in California, including the North Chollas Landfill in San Diego, Maxson Street Landfill in Oceanside, the Kaiser Tailings Ponds in Riverside County, and Duck Pond Landfill in National City.
- Project Manager for Water Quality Solid Waste Assessment Test (SWAT) investigations in California, including a Ford Motor Company truck storage site in Carson, the Kaiser East Slag Pile Landfill in Fontana, Peck Road Gravel Pit in Monrovia, Berkeley City Landfill, and others.
- Task Manager for geological and hydrogeological aspects of siting for a rail-haul landfill at a mine site in the Cargo Muchacho Mountains in southeastern Imperial County, California.
- Project Manager for Expanded North County Landfill Siting Study carried out for the County of San Diego. Landfill sites were identified and ranked, based on geological, hydrogeological, and engineering criteria.
- Project Manager for permit compliance for proposed expansion of the Imperial County Sanitary Landfill. Project involved preparation of Report of Waste Discharge, Periodic Site Review, Report of Disposal Site Information, Water SWAT Proposal, and CEQA documents.
- Technical Advisor for closure of a portion of the Waterman Landfill in San Bernardino, California.
- Technical Advisor for corrective action to correct leachate migration at the Mid-Valley Landfill in Colton, California.
- Task Manager for design of groundwater monitoring system for western expansion of West Miramar Landfill, San Diego, California.

KENNETH H. LISTER, Ph.D., C.E.G., C.H.G. (continued)

- Project Manager for remedial action for Kaiser Ventures facilities. For the former Kaiser Steel plant in Fontana, a two-phase remedial investigation was carried out and the final report accepted by the California State Environmental Protection Agency, Department of Toxic Substances Control (DTSC). Three parts of a four-part feasibility study has been completed and approved by the DTSC. Remedial action plans have been prepared and accepted for two of four operable units on the 1,100-acre site, and remedial action has been completed for one approximately 500-acre unit. A number of individual soil, groundwater, and waste investigations, including treatability studies, risk assessments, remedial action plans, and hydrogeological studies have been carried out, including those related to closure of a 40-acre landfill containing industrial sludges with hazardous levels of trace metals.
- Project Manager for well investigation program compliance under Regional Water Quality Control Board (RWQCB) oversight at Dri-Powr, California Hydroforming, IDA/Burbank Partners, and other facilities in the San Fernando Valley and San Gabriel Valley Superfund areas.
- Task Manager for air sparge pilot testing at the Golden Eagle refinery site in Carson, California. Pilot testing of an air sparge system for groundwater remediation was used to determine concept effectiveness, radius of influence, air injection pressures and flow rates, and other parameters for scale-up design. Dr. Lister also provided input to free product recovery and vapor extraction design.
- Project Manager for hydrogeological assessment, groundwater monitoring and water injection system design, water treatment design, and water quality and flow monitoring for the Morena Boulevard sewer interceptor construction in San Diego. During trenching and dewatering activities for this project, gasoline-contaminated soil and groundwater were encountered. Subsequently, remedial design was instituted to control contaminant plume migration and to treat pumped groundwater prior to discharge.
- Project Manager assigned to hydrogeological assessment and remedial design for treatment of groundwater at the Del Norte Superfund site in Crescent City, California.
- Author of major portions of a state-of-the-art review of hazardous waste disposal, entitled "Industrial Waste Disposal in the 1950s," for the California State Attorney General. This study included investigation and comparison of contemporary siting studies carried out at the Stringfellow, Omar Rendering, Otay Mesa, Palos Verdes, and BKK (West Covina) Class I sites, with particular reference to evaluation of pre-siting hydrogeological studies.
- Author of groundwater monitoring section of Procedural Guidance Manual for Sanitary Landfills prepared by SCS for the California Waste Management Board.

KENNETH H. LISTER, Ph.D., C.E.G., C.H.G. (continued)

Prior to joining SCS, Dr. Lister was District Geologist for Pennzoil Exploration and Production Company. He was in charge of petroleum exploration in eastern Texas, northern Louisiana, Arkansas, Mississippi, Alabama, Florida, and Georgia. Dr. Lister managed a drilling budget, which averaged \$2 million per year, and directed a staff of eight geologists. In addition to his work throughout California and the Gulf Coast, Dr. Lister has been involved in projects in Arizona, Utah, Nevada, Kansas, New York, South Korea, British Columbia, Bermuda, the Bahamas, and Mexico.

Publications

Clements, S., and K. H. Lister. Closure of a Site Used for Collection of Waste Pesticides and Mixing of Rodenticide Baits. West Coast Conference on Contaminated Soils and Groundwater. Abstracts. 1998.

Devinny, J. S., J. April, D. F. Buss, C. Johnson, K. Khan, K. H. Lister, J. A. Nuno, P. S. Sullivan, M. Tagoe, and D. P. Williams. The ASCE Draft Environmental Site Remediation Manual. Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management. Vol. 1. 1997.

Kern, J. P., J. C. Grimmer, and K. H. Lister. A New Fossil Spionid Tube, Pliocene and Pleistocene of California and Baja California. Jour. Paleontology, Vol. 48, No. 5. 1974. p. 978-982.

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Lister, K. H. Diversity Changes in a Quaternary Lacustrine Ostracode Community from the Great Salt Lake Basin, Utah. Geol. Soc. America Abstracts, Vol. 6, No. 2. 1974. p. 114.

Lister, K. H. The Significance of Temporal Changes in a Lacustrine Ostracode Community from the Great Salt Lake Basin, Utah. Presented at the Paleontological Society Symposium: Structure and Classification of Ancient Communities. Geol. Soc. America Abstracts, Vol. 6, No. 7. 1974. p. 847-848.

Lister, K. H. Quaternary Freshwater Ostracoda from the Great Salt Lake Basin, Utah. Univ. Kansas Paleont. Contr. Paper 78. 1975. 34 p.

Lister, K. H. The Significance of Temporal Changes in a Pleistocene Lacustrine Ostracode Association from the Great Salt Lake Basin, Utah. Structure and Classification of Paleocommunities, R. W. Scott and R. West (eds.), Dowden, Hutchinson, and Ross. 1976. p. 192-211.

KENNETH H. LISTER, Ph.D., C.E.G., C.H.G. (continued)

Lister, K. H. Paleocology of the Miocene Barstow Formation Insect Fauna, Calico Mountains, California. American Assoc. Petroleum Geologists Bulletin, Vol. 65, No. 5. 1981. p. 949 (Abstract).

Lister, K. H. Planning Ground Water Monitoring Field Projects. Ground Water Monitoring Review, Vol. 9, No. 3. 1989.

Lister, K. H., and B. Garbaccio. A Resource for Solid Waste Disposal, Southern California. Geological Society of America, Abstracts with Program, Annual Meeting. 1990. p. A376.

Lister, K. H., and T. A. Shuput. Post Closure Maintenance and Monitoring for the City of Berkeley Landfill, an Integrated Approach. Presented at Meetings of the Solid Waste Association of North America. 1992.

Lister, K. H., and A. S. Childress. Negotiating the Preliminary Endangerment Assessment Process. Presented at the Annual West Coast Conference on Hydrocarbon Contaminated Soils and Ground Water Conference Presented by the Association for the Environmental Health of Soils. To Be Published in Hydrocarbon Contaminated Soils, Vol. 4. 1993.

Lister, K. H., and B. Garbaccio. Contingency Planning for Utility Construction Through an Area Containing a Preexisting Gasoline Plume, San Diego, California. Presented at the Annual West Coast Conference on Contaminated Soils and Ground Water Conference Presented by the Association for the Environmental Health of Soils. To Be Published in Hydrocarbon Contaminated Soils, Vol. 5. 1994.

Lister, K. H. Fast-Track Remediation for Redevelopment of a Former Integrated Steel Mill Site, Fontana, California. Remediation, Vol. 6. 1996.

Reis, R. H., K. H. Lister, and D. E. Roberson. Investigation and Remediation of the Former Expo '86. Hazardous Materials Control Research Institute. Proceedings of Research and Development Conference. 1991.

Lister, K. H. Evaluation of Remediation Alternatives. Presented at Convergence 2000, American Society of Civil Engineers. 2000.

LENARD D. LONG, P.E.
Project Director

Education

B.S. - California State University, Chico, Civil Engineering, 1976
Postgraduate Studies - California State University, San Jose, Soil Engineering, 1978-79

Professional Licenses and Certifications

Civil Engineer - California
Geotechnical Engineer - California
General Engineering Contractor (Class A) with HazMat Handling Certification

Professional Affiliations

American Society of Civil Engineers (ASCE)
National Water Well Association (NWWA)

Professional Experience

Mr. Long has a 27 year record of successfully managing environmental, geotechnical and construction projects. His experience includes the management of multi-disciplined technical staff for regulatory compliance issues, investigations, feasibility studies, systems design, operations and maintenance. His experience also includes monitoring and remedial construction for projects ranging in size up to \$20 million dollars. His dedication to client service, teamwork, and providing value has earned him a coveted professional reputation as a person who can identify client needs and get the job done right the first time.

Contractor and/or Construction Management--

Mr. Long is a licensed contractor with hazardous material handling certification in California for 14-years. During that time, he has managed multi-million dollar construction projects and removed many thousands of cubic yards of contaminated soil and dozens of underground storage tanks. A few notable projects follow:

- Construction Manager for a \$2.2 million landfill closure in Union City. The project included mass waste excavation, earth moving and grading, hazardous materials management, multi-liner cap installation (soil and HDPE membrane) and installation of erosion control measures.
- Deep Soil Mixing using augers with cement injection to stabilize hazardous soils 50 feet deep was designed and managed by Mr. Long on a site in Los Angeles. The system

LENARD D. LONG, P.E. (continued)

saved hundreds of thousands of dollars over conventional shoring, excavation and disposal of hazardous waste.

- Designed and constructed a 50-foot deep excavation for the Los Angeles Center development removing 50,000 cy soil, of which 2,000 cy was fuel-impacted, in downtown Los Angeles. The work involved many meetings with multi-party, multi-consultant and multi-legal council, on a very visual and sensitive site subject to development of a skyscraper. The impacted soil was landfarmed onsite and then removed.
- Designed and performed above ground bioremediation (landfarming) of 2,000 cubic yards of diesel impacted soil, Catellus Corp., Huron, California. The treatment included irrigation management, nutrient addition and periodic soil mixing.
- Designed and construction management of a dioxin plume encapsulation system, consisting of a 35 foot deep slurry trench with HDPE barrier liner and multi-media cap at a State Superfund site, Port of Oakland, California. Mr. Long changed the initial feasibility study design to one that was more practical and constructable, thus saving the client over a half million dollars.
- Designed and constructed an enhanced in-situ bioremediation treatment system for a fuel hydrocarbon spill. The system consisted of groundwater extraction and re-injection using hydrogen peroxide as the oxygen source for a redevelopment site in San Jose.
- Performed the surgical removal of hydrocarbon-impacted soil, the impacted soil was located from 60 to 80 feet below the ground, using large diameter augers for Ace Oil State Superfund, Galt, California. Using large diameter drilling techniques to remove the impacted soil allowed removal without massive excavation and shoring, thereby saving hundreds of thousands of dollars.
- Mr. Long has significant hands-on experience and training in kinetics and chemistry of explosives, recognition/classification, safe handling/remote removal procedures and remediation (destruction, chemical stabilization and bioremediation). He was the responsible engineer and contractor on a \$2 million dollar removal of 2,000 DNT & TNT barrels and drums located in solid waste landfill at an explosive site in the State of Washington. He also provided consultation for the assessment of a 1,000-acre explosive manufacturing site in Colorado that contained acid spills, nitroglycerin, PETN, black powder, etc. Has been involved with State Superfund and RCRA remedial investigation, feasibility studies, and corrective actions in the States of Montana, Colorado and Washington.
- Contractor for a mile long Bunker C fuel pipeline removal and decontamination project, DuPont, Washington

LENARD D. LONG, P.E. (continued)

Landfill and Geotechnical Engineering:

Mr. Long has been responsible for hundreds of geotechnical investigations involving hazards such as landslides, erosion problems, refuse, collapsible soil, soft Bay Mud, liquefaction, highly expansive soil conditions, and over-steep landfill slopes. A few notable projects are identified below:

- Geotechnical/slope stability analysis in support of re-grading of industrial waste landfill slopes for closure, U.S. Pipe Landfill, Union City. The work included a field investigation, lab analyses of soil and waste samples, a deep-seated pseudo-static, and dynamic deformation slope stability and veneer slope stability analysis.
- Geotechnical investigation in support of pile foundation system for landfill gas flare and condensate equipment, YSDI Landfill, Marysville.
- Geotechnical/slope stability analysis in support of final closure of Class III Lewis Road Landfill, Monterey County. The work included a field investigation, lab analyses of soil and waste samples, and slope stability and veneer slope stability analysis.
- Geotechnical Engineer for PG&E's Drum Reservoir sediment removal project, Placer County. A reservoir sediment removal study was completed which led to the design of a 50-foot high earthen sediment retention dam. The study involved offshore sediment drilling, sampling, gold assay and economic evaluations, 300,000 cu yd of sediment removal, retention dam construction, area drainage improvement and construction monitoring.
- Geotechnical consultant for redevelopment of the Ascon Landfill and City of Orange Landfill, both in Southern California. Work included review of site grading, differential settlement, surcharge and surface paving and details.
- Geotechnical Consultant on the Federal Courthouse excavation-dewatering project for Southern Pacific Railroad located in Sacramento, California. This project included groundwater modeling, flow characteristics, and predictive impact of local chemicals in groundwater. He developed groundwater treatment scenarios for contingency implementation if the events that impacted groundwater chemicals were beyond discharge requirements.
- Geotechnical Engineer for design of erosion control and countermeasures for a 50,000 cy earth flow at Camp San Luis Obispo. The studies included hydraulic and slope stability calculations, sediment retention basin and earth structure's design. In addition, he is the erosion control consultant for four mine reclamation projects at the Camp. The mines have both adverse erosion and metals impacts to nearby streams. Mr. Long is the technical consultant to the US Army Corps of Engineers and California National Guard.

LENARD D. LONG, P.E. (continued)

- Geotechnical and construction consultant for the design and installation of a 60-foot deep soil mixing chemical barrier wall installed by GeoCon at the Sacramento rail yard. Included in the project were design drawings, specification, contracting, permitting, and construction performance monitoring.
- Responsible engineer for hundreds of geotechnical investigations, foundation designs and earthwork construction. Geotechnical projects varied from retaining walls to 9-story hotels to 1- million cubic yard slope stability studies and mass grading, moving millions of cubic yards of earth.
- Geotechnical Engineer for corrective measures on the Pittman Canal landslide and erosion from storm damage of 1985. Landslide damage included I million cubic yards of earth flow materials. Corrective measures included regrading, gabion wall construction, subdrainage and slope flattening.

Environmental Engineering--

Managed a \$2 million multi-chemical groundwater treatment system design along with its construction on a 100-acre Chemical Plant in Antioch, California. The system included co-mingling plumes, twenty cluster wells, 200 gpm air stripping tower with aqueous phase carbon polishing and vapor phase carbon off-gas treatment. Using steam, the vapor phase carbon unit was designed for onsite regeneration.

Managed the groundwater and vapor extraction systems Operation and Maintenance Program, (\$1 million annual budget), for Southern Pacific Railroad in Sacramento, California. This program included multi-phase extraction systems, catalytic off-gas treatment, off-gas scrubbing, and groundwater air stripping and carbon treatment.

At numerous sites throughout California, Mr. Long has managed underground storage tank remediation programs for Unocal and Conoco Oil Companies. The multi-million dollar programs included setting strategy, agency negotiation, site investigations, feasibility studies, remedial action plans, treatment system implementation, operation and maintenance, and quarterly monitoring. Remediation included pump and treat, vacuum extraction, sparging, bioremediation, dig and haul, etc.

Mr. Long is the lead remediation engineer and contractor at several AgChem sites throughout the Central Valley. The former PureGrow sites have remediation programs that include pesticide removal, tank removals, and phytoremediation at two sites with high nitrates. As the remediation engineer and contractor, his responsibilities include design of systems, workplan preparation, implementation of the remedy, and operation and maintenance of systems.

STEVEN M. HAMILTON, R.E.P.

Project Director

Education

B.S. - University of Florida
Zoology/Environmental Studies

M.S. - University of San Francisco
Environmental Management (ABT)

Summer Study Program - Adama Mieckiewicz University, Poznan, Poland

Professional Certifications

Registered Environmental Professional (No. 2671) - National

Professional Affiliations

Solid Waste Association of North America (SWANA)

Professional Experience

Mr. Hamilton has over 24 years of environmental project experience, with particular emphasis in solid waste management. Mr. Hamilton's project experience ranges from hands-on participation in field and design work to direction of solid waste management projects. This work has involved over 380 projects on more than 260 sites throughout the United States and in Brazil, Colombia, Egypt, India, Jamaica, Mexico, Poland, and Puerto Rico. His project responsibilities have included solid waste planning, solid waste privatization, landfill siting, design, and operations and closure permits and plans; landfill contamination assessments and remedial actions; landfill leachate monitoring and treatment system design; landfill groundwater and LFG monitoring programs; landfill Clean Air Act (CAA) compliance; LFG-to-energy recovery feasibility due diligence, studies, and investigations; and the testing, design, installation, and operation of LFG recovery and migration and emission control systems.

Mr. Hamilton previously served as Director of SWANA International's Landfill Gas Training Program. He has extensive experience in providing solid waste training and education at numerous venues in the United States, and in Egypt, Poland, Mexico, and Jamaica.

Some of the projects in which he has been involved include:

Waste Planning and Management--

- Managed the development of a "How-To Privatize" procedural manual to be used by Egyptian Governorates in privatizing their solid waste management systems. Subjects covered include: Introduction to Privatization, Solid Waste Planning, Solid Waste Financial Management, Contractor Pre-Qualification, Tendering and Contracting, Contract Monitoring, Public Awareness and Communications, and Residential and

STEVEN M. HAMILTON, R.E.P. (continued)

Commercial Solid Waste Collection. Disseminated the privatization manual to the Egyptian Environmental Affairs Agency (EEAA) and all 26 Egyptian Governorates in a series of workshops held throughout Egypt. The project was funded by the United States Agency for International Development (USAID).

- Managed the development of an additional eight chapters of the “How-To Privatize” procedural manual to be used by Egyptian Governorates in privatizing their solid waste management systems. Subjects covered include: Construction and Demolition Debris Management, Industrial Waste Management, Medical Waste Management, Street Sweeping and Public Facility Cleaning, Waste Transfer, Composting, Waste Reduction and Recycling, and Landfill Development, Operation, and Closure. The project was funded by USAID.
- Provided solid waste privatization assistance to the Governorates of Alexandria, Cairo, and Qalyubiya, Egypt. Activities performed included training, review and ranking of responses to previously prepared Requests for Qualifications (RFQs), Request for Tender (RFT) preparation, assistance during the bidding process, Contract Monitoring Plan preparation, and landfill siting recommendations. The project was funded by USAID.
- Prepared training specifications for and conducted a study tour with eight Egyptian solid waste managers to the International Solid Waste Association 2002 World Environment Congress and Exhibition in Istanbul, Turkey. The project was funded by USAID.
- Provided assistance to the Hillsborough County Department of Solid Waste, Tampa, Florida in the solicitation and selection of a private company to manage the County’s solid wastes.
- Directed the preparation of an offer statement to solicit financing for new energy projects resulting in a term sheet from a major international lender.
- Assisted in restructuring a municipal bond used to finance an alternative energy facility in Texas.
- Prepared technical specifications for Tender Documents for the privatization of solid waste management services for the Governorates of Cairo and Qalyubiya, Egypt. Reviewed responses to the previously prepared Requests for Qualifications (RFQs), and ranked the respondents.
- Preparation of Requests for Proposals (RFPs), Requests for Bids (RFBs), and other tender documents for numerous public sector clients for various solid waste service, professional, development, and/or construction services, including privatization of refuse collection and disposal services.

STEVEN M. HAMILTON, R.E.P. (continued)

Landfill Engineering--

- Design of a remediation of a major landfill slope failure for the Doña Juana Landfill in Santafe de Bogotá, Colombia. Over 1,000,000 metric tons of waste slid out of the canyon landfill in September 1997, traveling over 2 kilometers, and dropping over 600 meters. The landfill dammed a river at the base of the canyon and partially filled a quarry on the opposite side of the river. The remedial design consisted of dewatering the existing landfill and slides, closing a portion of the slide in place, and removal of the lower portions of the slide to a new disposal area. The design also included LFG management facilities for the landfill and a wetlands treatment system for leachate management.
- Evaluation of leachate collection and treatment options for the Prados de la Montaña Landfill in Mexico City, Mexico. The site, closed in 1996, has an estimated 528,000,000 gallons of stored leachate.
- Overall continuing landfill engineering and consulting services at the Southeast, Northwest, Hillsborough Heights, Gunn Highway, Pleasant Grove, Morris Bridge, Leto High School, Barry Road, and Taylor Road Landfills in Hillsborough County, Florida for the Hillsborough County Department of Solid Waste. Tasks performed included evaluation of leachate quantities, design of a leachate treatment facility, solid waste projections and landfill operating plan, ecological, geotechnical, and hydrogeological site investigations for the design and permitting of a new municipal solid waste (MSW) landfill; on-going consulting for the operation and redesign of two LFG control facilities; construction management of a construction and demolition debris (C&D) landfill closure; drainage improvements at two MSW landfills; retro-fitting a leachate collection system; preparation of a Request for Proposal (RFP) for LFG recovery and utilization at two MSW landfills; development of a LFG migration monitoring system and Action Plan at an inactive landfill developed into residential property; development of an Interim Remedial Action Plan (IRAP) at an inactive oil sludge disposal site; development of Preliminary Contamination Assessment Plans and Reports (PCAPs and PCARs), CAPs, and CARs at various closed, inactive landfills, and coordination with the U.S. Army Corps of Engineers (U.S. COE), and state and local environmental regulatory agencies.
- Landfill permitting and engineering services for DeSoto County, Florida. Tasks performed included preparation of the application for renewal of the operational permit for the Section 16 Landfill; reparation of a closure permit for a portion of the Section 16 Landfill; and preparation of a operations permit for a waste tire facility; conceptual designs for leachate, stormwater, and LFG management systems; and development of a Site Master Plan that compared nine different options for continuing to operate the landfill with an option for closing the site and exporting solid wastes out-of-county.

STEVEN M. HAMILTON, R.E.P. (continued)

- Landfill engineering and consulting services for Escambia County, Florida. Tasks performed included a regulatory compliance and operational assessment of the Perdido Landfill; the preparation of the application for renewal of the operational permit for the Perdido Landfill which includes MSW and C&D landfills, design of a C&D landfill, as well as designs for leachate, stormwater, and landfill gas management systems.
- Landfill engineering, permitting, and consulting services for Frontier Recycling, Inc. The client purchased an existing construction and demolition (C&D) debris transfer station and recycling facility in Largo, Florida. Upon closure of the sale, the client expanded the existing recycling and transfer operations and added a C&D landfill.
- Treatment feasibility studies, design, permitting, and engineering services during construction for a 60,000 gallon-per-day (gpd) leachate treatment facility at the Southeast Landfill, Picnic, Florida for the Hillsborough County Department of Solid Waste. The leachate treatment system uses a powdered activated carbon treatment system with nitrification/denitrification and chlorination to treat the leachate. Treated effluent is spray irrigated onto closed portions of the landfill to support the vegetative cover.
- Conduct and review of geotechnical, hydrogeological, and ecological studies for the siting of a new MSW landfill in Hillsborough County, Florida for the Hillsborough County Department of Solid Waste.
- Preliminary design of a new MSW landfill in Hillsborough County, Florida for the Hillsborough County Department of Solid Waste.
- Preparation of an application for renewal of an operating permit for the Southeast Landfill, Picnic, Florida for the Hillsborough County Department of Solid Waste.
- Preparation of an application for renewal of an operating permit for the Section 16 Landfill, Nocatee, Florida for DeSoto County, Florida.
- Preparation of an application for renewal of an operating permit for the Perdido Landfill, Cantonment, Florida for the Escambia County Solid Waste Department.
- Preparation of closure design and closure permit application for the Lady Lake Landfill, Lady Lake, Florida for Lake County, Florida.
- Preparation of closure design and closure permit application for the Beulah Landfill, Beulah, Florida for the Escambia County Solid Waste Department.
- Preparation of closure design and closure permit application for the Section 16 Landfill, Nocatee, Florida for DeSoto County, Florida.

STEVEN M. HAMILTON, R.E.P. (continued)

- Preparation of an application for renewal of a closure permit for the Hillsborough Heights and Taylor Road Landfills, Seffner, Florida for the Hillsborough County Department of Solid Waste.
- Engineering services during construction of the closure of the Northwest Landfill, Tampa, Florida for the Hillsborough County Department of Solid Waste.
- Design, installation, and sampling of a leachate monitoring system at the North Waterfront Park Landfill, Berkeley, California for the City of Berkeley.
- Closure/post-closure plans for the Clipper Creek Landfill, Placer County, California for a private client.
- Closure/post-closure plans for the Laguna Seca Landfill, Monterey, California for the Monterey Regional Waste Management District.
- Groundwater assessment program at the Laguna Seca Landfill, Monterey, California for the Monterey Regional Waste Management District.
- Groundwater assessment program at the San Andreas Burn Dump, Calaveras County, California for Calaveras County.
- Groundwater assessment program at the Angels Camp Burn Dump, Calaveras County, California for Calaveras County.
- Market study for an east central Alabama landfill for a private firm interested in buying the landfill.

Solid Waste/Ecological Studies--

- Wetlands delineation and endangered and threatened species surveys for the siting of a new MSW landfill for the Hillsborough County Department of Solid Waste. The wetlands investigation included identification and mapping of U.S. Army Corps of Engineers, Florida Department of Environmental Protection, Southwest Florida Water Management District, and Environmental Protection Commission of Hillsborough County jurisdictional wetlands on the 700+ acre site.
- Peer review of the proposed Phosphogypsum Management Rule, 17-673, Florida Administrative Code for the Florida Department of Environmental Protection. Activities included peer review of reports regarding design recommendations and groundwater impacts from phosphogypsum disposal stacks; modeling of phosphogypsum stack hydraulic performance characteristics; and peer review of alternative phosphogypsum stack bottom liner systems designs.

STEVEN M. HAMILTON, R.E.P. (continued)

- Assistance to the Florida Department of Environmental Protection in developing strategies for the management of oil spill cleanup debris.
- A preliminary industrial hygiene investigation into potential sources of hypersensitive pneumonitis in site employees at the San Mateo Composting Facility, San Mateo, California for the City of San Mateo.
- Field supervisor for several revegetation/habitat mitigation projects in Florida for various clients.

Environmental Investigations--

- Third-party review of a Remedial Investigations/Feasibility Study (RI/FS) conducted at the Taylor Road Landfill, Seffner, Florida (U.S. Environmental Protection Agency [U.S. EPA] Region 4) for the Hillsborough County Department of Solid Waste.
- Development of an Interim Remedial Action Plan (IRAP) for an area of exposed oil sludges that oozed out of the closed Pleasant Grove Landfill, Plant City, Florida onto a county road right-of-way for the Hillsborough County Department of Solid Waste.
- Development of Preliminary Contamination Assessment Plans and Reports (PCAPs and PCARs), CAPs, CARs, and RAPs at various closed, inactive landfills in Florida for the Hillsborough County Department of Solid Waste.
- Remedial Investigations/Feasibility Study (RI/FS) confirmation studies at two hazardous waste sites in California (U.S. EPA Region 9): one for the U.S. Navy Facilities Engineering Command, Western Division, and the other for a private client.
- Design, installation, and monitoring of a meteorological station at a hazardous waste site in Kuparek, Alaska for a private oil company.

Solid Waste Training and Education--

- Served for 5 years as the Director of SWANA's Landfill Gas Management Training Program. As Director, coauthored the "Solid Waste Association of North America Course Manual for Managing Landfill Gas at Municipal Solid Waste Landfills, Edition 2," and serve as Course Director and instructor at numerous presentations of the Training Program nationwide.
- Conducted U.S. Environmental Protection Agency (U.S. EPA) Landfill Methane Outreach Program (LMOP) Workshops in Warsaw, Poland, and in Houston, Texas.

STEVEN M. HAMILTON, R.E.P. (continued)

- Served as Training Committee Chairperson for the Florida Sunshine Chapter of SWANA. As Training Committee Chair, developed and presented numerous solid waste continuing education programs.
- Participated in the development and presentation of a 5-day Municipal Solid Waste Management Course in Kingston, Jamaica for the U.S. Environmental Training Institute and the Jamaica Natural Resources Conservation Authority.
- Participated in the development and presentation of a 5-day Municipal Solid Waste Management Course in Ciudad Juarez, Chihuahua, Mexico for the U.S. Environmental Training Institute.
- Served as an instructor for the State-of-Florida required Landfill Operators Training and Certification Program.
- As a member of the faculty of the University of Florida's Center for Training, Research and Education for Environmental Occupations (TREEO), served in curriculum development and as an instructor for TREEO's Landfill Design Series Course.
- Developed a 1-day LFG Training Program for the Air and Waste Management Association.

Publications and Presentations

Hamilton, S. M., Perkins, R. A., Weitting, N., and Larochele, L., "Solid Waste Management Privatization Procedural Manual," Chapters 9 through 16, Published by the Egyptian Environmental Policy Program, October 2003. Presented to the Egyptian Environmental Affairs Agency and the Governorates of Egypt, October 7 through 15, 2003.

Hamilton, S. M. and Ellis, S. K., "Solid Waste Privatization in Egypt," Presented to the United Nations Development Programme Donor Advisory Group, Cairo, Egypt, June 25, 2003.

Hamilton, S. M., Perkins, R. A., Kane, H., Windolph, G., and Iskandar, L., "Solid Waste Management Privatization Procedural Manual," Chapters 1 through 8, Published by the Egyptian Environmental Policy Program, March 2003. Presented to the Egyptian Environmental Affairs Agency and the Governorates of Egypt, March 11 through 13, 2003.

Hamilton, S. M., "Solid Waste Privatization in Egypt," Presented to the Egyptian Ministry of State for Environmental Affairs and London University, Cairo, Egypt, December 10, 2002.

STEVEN M. HAMILTON, R.E.P. (continued)

Ellis, S. K., and Hamilton, S. M., "Solid Waste Privatization Workshop," Presented at Environment 2001, The Third International Conference and Trade Fair for Environmental Management and Technologies, Cairo, Egypt, October 30, 2001.

Hamilton, S. M., Janek, S., and Harrell, H. L., "Current Issues in Landfill Gas Management," Presented at the Solid Waste Association of North America's Annual Texas Chapter Meeting, Austin, Texas, January 25, 2000.

Hamilton, S. M., "Current Issues in Landfill Gas Recovery," Presented at the 15th International Conference on Solid Waste Technology and Management, Philadelphia, Pennsylvania, December 14, 1999.

Hamilton, S. M., "Landfill Gas as a Greenhouse Gas and Air Pollutant," Presented at the U.S. Environmental Protection Agency Region 6 Solid Waste Workshop, Dallas, Texas, June 1999.

Hamilton, S. M., "Case Studies an Clean Air Act Compliance for MSW Landfills," Presented at the Texas Natural Conservation Commission Environmental Trade Fair, Austin, Texas, May 1999.

Hamilton, S. M., "Current Issues in Landfill Gas Recovery," Presented at the Louisiana Department of Environmental Quality's Annual Environmental Conference, Lafayette, Louisiana, March 1999.

Hamilton, S. M., "Current Issues in Landfill Gas Recovery," Presented at the Solid Waste Association of North America's Annual Texas Chapter Meeting, Houston, Texas, February 1999.

Hamilton, S. M., Vargas-Reyes, D., and Kolb, W. W., "Remediation of a Major Landfill Slope Failure in Bogotá, Colombia," Proceedings of the Solid Waste Association of North America's 36th Annual International Solid Waste Exposition, Charlotte, North Carolina, October 1998.

Albert, R. L., and Hamilton, S. M., "Implementation of the New Source Performance Standards and Emission Guidelines at Municipal Solid Waste Landfills – Two Years Experience," Presented at the Solid Waste Association of North America's 21st Annual Landfill Gas Symposium, Austin, Texas, March 1998.

Hamilton, S. M., Campbell, A., and Beizer, M. B., "Sources and Remediation of Landfill Volatile Organic Compounds in Groundwater," Presented at the 11th Annual Municipal Solid Waste Management "Options for Texas" Conference, Austin, Texas, February 1998.

STEVEN M. HAMILTON, R.E.P. (continued)

Hamilton, S. M. and Gardner, R. B., "Remedial Strategies for Landfills in Developing Nations," Proceedings of the 13th International Conference on Solid Waste Technology and Management, Philadelphia, Pennsylvania, December 1997.

Hamilton, S. M., and Albert, R. L., "Landfill Gas Management," Presented at the 13th International Conference on Solid Waste Technology and Management, Philadelphia, Pennsylvania, December 1997.

Albert, R. L. and Hamilton, S. M., "Air Regulations Affecting Landfills," Presented at the North Central Texas Council of Governments' Solid Waste Workshop, Arlington, Texas, February 1997.

Hamilton, S. M., Gardner, R. B., and Ruiz, L. E., "Remedial Strategies for Landfills in Developing Nations," Presented at the 10th Annual Municipal Solid Waste Management "Options for Texas" Conference, Austin, Texas, December 13, 1996.

Poe, D. E., and Hamilton, S. M., "The Use of Engineered Lightweight Fill for Landfill Cover Remediation," Presented at the 10th Annual Municipal Solid Waste Management "Options for Texas" Conference, Austin, Texas, December 12, 1996.

Hamilton, S. M., Albert, R. L., and Steele, J., "Air Regulations Affecting Landfills," Presented at the 10th Annual Municipal Solid Waste Management Options for Texas Conference, Austin, Texas, December 11, 1996.

Vogt, W. G., Peyser, T. R., and Hamilton, S. M., "Emissions Inventories for Municipal Solid Waste Landfills under Title V," Proceedings of the Environmental Industry Associations, National Solid Wastes Management Association WasteTech '96 Landfill Technology Conference, Haines City, Florida, February 6, 1996.

Hamilton, S. M., Walsh, J. J., and Vogt, W. G., "The Potential Human Health Risks and Mitigation Options Associated with Landfill Gas at Old, Closed Landfills," Presented at the Ninth Annual Municipal Solid Waste Management "Options for Texas" Conference, Austin, Texas, December 14, 1995.

Hamilton, S. M., Ruiz, L. E., and Gardner, R. B., "Remedial Strategies for the Riverton City Landfill," Presented at The First Solid Waste Management Conference - Challenges for Developing Counties, Kingston, Jamaica, September 22, 1995.

Hamilton, S. M., Nardelli, R., Castle, V. A., McGuigan, M. J., and Rice, F. R., "Solid Waste Association of North America Course Manual for Managing Landfill Gas at Municipal Solid Waste Landfills, Edition 2," Presented at numerous Solid Waste Association of North America (SWANA) Solid Waste Institutes, Conferences, Symposia, and Expositions nationwide.

STEVEN M. HAMILTON, R.E.P. (continued)

Hamilton, S. M., "Landfill Gas Collection Technologies and Collection for Energy Recovery and Utilization," Presented at the U.S. Environmental Training Institute/Natural Resources Conservation Authority's Municipal Solid Waste Management Course, Kingston, Jamaica, April 26, 1995.

Hamilton, S. M., Walsh, J. J., and Vogt, W. G., "Overview of the Proposed Clean Air Act Landfill Gas Rule and the Potential Impact on Landfill Owners and Operators," Presented at the Solid Waste Association of North America, North Carolina Chapter Fall Technical Seminar, Burlington, North Carolina, October 29, 1992; Presented at the Solid Waste Association of North America, Florida Sunshine Chapter Spring Seminar, Cocoa Beach, Florida, March 11, 1993; Proceedings of the Solid Waste Association of North America 16th Annual Landfill Gas Symposium, Louisville, Kentucky, March 1993; Proceedings of the Solid Waste Association of North America 31st Annual International Solid Waste Exposition, San Jose, California, August 1993; Proceedings of the Solid Waste Association of North America Annual Southeastern Regional Symposium, Myrtle Beach, South Carolina, November 1993; Presented at the Environmental Industry Associations, National Solid Wastes Management Association WasteExpo '94, Dallas, Texas, May 5, 1994; Presented at the North Carolina Chapter of the Solid Waste Association of North America's Annual Meeting and Solid Waste Seminar, Asheville, North Carolina, June 28, 1994; Proceedings of the Environmental Industry Associations, National Solid Wastes Management Association WasteTech '95, New Orleans, Louisiana, January 1995.

Hamilton, S. M., "University of Florida TREEO Landfill Design Series, Closure and Long-Term Care, Landfill Gas Collection System Design," Published in Volume 6 of the Course Manual, Presented May 6, 1993, and April 7, 1994, Orlando, Florida.

Hamilton, S. M., "University of Florida TREEO Landfill Design Series, Leachate and Gas Management Systems Design, Landfill Gas Management Course," Published in Volume 5 of the Course Manual, Presented April 16, 1992, May 5, 1993, and April 5 and 6, 1994, Orlando, Florida.

Walsh, J. J., Hamilton, S. M., and Vogt, W. G., "Application of New Source Performance Standards at Typical Landfill, Implementation, Schedule, and Costs," Proceedings of the National Solid Wastes Management Association WasteTech '94, Charleston, South Carolina, January 1994.

Gardner, R. B., Hamilton, S. M., Whitehead, L. K., and Berry, P. V., "Hillsborough County Leachate Treatment and Reclamation Facility," Proceedings of the Solid Waste Association of North America 30th Annual International Solid Waste Exposition, Tampa, Florida, August 1992.

AMBROSE A. McCREADY, P.E.

Project Director

Education

B.S. - California State University, Sacramento, Civil Engineering, 1972

Professional License

Registered Professional Engineer - California, Colorado, Washington

Professional Affiliations

American Society of Civil Engineers
Solid Waste Association of North America

Professional Experience

Mr. McCready has over 33 years of engineering design and construction experience. Throughout his career he has specialized in the planning, design and construction management of solid and hazardous waste landfills and earth structures including dams, waste holding and evaporation ponds. He is also experienced in the investigation, characterization and remediation of toxic and hazardous waste sites. He has provided engineering services to clients throughout the United States and several foreign countries. His experience in the areas of closed and active landfills is summarized below.

Closed and Active Landfills --

Mr. McCready is recognized for his expertise in the design and construction management of solid and hazardous waste landfills. During his career, he has provided technical guidance for handling of old burn dumps, closed landfills, and active landfills. He has served as project manager for landfill projects involving a full range of services including site investigation, remedial action feasibility studies, closure engineering, and post closure end use. Work under his direction has entailed:

- Burn Dump Closure, El Portal, California – 1994 to 1995. Project manager for the closure of a burn dump. Services included preparation of a final closure plan, plans and specifications, engineer's estimate, and Construction Quality Assurance (CQA) observation and testing during construction. The final cover system included consolidation of waste within a reduced footprint, an HDPE barrier placed over smooth graded waste and soil, a geotextile, an aggregate layer, and an asphalt surface. Performed CQA during construction and prepared construction CQA report. The finished cover was used as a maintenance yard for Yosemite National Park.

AMBROSE A. McCREADY, P.E. (continued)

- Burn Dump Litigation Support, Rocklin, California – 2000 to 2001. Provided solid waste technical support to attorneys defending the former owner of an old refuse burn dump and disposal site. The surrounding property was subsequently developed by new owners and landfill gas migration was a major issue.
- Burn Dump Closure EIR, Chico, California – 1997 to 1998. Provided technical support during preparation of the EIR for closure of the Chico Burn Dump. Reviewed the project scope and prepared project description sections for the closure. Provided technical consultation to the EIR consultant regarding impacts of consolidation of wastes, infiltration through the final cover, slope stability of the wastes, and shallow groundwater.
- Burn Dump and Landfill Closure, Eureka, California – 1997 to 2000. Project manager for preparation of a preliminary closure and post closure maintenance plan for a 32-acre burn dump and solid waste landfill in a wet climate. Prepared fill sequencing and final grading plans, computed annual site life and remaining capacity for three consecutive years of operation. Responded to agency comments and prepared cost estimates for closure and post closure maintenance.
- Landfill Investigation and Final Closure, Union City, California – 2000 to 2002. Provided technical guidance for field investigations, sampling, and analysis of onsite Class II waste materials. Oversaw preparation of final closure plan, design plans, specifications, and estimates for final closure of the waste landfill as a Class II landfill.
- Solid Waste Landfill Closure, Stanislaus County, California – 1996 to 1997. Served as project manager for the design of a final closure cover for the 18-acre LF-1 unit at Fink Road Landfill. Services included preparation of construction drawings, specifications, engineer's estimate and bid support in selecting a contractor to construct the cover. Performed CQA during construction and prepared the construction certification report. Completed in 1997.
- Solid Waste Landfill Closure, Contra Costa County, California – 1997 to 1998. Technical consultant to the Judicial Arbitration Mediation Services (JAMS) for obtaining contractor bids and selection of a contractor to implement the closure of the Acme Landfill. Developed contractor bid forms and rating criteria for selection. Prepared bid comparison summaries and looked at certain parts of the bids, such as insurance and landfill gas, in detail. Recommended contractor to JAMS for bid in the range of \$35 to \$40 million.
- Solid Waste Landfill Expansion, Stanislaus County, California – 1997 to 1998. Performed preliminary environmental constraints study for expansion of Fink Road

AMBROSE A. McCREADY, P.E. (continued)

Landfill. This work included development of preliminary site and landfill plans, design of drainage and water supply, review of environmental constraints, and evaluation of Kit Fox issues as an endangered species.

- Liner Design, Valencia, California – 1986 to 1988. Designed and directed construction observation of combined geomembrane and clay liner system with leachate collection and recovery system. The system was designed and constructed on an accelerated schedule.
- Solid Waste Landfill Expansion, Calaveras and Placer Counties, California – 1994 to 1995. Served as CQA officer for separate landfill expansion projects. Prepared construction certification report which documented field and laboratory testing, observations and modifications.
- Solid Waste Landfill Permit, Novato, California – 1994 to 1995. Prepared Report of Disposal Site Information, Report of Waste Discharge, and Preliminary Closure and Postclosure Maintenance Plan for a 420-acre MSW disposal site. Managed geotechnical, groundwater and storm water monitoring programs at the site. Provided technical support during CEQA review process through EIR certification.
- Solid Waste Landfill Closure, Riverside County, California – 1987 to 1989. Served as project manager for closure of Tequesquite Landfill. The project entailed detailed hydrogeologic and treatment studies for groundwater, flood protection evaluation, groundwater sampling and analysis, and design of a final cover system. The site location near the Santa Ana River raised major concerns regarding potential flooding and degradation of surface/ground water quality.
- Solid Waste Landfill Permit, Calaveras County, California – 1994 to 1995. Served as project manager for preparation of Periodic Site Review Report, Site Development Plan, Report of Disposal Site Information and Preliminary Closure and Post Closure Maintenance Plan at Rock Creek Landfill.
- Solid Waste Landfill Closure, San Mateo County, California – 1992 to 1994. Prepared final closure and postclosure maintenance plans for 31-acre landfill located along San Francisco Bay. Design challenges included necessary reconstruction to correct erosion of the shoreline and exposure of refuse.
- Landfill Expansion Design, Corona, California – 1988 to 1989. Provide technical oversight of the design and construction of El Sobrante Landfill expansion. The expansion area included a clay-lined cell, which was designed and constructed on a fast-track schedule.

MARK B. BEIZER, P.E., BCEE
Senior Vice President

Education

B.S. - University of California, Los Angeles, Engineering, 1969

Professional License

Registered Civil Engineer - California (C 22879)

Professional Affiliations

American Society of Civil Engineers
Solid Waste Association of North America (SWANA)
American Academy of Environmental Engineers

Professional Experience

Mr. Beizer has 35 years of experience in civil and environmental engineering, the last 25 of which have been in the solid waste management field. He currently is director of the California operations of SCS Engineers, one of the nation's leading solid waste management consulting firms.

Mr. Beizer's experience ranges from hands-on participation in field and design work to direction of large solid waste management projects. This work has included literally hundreds of projects in landfill and facilities engineering (e.g., transfer stations and MRF's), landfill gas (LFG) and groundwater remediation, and solid waste systems planning. These projects range from landfill siting, permitting, design and operations planning, to closure and post-closure management and development of old landfills. He has also provided expert testimony on landfill-related litigation, and has made many presentations at public hearings and before regulatory agencies. Project work is summarized below.

Closed, Illegal, and/or Abandoned Landfills --

Mr. Beizer has extensive experience in dealing with both regulatory compliance and end use (beneficial) development of closed and/or abandoned landfill sites. These include:

- Closed landfill remedial investigations, remedial designs and action plans for Newport Terrace (condo complex atop old municipal landfill), Cerro Villa (City of Orange), Lane Road (Irvine), Victoria Park (BKK Carson Landfill), Cal-Compact (Carson), Cogen-Cramer and Blanchard sites in East Los Angeles.

MARK B. BEIZER, P.E., BCEE (continued)

- Solid Waste Assessment Testing (SWAT) at 20 sites in California. These projects include groundwater and/or gas emissions testing and assessments at old landfills. Sites include the Southwest Conservation (Syufy), Gardena Valley (Nos. 1, 2, 5, and 6) and BKK Carson Landfill (Victoria Park) sites in Carson, CA; Tequesquite (Riverside), City Dump and Salvage (three sites in Long Beach)
- End use development (beneficial use) at Industry Hills (City of Industry Convention and Recreation Center), Bishops Canyon (City of Los Angeles -- multi-purpose park and athletic fields), Westport Office Park (mid-rise office complex in Mountain View), Bixby Marketplace (Long Beach commercial/office development), Gardena Valley No. 5 (Carson Retail truck center), Southwest Conservation (drive-in theater) and several other sites in Southern California.
- Implementation of Record of Decision for final closure of Operating Industries, Inc. Superfund site in Monterey Park. This work included design and construction oversight for landfill gas and leachate (site dewatering) systems.

Landfill Closure--

- Golden Eagle Landfill (Carson) -- final grading and drainage, alternative final cover (a.c. paving over clay and compacted granular base), access road design, LFG collection/flare and monitoring system, ground water SWAT.
- Bishops Canyon Landfill Closure (City of LA) -- final grading and drainage design, access road and internal traffic design, evaluation of alternative final covers, end use planning and design (recreational fields and park)
- Closure plans for landfills in Santa Maria, San Diego (South Miramar), Oceanside, Fontana, and Riverside, California. Work included final grading and drainage plans, access roads, final cover applications, LFG systems and groundwater monitoring.
- Design and construction management of excavation and redispal of 400,000-cubic-yard Avondale Landfill (Phoenix, Arizona); the project included design of receiving landfill double liner and leachate collection system.

Landfill Design, Operations, and Permitting--

- Conceptual planning, site investigations, and environmental analyses for Eagle Mountain waste-by-rail landfill (Riverside County, California).
- Design, operations/staging plans, and permitting for municipal landfills in San Diego (West Miramar), Imperial (MALS), Sacramento (Kiefer Road) Counties; Boulder, Colorado; and Olympia, Washington).

MARK B. BEIZER, P.E., BCEE (continued)

- Conceptual designs and long-range planning for landfills in Orange County (Prima Deshecha), San Bernardino County (Fontana), and Clovis, California.

Landfill Gas (LFG) Projects--

- Direction of over 200 projects related to the control or recovery of LFG in California and throughout the western United States.
- Design, construction oversight, and ongoing operation of LFG collection/flaring systems at sites in Los Angeles, San Diego (Miramar, San Diego County inactive sites), San Bernardino, Oceanside, and Carson, California.
- Engineering support to active LFG control and groundwater systems for Orange and San Diego Counties, Waste Management, Inc. sites in California
- Design of protection systems for building on or near landfills or other subsurface natural gas hazard area in Los Angeles, Orange and other California counties.

Landfill, Transfer Station, and Materials Recovery Facility (MRF) Siting--

- Siting studies for the cities of Phoenix and Yuma, Arizona, and the counties of San Diego, Kern (Bakersfield), and Shasta, California. Analyses for City of Orange, Oceanside, and Mammoth Lakes, California.
- Transfer station/MRF siting and design for the cities of Pasadena, Los Angeles, Beverly Hills, and Newport Beach, California; private transfer station designs in Carson, Long Beach, East Los Angeles, and Gardena, California.
- Preparation of Environmental Impact Reports (EIRs) for new or expanded landfills in the City of Los Angeles (Potrero Canyon), Fresno (American Avenue), Burbank, and Ventura County (Simi Valley), California.

Prior to joining SCS, Mr. Beizer spent 8 years with the Los Angeles County Department of Public Works performing general civil engineering work, including surveying and highway and flood control facilities design and management.

KIRK HEIN, P.E.
Project Manager

Education

B.S. - University of California, Irvine, Civil Engineering, 1990

Professional Certifications

Registered Civil Engineer - California (No. C50903), Washington (No. 35935)

Professional Experience

Mr. Hein's 15 years in engineering is centered on designing and managing design projects associated with the control of landfill gas. His project experience spans several states and countries including California, Arizona, Washington, Oregon, Montana, Ohio, South Korea and New Zealand. Mr. Hein had principal engineering responsibilities relative to the following closed landfill related projects:

- **Valley Landfill, City of Industry, California.** Site characterization including LFG and groundwater impacts for an old landfill on this site that is being developed as large commercial-industrial lots.
- **Allred Collins Landfill, San Diego, California.** Conceptual design of a granular activated carbon (GAC) based interior and perimeter migration control system for this site developed as an RV parking lot.
- **Jeffco Landfill, Golden, Colorado.** Construction plans and specifications for a GAC based interior and perimeter migration control system for this undeveloped site.
- **Cal Compact Landfill, Carson, California.** Conceptual design of a GAC based perimeter migration control system for this currently undeveloped site. The site is under consideration as a NFL stadium site for a future Los Angeles team.
- **Lane Road Disposal Station, Irvine, California.** Construction plans and specifications for a GAC based perimeter migration control system for this site developed as a golf course.
- **Fountain Landfill, Fountain, Colorado.** Construction plans and specifications for a flare based interior and perimeter migration control system for this undeveloped site. (freezing climate)
- **Huntington Beach Landfill, Huntington Beach, California.** Administered the construction for a GAC based interior and perimeter migration control system for this site developed as a City Owned sports complex.

KIRK HEIN, P.E. (continued)

- **Mountain View Landfill, Mountain View, California.** Construction plans and specifications for flare based interior and perimeter migration control system additions for this site developed as a park and golf course.
- **Stickney-Tyler Landfill, Toledo, Ohio.** Directed the construction of a GAC based LFG perimeter control system for this undeveloped site. (freezing climate)
- **Santa Ynez Airport Landfill, Santa Ynez, California.** Construction plans and specifications for a GAC based groundwater mitigation system for this undeveloped site.
- **Old Helena Landfill, Helena, Montana.** Construction plans and specifications for a GAC based LFG migration control system to protect a YMCA building adjacent to an undeveloped closed landfill. (freezing climate).
- **Old Bakersfield Landfill, Kern County, California.** Directed the construction of a flare based LFG interior and perimeter control system for this undeveloped site.

Mr. Hein also provided grading and drainage designs for the following non-landfill projects:

- 22-acre hillside residential development in Yucaipa, California
- 200-acre commercial-industrial site in Rubidoux, California
- 400-acre commercial-industrial site in the Riverside, California

JOSEPH J. MILLER, P.E.

Project Director

Education

B.S. - California Polytechnic State University, San Luis Obispo, Environmental Engineering

Professional Licenses and Certifications

Registered Civil Engineer - California (C 042598)
Certificate in Business Administration, University of California Berkeley
OSHA 40-Hour Safety Training and 8-Hour Supervisory Training

Professional Affiliations

Solid Waste Association of North America (SWANA)

Professional Experience

Mr. Miller provides SCS with a strong background in environmental engineering with emphasis in solid and hazardous waste management. He currently serves as Director of SCS' Pleasanton, California office. Since joining SCS in the early 1980's, he has been involved with several hundred projects entailing virtually all aspects of the municipal waste field including landfill engineering, environmental monitoring and site investigations at closed, inactive, and active landfills, landfill gas (LFG) control/recovery, and landfill air emissions projects. His experience in these topic areas is summarized below.

Landfill/Civil Engineering and Landfill Closure--

Throughout his career Mr. Miller has participated in landfill projects involving a full range of engineering/design services including site investigations, permitting, preparation of construction documents, remedial construction, and construction observation/CQA. Notable projects include:

- Project Director for landfill engineering services related to development of the Westport Office Park, Redwood City. This \$150 million project involved construction of a 20-building office park/campus at a closed municipal landfill. SCS' work included preparation of design plans and specifications for protecting structures from landfill gas intrusion, regulatory agency liaison and CQA services during construction. The LFG protection system designed by SCS includes a 60-mil thick HDPE membrane liner installed beneath each building slab, active and passive subfloor ventilation trenches, and automated gas sensors installed in the building interiors. A comprehensive landscape and drainage plan was also designed to protect the integrity of the landfill cap, promote proper drainage and establish healthy, long-term growth environment for planting over 1,500 trees on a former landfill site.

JOSEPH J. MILLER, P.E. (continued)

- Project Director for design/build closure of a 7-acre industrial waste landfill, Union City California. Work included in-situ waste sampling and characterization, combustible gas migration testing, preparation of a complete Closure and Post-Closure Maintenance Plan document, engineering cost estimates, and design plans and specifications for closure. The closure bid documents included plans and details for waste relocation, final grading and drainage, placement of an HDPE liner and soil cap, and construction of a surface water detention basin. Under Mr. Miller's direction, SCS provided closure construction services - mass waste excavation, re-location and compaction (65,000 cu yd); soil cover placement (44,000 cu yd); HDPE liner placement (420,000 sq ft); installation of drainage systems including a surface water detention basin and outfall piping; hydroseeding and site restoration, safety monitoring, and CQA observation.
- Project Director for post-closure monitoring, maintenance and construction – Auburn Landfill, Placer County. Work has entailed design and permitting of landfill gas monitoring system; preparation of landfill closure and end-use plan; design, permitting and construction services for restoration of landfill cover and drainage systems; preparation of cost estimates for remedial actions; and engineering design services for civil improvements related to construction of municipal airport runway on the former landfill site. Under a design/build contract, Mr. Miller was responsible for installation of final cover and drainage system improvements over an approximate 10-acre portion of the site (2 projects, with placement of 8,500 cu yd cover soils).
- Project Director for design and construction, partial closure of 10-acre parcel, West Contra Costa Landfill, Contra Costa County. This project involved preparation of design plans and specifications for final closure of completed landfill slopes and main access road. SCS is providing construction services including exploratory test pit installation (to verify existing cover), final grading, placement of low-permeability clay cover system, and installation of drainage features. Work has entailed placement of approximately 50,000 cu yd of cover soils.
- Project Director for post-closure engineering and construction services, Sacramento 28th Street Landfill. Services have included serving as engineer-of-record for construction of cover and drainage system repairs, civil design for landfill gas flare station, preparation of cost estimates for corrective action related to a foreseeable contaminant release to groundwater, and regulatory agency liaison. Recently, Mr. Miller provided oversight of a civil/geotechnical peer review of proposed plans for landfill re-development into a community park (proposed Sutter's Landing Park).
- Project Director for post-closure engineering and maintenance, Home Depot retail center, Colma, California. The facility was constructed at a former landfill, and is one of Home Depot's highest-volume stores in the U.S. Under Mr. Miller's direction, SCS performed various engineering and construction assignments, including: evaluation of

JOSEPH J. MILLER, P.E. (continued)

environmental controls (installed by others); operation and maintenance of the LFG control system; and health and safety oversight of building and utility construction improvements (to repair damage from landfill settlement).

- Project Director for assessment of landfill issues related to construction of 4-mile long, 230kV electric transmission line in the cities of San Jose and Santa Clara. On behalf of Silicon Valley Power (project developer), SCS performed research and field investigations to identify concerns that would affect construction of the transmission line, which bisected several closed municipal and unpermitted landfills in the Lafayette Street/Highway 237 area. Recommendations for protecting existing landfill containment and monitoring systems at the Santa Clara All-Purpose Landfill were prepared. Potential worker health and safety and environmental mitigation measures for underground utility construction near landfills were also developed.
- Project Manager for evaluation of landfill-related issues related to proposed commercial/industrial business center development, City of Industry, California. A portion of the proposed 330-acre development site overlies an old, inactive landfill identified as the Valley Land Development fill. SCS identified potential landfill-related areas of concern associated with mass grading and site development: public safety, protection of landfill containment and monitoring systems, air quality, geotechnical/slope stability and groundwater protection. Work included identification of regulatory hurdles, assessment of commonly employed landfill mitigation strategies, and preparation of a report. SCS's findings were used as part of CEQA documentation for the business center development.
- Project Manager/Director for scoping studies to determine required closure actions, environmental compliance requirements and costs for active, inactive and closed disposal sites. Work was performed for the Altamont and Tri-Cities landfills, Alameda County; Auburn Landfill, Placer County; Southwest Conservation and BKK Landfills, Los Angeles County; Tajiguas, New Cuyama, and Foxen Canyon Landfills, Santa Barbara County; Cummings Road Landfill, Humboldt County; and Acme Landfill, Contra Costa County.
- Project director for groundwater and leachate monitoring and sampling, landfill cover inspections and maintenance, implementation of landfill cover and drainage repairs, Berkeley Landfill, Alameda County. This former landfill has been converted to a public park and has received an award for excellence in post-closure use from the Solid Waste Association of North America (SWANA).
- Senior engineer for preparation of final closure plans, specifications and cost estimates – Neal Road Landfill, Butte County. The project included installation of new cover and drainage systems, and a comprehensive LFG collection system.

JOSEPH J. MILLER, P.E. (continued)

- Project Director for peer review of building protection plans, Highway 237 Business Park, Santa Clara, California. The project entailed development of a 6-building office park on a former landfill site. Mr. Miller undertook a third-party review of design plans for subsurface combustible gas protection system, prepared by others. SCS' recommendations were incorporated to the final design. Site development was completed in year 2000.

Landfill Monitoring, Site Investigations and Post-Closure Care--

Mr. Miller has served as key technical manager for assessment of landfill-related environmental impacts on or near former landfill sites. These investigations typically focus on LFG and leachate generation, soil contamination, worker/public safety and water quality issues. Recent projects include:

- Project Director for water quality monitoring, sampling and reporting at Waste Management's Altamont, Tri-Cities and Redwood Landfills in the San Francisco Bay Area.
- Groundwater and leachate monitoring and hydrogeologic assessment, private landfill, Yuba County. The work involved "fingerprinting" to confirm the source of trace VOCs detected in underlying groundwater – i.e., gas or leachate.
- Groundwater, soil and subsurface gas monitoring and sampling and preparation of a health risk screening assessment in support of proposed residential development, Turk Island Landfill, Alameda County.
- Landfill settlement and slope stability monitoring, Sunnyvale Landfill, Santa Clara County.
- Groundwater, surface water and leachate monitoring and sampling, Brisbane Landfill, San Mateo County.
- Comprehensive post-closure monitoring and maintenance program, Burlingame Landfill, San Mateo County.
- Groundwater, leachate, surface water and LFG monitoring services, City of Paso Robles Landfill, San Luis Obispo County. Work includes field sampling, data analysis, report preparation and agency liaison.

MICHAEL D. GEYER, P.E., C.I.H., C.S.P.
Technical Advisor

Education

B.S. - California Polytechnic State University, San Luis Obispo, 1985
Agricultural Engineering

B.S. - California Polytechnic State University, San Luis Obispo, 1985
Soil Science

Licenses and Certifications

Registered Civil Engineer (PE) - California, 1990 (No. C-45718)
Registered Civil Engineer (PE) - Mississippi, 1998 (No. 13842)
Certified Industrial Hygienist (CIH), 1995 (No. 6770)
Certified Safety Professional (CSP), 1995 (No. 13587)
California Licensed Contractor - General Engineering-A & HAZ, 1997 (No. 743043)
California Certified Asbestos Consultant (CAC), 1992 (No. 92-0089)
Florida Certified Asbestos Consultant (CAC), 1998 (No. 98021291)
California Registered Environmental Assessor (REA), 1994 (No. REA-05845)
40-Hour EPA-Approved Hazardous Waste Operations Trained (Since 1988)
EPA-Accredited AHERA Inspector/Management Planner/Project Designer (Since 1985)
OSHA Supervisor/Competent Person and Confined Space Entry Trained (Since 1989)
24-Hour Explosives Safety Trained (Since 2000)

Affiliations

American Industrial Hygiene Association (AIHA)
American Conference of Governmental Industrial Hygienists (ACGIH)
American Society of Safety Engineers (ASSE)
National Institute of Building Sciences (NIBS)
Building Environment and Thermal Envelope Council (BETEC)
Kern County Solid Waste Management Advisory Committee; Kern County, California

Professional Experience

Mr. Geyer brings to SCS expertise in both engineering and earth sciences. For SCS, Mr. Geyer has worked on a variety of solid waste investigations, including:

- **Air Quality Testing.** Mr. Geyer has designed and developed procedures and equipment to sample and analyze LFG, particulates, and biological organisms in ambient air at numerous solid waste facilities. His work has involved interpreting EPA and OSHA regulations, field testing, sample verification, assessment of laboratory data, and conducting hazard/risk assessments for both occupational and environmental exposure.

MICHAEL D. GEYER, P.E., C.I.H., C.S.P. (continued)

- **Subsurface Fires.** Mr. Geyer has conducted numerous investigations of subsurface fires in solid waste landfills throughout the United States and abroad. This work has included both invasive and non-invasive techniques for assessing the extent and volume of the subsurface pyrolysis in an effort to mitigate the smoldering refuse. He has designed and supervised extinguishment efforts that included excavation, use of fire-suppressing foams, injection of liquid nitrogen and/or carbon dioxide, slurry walls, and suffocation utilizing low-permeability cover soil caps.
- **Methane Gas.** Mr. Geyer has performed numerous investigations assessing the migration and movement of methane through soil and designed mitigation systems to protect structures from vapor intrusion and gas accumulation. Designs have included sub-foundation membranes passive vents, slurry trenches, cut-off walls, monitoring and detection equipment including alarm systems and active mechanical ventilation.
- **Landfill Closure Design and Assessment.** Mr. Geyer has assessed geology and designed soil cover caps for landfill closure, including supervision of projects for revegetating and landscaping closed landfills. Work was performed using field studies, computer models of water balance and flow, incorporating local climatological data, generating site-specific data, and specifying native drought-tolerant plants.
- **Solid Waste Characterization Studies.** For the Los Angeles County Sanitation District and several other California cities, Mr. Geyer was the field engineer in charge of arranging for and conducting on-site sorting programs, including developing a Code of Safe Work Practices for sorters. Municipal solid wastes were manually separated by hand into multiple categories, and weighed to determine percent composition over multiple-week and multiple-season sampling periods.
- **Landfill Gas and Condensate Characterization Generation.** Mr. Geyer has determined LFG and condensate generation rates using computer models with input data from field studies, landfill records and decomposition data developed by SCS. Work has involved characterizing LFG and leachate for compliance purposes, carbon adsorption design, and flare design. His work has also projected the technical and economic feasibility of recovering LFG for energy production.
- **Environmental Impact Reports (EIRs).** Mr. Geyer has authored sections of EIRs regarding landfill use and landfill expansion, control of surface and subsurface fires, surface drainage, and public health and safety elements.
- **Health and Safety.** Mr. Geyer has written health and safety plans and developed protocols for safe work practices at solid waste facilities, provided guidance to SWANA, contractors, and other soil waste-related organizations on safe work practices in solid waste, and has spoken at national conventions regarding health and safety, and bloodborne pathogens, in solid waste.

MICHAEL D. GEYER, P.E., C.I.H., C.S.P. (continued)

Mr. Geyer has completed a certified health and safety program in compliance with OSHA Standard 29 CFR 1910.120. He is knowledgeable in incident response operations, team functions, personnel safety, confined space entry, and field equipment. Mr. Geyer is able to recognize and evaluate potential chemical and physical hazards and associated risks in field operations; to specify personal protective equipment, including respiratory protection and protective clothing; to use and interpret direct-reading field instrumentation; and to examine and establish Standard Operating Safety Guidelines to ensure safe and effective response operations. Mr. Geyer coordinates the Long Beach office's health and safety program, is the principal trainer for in-house HAZWOPER training refreshers, and is a participant in SCS corporate-wide health and safety programs for employees.

Mr. Geyer has been involved in numerous SCS projects related to solid waste and hazardous substance characterization and management. He has extensive experience in site assessment studies for airborne hazardous materials, landfill fire investigations and their associated remediation, air toxic monitoring programs and risk evaluations, and site characterization studies for environmental compliance. His work experience includes all project phases from development of cost estimates for various site assessment and cleanup programs, to air monitoring and materials sampling, to preparation of final reports and interfacing with regulatory agencies. His work also includes assisting legal counsel with environmental litigation by providing expert review of documents and depositions.

Publications and Presentations

Dong, T., and M. Geyer. Real Estate Acquisition Liability. The Risk Management Letter (Publication of Warren, McVeigh, and Griffin, Inc.). January/February 1987.

Geyer, M. Asbestos and Lead Issues. Proceedings From the Long Beach Local Development Corporation's Environmental Liability Avoidance Seminar. June 1990.

Geyer, M. Control and Prevention of Landfill Fires. Proceedings From the Third Annual Arizona Landfill Seminar. May 1993.

Geyer M. Bloodborne Pathogens in Solid Waste. Solid Waste Association of North American (SWANA) 32nd Annual Solid Waste Exposition, San Antonio, Texas. August 1994.

Geyer, M., and R. Marsh. The Hazard Communication Act and Redevelopment Agencies. Redevelopment Journal. October/November 1994.

Geyer M. Health and Safety Hazards at Solid Waste Facilities. California Environmental Health Association, Los Angeles, California. April 1997.

MICHAEL D. GEYER, P.E., C.I.H., C.S.P. (continued)

Geyer, M. Benefits of Dry Heat to Clean Structures of Biological Contamination and Improve Indoor Air Quality - Six Case Studies. American Industrial Hygiene Conference and Exposition, San Diego, California. June 3, 2002.

Geyer, M. Mold Is Not the Problem. Bank Notes - A Publication of the Environmental Bankers Association (EBA). May/June 2002.

Geyer, M. Moisture Control, Mold and the Science Within the Building Envelope - A Four-Hour Class to Industrial Hygienists. American Industrial Hygiene Conference and Exposition, Atlanta Georgia. May 9, 2004.

Geyer, M. Methane Mitigation at Olinda Ranch - A Case Study of Mitigating Vapor Intrusion at a 600-Home Residential Development in California. American Industrial Hygiene Conference and Exposition, Atlanta, Georgia. May 12, 2004.

Geyer, M. Indoor Air Quality and Toxic Mold. American Society of Safety Professionals National Conference and Exposition, Las Vegas, Nevada. June 10, 2004.



Appendix A

Copy of California Business License





State of California
Kevin Shelley
Secretary of State
STATEMENT OF INFORMATION
(Foreign Corporation)

FEES (Filing and Disclosure): \$25.00. If amendment, see Instructions.

IMPORTANT — READ INSTRUCTIONS BEFORE COMPLETING THIS FORM

1. CORPORATE NAME: (Please do not alter if name is preprinted.)

C0773324 DUE 07-31-04 03905F NPT
 STEARNS, CONRAD AND SCHMIDT,
 CONSULTING ENGINEERS, INC.
 3711 LONG BEACH BLVD 9TH FL
 LONG BEACH CA 90807

This Space For Filing Use Only

CALIFORNIA CORPORATE DISCLOSURE ACT (Corporations Code Section 2117)

2. CHECK HERE IF THE CORPORATION IS PUBLICLY TRADED. IF PUBLICLY TRADED, COMPLETE THIS STATEMENT OF INFORMATION AND THE CORPORATE DISCLOSURE STATEMENT (FORM SI-PTSUPP). SEE ITEM 2 OF INSTRUCTIONS.

NO CHANGE STATEMENT

3. IF THERE HAS BEEN NO CHANGE IN ANY OF THE INFORMATION CONTAINED IN THE LAST STATEMENT OF INFORMATION FILED WITH THE SECRETARY OF STATE, INCLUDING ANY INFORMATION CONTAINED IN FORM SI-PTSUPP, CHECK THE BOX AND PROCEED TO ITEM 13. IF THERE HAVE BEEN ANY CHANGES TO THE INFORMATION CONTAINED IN EITHER FORM, OR NO STATEMENT HAS BEEN PREVIOUSLY FILED, THIS FORM (AND THE FORM SI-PTSUPP, IF PUBLICLY TRADED) MUST BE COMPLETED IN THEIR ENTIRETY.

COMPLETE ADDRESSES FOR THE FOLLOWING (Do not abbreviate the name of the city. Items 4 and 5 cannot be PO Boxes.)

4. STREET ADDRESS OF PRINCIPAL EXECUTIVE OFFICE	CITY AND STATE	ZIP CODE
3711 Long Beach Blvd., 9th Floor, Long Beach, CA	90807-3315	
5. STREET ADDRESS OF PRINCIPAL BUSINESS OFFICE IN CALIFORNIA, IF ANY	CITY	STATE ZIP CODE
3711 Long Beach Blvd., 9th Floor, Long Beach, CA	90807-3315	CA
6. MAILING ADDRESS	CITY AND STATE	ZIP CODE
3711 Long Beach Blvd., 9th Floor, Long Beach, CA	90807-3315	

NAMES AND COMPLETE ADDRESSES OF THE FOLLOWING OFFICERS (The corporation must have these three officers. A comparable title for the specific officer may be added; however, the preprinted titles on this statement must not be altered.)

7. CHIEF EXECUTIVE OFFICER/	ADDRESS	CITY AND STATE	ZIP CODE
James J. Walsh	2141 Raeburn Drive, Cincinnati, OH	45223	
8. SECRETARY/	ADDRESS	CITY AND STATE	ZIP CODE
Michael W. McLaughlin	8971 Colesbury Place, Fairfax, VA	22031	
9. CHIEF FINANCIAL OFFICER/	ADDRESS	CITY AND STATE	ZIP CODE
William L. Schubert	29 Shooting Star, Irvine, CA	92604	

AGENT FOR SERVICE OF PROCESS

- If an individual, the agent must reside in California and Item 11 must be completed with a California address.
- If another corporation, the agent must have on file with the California Secretary of State a certificate pursuant to Corporations Code section 1505 and Item 11 must be left blank.

10. NAME OF AGENT FOR SERVICE OF PROCESS
 CT Corporation System

11. ADDRESS OF AGENT FOR SERVICE OF PROCESS IN CALIFORNIA, IF AN INDIVIDUAL CITY STATE ZIP CODE
 CA

TYPE OF BUSINESS

12. DESCRIBE THE TYPE OF BUSINESS OF THE CORPORATION
 Consulting engineers and contractors

13. THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT.

William L. Schubert [Redacted Signature] VP & Treasurer 4/28/04
 TYPE OR PRINT NAME OF OFFICER OR AGENT SIGNATURE TITLE DATE

Commonwealth of Virginia



State Corporation Commission

I Certify the Following from the Records of the Commission:

STEARNS, CONRAD AND SCHMIDT, CONSULTING ENGINEERS, INC. is a corporation existing under and by virtue of the laws of Virginia, and is in good standing.

The date of incorporation is February 18, 1972.

Nothing more is hereby certified.

*Signed and Sealed at Richmond on this Date:
April 15, 2004*



Joel H. Peck, Clerk of the Commission



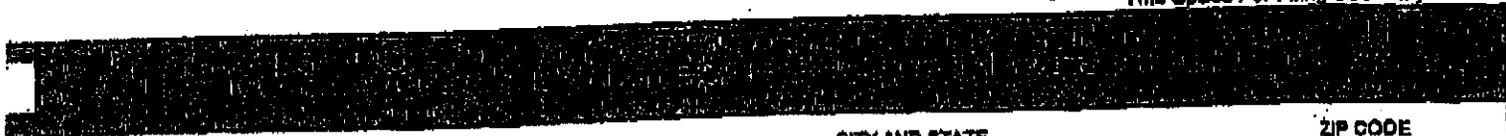
State of California
Bill Jones
Secretary of State

STATEMENT BY FOREIGN CORPORATION

CORPORATE NAME: (Do not alter if name is preprinted.)

CO773924 DUE DATE 07-31-02 02022F
 STEARNS, CONRAD AND SCHMIDT,
 CONSULTING ENGINEERS, INC.
 3711 LONG BEACH BLVD., 9TH FLOOR
 LONG BEACH, CA 90807

This Space For Filing Use Only



STREET ADDRESS OF PRINCIPAL EXECUTIVE OFFICE	CITY AND STATE	ZIP CODE
3711 Long Beach Blvd., 9th Floor, Long Beach, CA	90807-3315	

STREET ADDRESS OF PRINCIPAL BUSINESS OFFICE IN CALIFORNIA, IF ANY	CITY	ZIP
3711 Long Beach Blvd., 9th Floor, Long Beach, CA	90807-3315	CA

MAILING ADDRESS	CITY AND STATE	ZIP CODE
711 Long Beach Blvd., 9th Floor, Long Beach, CA	90807-3315	



CHIEF EXECUTIVE OFFICER/	ADDRESS	CITY AND STATE	ZIP CODE
James J. Walsh	2141 Raeburn Drive, Cincinnati, OH	45223	

SECRETARY/	ADDRESS	CITY AND STATE	ZIP CODE
Michael W. McLaughlin,	8971 Colesbury Place, Fairfax, VA	22031	

CHIEF FINANCIAL OFFICER/	ADDRESS	CITY AND STATE	ZIP CODE
William L. Schubert,	29 Shooting Star, Irvine, CA	92604	

CHECK THE APPROPRIATE PROVISION BELOW AND NAME THE AGENT FOR SERVICE OF PROCESS:
 AN INDIVIDUAL RESIDING IN CALIFORNIA.
 A CORPORATION WHICH HAS FILED A CERTIFICATE PURSUANT TO CALIFORNIA CORPORATIONS CODE SECTION 1505.

AGENT'S NAME: Robert P. Stearns

ADDRESS OF THE AGENT FOR SERVICE OF PROCESS IN CALIFORNIA, IF AN INDIVIDUAL	CITY	ZIP CODE
3711 Long Beach Blvd., 9th Floor, Long Beach, CA	90807-3315	CA

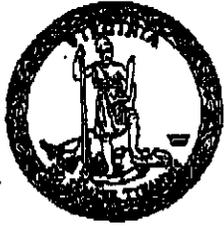
0. DESCRIBE THE TYPE OF BUSINESS OF THE CORPORATION
Environmental Engineering

1. THIS STATEMENT IS TRUE, CORRECT AND COMPLETE.

<u>William L. Schubert</u>		<u>Treasurer</u>	<u>04/16/2002</u>
(TYPE OR PRINT NAME OF OFFICER OR AGENT)	SIGNATURE	TITLE	DATE

Approved by Secretary of State

Commonwealth of Virginia



State Corporation Commission

I Certify the Following from the Records of the Commission:

STEARNS, CONRAD AND SCHMIDT, CONSULTING ENGINEERS, INC. is a corporation existing under and by virtue of the laws of Virginia, and is in good standing.

The date of incorporation is February 18, 1972.

Nothing more is hereby certified.

*Signed and Sealed at Richmond on this Date:
May 10, 2002*



Joel H. Peck, Clerk of the Commission



Appendix B

California Class A General Engineering Contractors License



State of California
Contractors State License Board

Pursuant to Chapter 9 of Division 3 of the Business and Professions Code
and the Rules and Regulations of the Contractors State License Board,
the Registrar of Contractors does hereby issue this license to:

**STEARNS CONRAD AND SCHMIDT CONSULTING
ENGINEERS INC dba SCS ENGINEERS**



to engage in the business or act in the capacity of a contractor
in the following classification(s):

**A - GENERAL ENGINEERING CONTRACTOR
HAZ - HAZARDOUS SUBSTANCES REMOVAL**



Witness my hand and seal this day,
May 20, 1998

Issued May 19, 1998

Signature of Licensee

Signature of License Qualifier

This license is the property of the Registrar of Contractors, is not
transferrable, and shall be returned to the Registrar upon demand
when suspended, revoked, or invalidated for any reason. It becomes
void if not renewed.



**C. Lance Barnett, Ph.D.
Registrar of Contractors**

749678

License Number



State Of California
CONTRACTORS STATE LICENSE BOARD
ACTIVE LICENSE



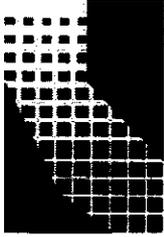
License Number **749678** Entity **CORP**

Business Name **STEARNS CONRAD AND SCHMIDT
CONSULTING ENGINEERS INC**

Classification(s) **A HAZ**

Expiration Date **05/31/2006**

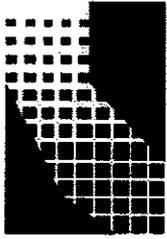




Appendix C

Notarized Statement From Financial Institution

*This section
has been
removed.*



Appendix D

Audited/Reviewed Financial Statement

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*This section
has been
removed.*



Appendix E

Subcontractor Qualifications/ and SB/DVBE Certifications





Appendix E-1

GREGG DRILLING & TESTING, INC.

- **Qualifications and Project Experience**
- **Resumes**

Introduction

Gregg Drilling & Testing, Inc. and Gregg In-Situ, Inc. (the Gregg companies) provide clients in industry and government with quality environmental and geotechnical drilling, sampling and subsurface investigation services. Gregg Drilling & Testing, Inc. was formed in 1985 to meet the increasing demands for quality drilling and sampling services. Gregg In-Situ, Inc. was formed in 1992 to offer state-of-the-art direct-push and cone penetration technologies. Together, the Gregg companies today provide the finest in conventional and innovative services. We deliver today's solutions.

Our services are conveniently available from Gregg facilities in Signal Hill (Southern), CA; Martinez (Northern), CA; Summerville, SC; and Vancouver, BC (Canada). We have available all necessary equipment for conventional and direct-push drilling, sampling, cone penetration testing, and subsurface assessment. Our staff technicians and preventative maintenance program ensure reliable effective operation. Our geologists, engineers and support personnel are highly trained, experienced professionals who understand the challenges our clients face and their needs in today's economy.

For clients in business and in government, the Gregg companies bring together the best in human resources and technology. Our commitment to responsive, reliable and cost-effective service mean solutions, savings and peace of mind to you and your organization.

Office Locations

Southern California:

2726 Walnut Avenue
Signal Hill, CA 90806
Tel: (562) 427-6899
Fax: (562) 427-3314

Southeast:

106 Butternut Road
Summerville, SC 29483
Tel: (843) 832-4918
Fax: (843) 832-4919

Northern California

950 Howe Road
Martinez, CA 94553
Tel: (925) 313-5800
Fax: (925) 313-0302

Canada

ConeTec, Inc.
9113 Shaughnessy Street
Vancouver, B.C. V6P 6R9
Tel: (604) 327-4311
Fax: (604) 327-4066

Offshore Services

Gregg also offers off-shore drilling, sediment sampling and CPT services. Our drill ship the Quin Delta is a self-propelled ocean going vessel with a draft of only 3-feet. This allows the ship to work in a wide range of locations, from deep off-shore waters to harbors, rivers and shallow inland locations. The Quin Delta is equipped with 80-foot spuds that can be used for stable anchoring in waters up to 70-feet deep.

The Quin Delta is outfitted with a Mobile B-80/22 mud rotary drill rig for geotechnical and environmental drilling. The B-80 is equipped with an automatic SPT hammer and can be used to perform SPT sampling and split spoon sampling. The rig is also equipped with a 101 mm and NQ2 coring systems and can be used for sediment and rock coring.

Cone penetration testing can be performed using either a conventional CPT system deployed by the B-80 or with our "minicone" system. The minicone system is a miniaturized CPT system that utilizes a coilable cone rod and thruster unit that are mounted in a cage that is lowered to the seafloor. The minicone is attached to a shipboard data acquisition system and results can be viewed in real-time during the sounding. The minicone system allows for rapid deployment and completion of CPT soundings in water as deep as 2400-feet.

Our vibracore and gravity core sampling systems can be used to collect near surface soil cores. The vibracore system can be used to collect core samples to depths of up to 15'. The gravity core system is useful for quickly sampling soils to a depth of 5'. The Quin Delta is ideally suited for off-shore foundation and liquefaction studies, soil sampling and coring, and for establishing baseline conditions and material quantities for dredging programs.

Gregg Marine Services also operates portable minicone, CPT, vibracore, gravity core and drilling systems that may be deployed on other vessels. Contact us for more information on deployment and use of these systems.

Personnel

The personnel at Gregg Drilling & Testing, Inc. and Gregg In-Situ, Inc. reflect our mission and embody our commitment to the highest quality services. Everyone at Gregg has a vested interest in our success and is motivated to provide our clients with the most responsive and cost effective service. The Gregg companies are directed and staffed by environmental and geotechnical professionals with a combined total of more than 50 years of experience in industry and consulting. Our staff of engineers and geologists includes state-registered professionals. All our personnel are highly trained, certified, and experienced in site investigation and remediation. These exceptional qualifications enable Gregg personnel to solve complex environmental and geotechnical problems and create a seamless working relationship between our staff and the project/technical managers of each client.

All our field personnel have received OSHA 40-hour health and safety training in accordance with CFR 1910.120 and undergo annual 8-hour health and safety refresher training, first-aid and CPR training, respirator fit testing, and medical monitoring. Our personnel have all the necessary equipment and experience to work using Levels B, C and D personal protective equipment.

We take great pride in our safety record. Since 1990, Gregg Drilling & Testing, Inc. has consistently had one of the best safety records (as evidenced by our recordable and lost work day incident rates and experience modification rate) of any drilling company in California. This is due to the experience and training of our personnel and, most importantly, the commitment of the entire Gregg organization to professional conduct and a safe workplace.

Height (mast down): 11 feet
Height (mast up): 24 feet
Width: 7 feet 3 inches

Marl 5-T (Rhino) Limited Access Hollow-Stem-Auger Drill Rig

These powerful hydraulic rigs are used at locations of limited access and low overhead clearance. They are mounted on rubber tracks. The Rhino can obtain excellent soil, vapor and water samples using conventional hollow-stem augers or *direct push technologies*.

Capacity Direct push sampling to 85 feet bgs
 Borings to 140 feet bgs
 2-inch wells to 100 feet bgs
 4-inch wells to 100 feet bgs

Torque: > 5,000 pounds per foot

Dimensions: Length: 10 feet 9 inches
 Height (mast down): 8 feet 2 inches
 Height (mast up): 12 feet, 8 inches (need 13' 1" to mast up)
 Width: 5 feet 1 inch to 6 feet 1 inch (depending on rig)
 Weight: 8,500 pounds, track pressure: 6 psi

These rigs are excellent tools for shallow soil, soil-gas and water sampling. They can be used to collect either depth specific or continuous samples. Continuous soil sampling is accomplished using a small-diameter (1.5-inch inside diameter) macro-core sampler, which collects 4-foot cores. Soil samples can be collected from discrete intervals using a piston sampler. The depth limitation of this rig in normally consolidated soil ranges between 20 to 85 feet bgs. *Typically the less granular the soil, the deeper the rig can go.*

Ram-Set Sampling Rig

The Ram-Set is a portable, hydraulically powered soil probe unit designed for extremely tight space conditions. The unit requires only 5 feet of vertical clearance and has a footprint of only 2 square feet. The Ram-Set can be used to collect relatively undisturbed soil and groundwater samples to 90 feet bgs. It can also be used to obtain continuous lithologic logs with an electronic cone penetrometer. The hydraulic power unit can be stationed up to 200 feet from the sampling equipment, thus eliminating exhaust from the sampling area. The depth limitation of this rig in normally consolidated soil ranges between 25 and 80 feet bgs. *Typically the less granular the soil, the deeper the rig can go.*

Licenses and Insurance

The Gregg Companies are licensed contractors in the following states:

ARIZONA
CALIFORNIA
LOUISIANA
MINNESOTA
NEVADA
SOUTH CAROLINA
TEXAS
WASHINGTON

The Gregg companies maintain extensive insurance coverages for General Liability, Automobile Liability, Excess Liability and Workers Compensation and Employers Liability. A copy of our insurance certificate can be made available upon request.

Projects

Project Name/Location: E.I. Dupont, Oakley, California
Company: URS Corporation
Company Address: 140 Cypress Station Drive, Suite 140
Houston, Texas 77090
Contact/Phone Number: Brian Johnson, (281) 586-5699
Contract Duration: March 1, 2001 to present

Project Description:

Conducted cone penetrometer testing (CPT) on land and over water. CPT included piezocone, UVIF, in-situ water sampling and membrane interface probes (MIP).

Limited access drilling using the "Rhino" M5T in a marsh/swamp environment. Drilling included: direct push soil sampling, hollow stem auger soil sampling and installations of two-inch wells using hollow stem augers.

Drilling with full size hollow stem auger rigs and mud rotary rigs to install monitoring wells, extraction wells and piezometers. A mud rotary rig was also used to conduct soil sampling and to inject iron fillings as a slurry wall pilot project. A Smeal 5T was used to develop wells, sample wells and to conduct pump and aquifer tests.

Project Name/Location: BP/Arco Vinvale Terminal
Company: Secor
Company Address: 290 Conejo Ridge, Ste 200
Thousand Oaks, CA 91361
Contact/Phone Number: Chris Laber, (805) 230-1266
Contract Duration: April – June, 2003

Project Description:

Conducted cone penetrometer testing (CPT), CPT included piezocone, UVIF and in-situ water sampling.

Mud Rotary drilling, soil borings to a depth of 200', continuous sampling using a 101mm geobarrel coring system, geotechnical sample collection using a 3" diameter split spoon sampler and dual phase soil – ground water sampling using a Maxi Simulprobe. Setting conductor casings to depths up to 95', setting dual nested and cluster wells to depths up to 175'.

A Smeal 5T pump rig was used to develop and sample the wells.

Project Name/Location: FMC Corporation, San Jose, California
Company: Malcolm Pirnie
Company Address: 2000 Powell Street, Suite 1180
Emeryville, CA 94608
Contact: Todd Miller, (510) 808-3014
Contract Duration: August 1, 2000 to present

Project Description:

Conducted cone penetrometer testing with in-situ water and soil sampling using a CPT rig.

Obtained soil, vapor, and soil samples using a direct push rig. Also used a direct push rig to install "micro" wells.

Used hollow stem augers to install monitoring wells, vapor extraction wells and groundwater extraction wells. Some of the monitoring wells had conductor casing to seal off upper contaminated zones.

Folsom Reservoir. Differential GPS and was used to locate borings within 1 meter of prescribed coordinates. In water depths of up to 180', Gregg completed eight borings to depths of up to 150' below the mud line. During drilling, SPT samples, continuous soil cores and rock cores were collected.

Project Name/Location: Former Remco facility, Willits, California
Company: Montgomery Watson
Company Address: 1340 Treat Blvd., Suite 300
Walnut Creek, California 94596
Contact/Phone Number: John Dodkin, (925) 975-3400
Contract Duration: February 1, 2000 to present

Project Description

Cone penetrometer testing and water sampling using the CPT rig. Direct push soil sampling; hollow stem auger soil sampling, well installations and abandonments using the "Rhino" limited access drill rig. Extraction well installations using a full size hollow stem auger rig. Conductor casing installation using a mud rotary rig. Well development, sampling and pump testing using a Smeal 5T.

Project Name/Location: Hard Chrome, Los Angeles, CA
Company: Tetra Tech
Company Address: 3475 East Foothill Boulevard
Pasadena, California 91107
Contact/Phone Number: Stephen Anderson (626) 351-4664
Contract Duration: April – July, 2002

Project Description

Twelve ground water monitoring wells were installed using hollow stem auger and mud rotary drill rigs. Well depths ranged between 150' to 400'. Continuous soil cores were collected in six of the borings using a CME 4" coring system and a Longyear 101mm coring system. For the 400' well a 12" diameter conductor casing was installed to a depth of 265' below ground surface. Following well installation, the wells were developed and sampled using a Smeal 5T pump rig.

Project Name/Location: Vulcan Materials, San Diego County, CA
Company: Geomatrix Consultants
Company Address: 330 West Bay Street, STE 140
Costa Mesa, California 92627
Contact/Phone Number: Tim Keuscher, (949) 642-0245
Contract Duration: January, 2003

Project Description

Five soil borings and eight CPT soundings were completed in a 20 acre settling pond at an active gravel pit in San Diego County, California. The work was completed using Gregg's portable spud barge, the "Crabby Pat," a skid mounted CME 45 drill rig and a portable CPT system. Water depths ranged between 4' and 20'. The borings and CPT soundings were completed to a depth of up to 95' below the mud line. SPT, split spoon and Shelby Tube samples were collected during the drilling. The work, including mobilization and demobilization, was completed in eight field days. In addition to the over-water work, Gregg completed twelve soil borings using a truck mounted hollow stem auger drill rig at various locations throughout the facility. SPT and split spoon samples were collected.

Project Name/Location: I15 Freeway Ted William Parkway to Carmel Mountain Road, San Diego County, CA
Company: Fugro West Consultants
Company Address: 4280 McGrath Street, Suite 100
Ventura, California 93003-7778

Professional Experience

Gregg personnel have been providing superior environmental and geotechnical services to public- and private-sector clients since 1985. For these clients, we have performed a wide variety of drilling and cone penetration testing services. Our experience is as follows:

UTILITY INDUSTRY

Gregg Drilling has considerable experience providing drilling and CPT services for the utility industry. We have provided site assessment and remediation support activities at more than 20 electric power plants and 25 gas dehydration facilities throughout California. Working in power plants requires a thorough knowledge of specific safety procedures including grounding of all drilling and intrusive equipment and providing PPE specific to electrical hazards. During the course of this work Gregg Drilling has installed more than 150 groundwater wells and completed more than 500 soil borings at electric power plants operated by Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric. This work has given Gregg Drilling the experience necessary to work safely in this potentially hazardous environment. Either directly, or as a subcontractor to a consultant, Gregg Drilling has worked for the following utilities:

Pacific Gas & Electric	AES
Southern California Edison	Reliant
San Diego Gas & Electric	Duke Energy
Southern California Gas Company	

PETROLEUM INDUSTRY

Gregg Drilling has considerable experience providing drilling and CPT services for the Petroleum industry. We have provided site assessment and remediation support activities for both upstream (oil fields & offshore platforms) and downstream (refineries, bulk terminals and retail stations) operations.

RETAIL SERVICE STATIONS

Gregg Drilling & Testing, Inc. and Gregg In-Situ, Inc. are cost-effective, low-impact site investigation and remedial installation companies. Our personnel are sensitive to the needs of station operators and we plan our work to minimize disruption to normal station operations. Either directly or as a subcontractor to an environmental consultant, we have worked for the following petroleum retailers:

BP/ARCO	Ultramar Corporation
Chevron USA Products Company	Unocal Refining & Marketing Division
Mobil Oil Corporation	USA Oil Company
Shell Oil Products Company	Tesoro Petroleum

DEPARTMENT OF DEFENSE INSTALLATIONS

Gregg personnel have supported site assessment and remedial actions at many military installations and at other federal, state and local government facilities. We have considerable experience working at sensitive and highly secure sites and with complicated procurement systems and safety requirements. We have worked as a subcontractor to consulting firms on both cost reimbursable and fixed price contracts with the Army Corps of Engineers, Naval Facilities Engineering Command, Air force Center For Environmental Excellence and NASA. We have provided drilling and/or CPT services at almost every DOD installation in the western United States.

DEPARTMENT OF ENERGY

Gregg In Situ, Inc. and Gregg Drilling & Testing Inc. have been working as a subcontractor to Westinghouse Savannah River Company and Bechtel to provide a full range of cone penetration testing and drilling services at the U.S. Department of Energy Savannah River Site. We have been working as a contractor at the site since 1997. Working at this facility has required the development and implementation of very stringent QA/QC and Safety programs and procedures. Gregg In Situ is currently the only CPT contractor in the country with a QA/QC program able to meet the requirements for DOE Level 1 procurement status.

PORTS AND HARBORS

Gregg Drilling & Testing, Inc. and Gregg In Situ, Inc have worked extensively at port facilities throughout the western coast of the United States and Canada. We routinely provide our full range of services including CPT soundings, seismic CPT, SPT sampling, soil sampling, groundwater monitoring and remediation well installation and cathodic protection wells for a wide variety of geotechnical and environmental projects at port facilities in Long Beach, Los Angeles, Oakland, Sacramento, San Diego, San Francisco and Stockton, California; Portland, Oregon; Seattle and Tacoma, Washington and Anchorage, Alaska. These projects have included: foundation, soil liquefaction, and shear wave velocity studies ground improvement monitoring (stone column, compaction grouting, hydraulic fill), dredging studies to evaluate channel deepening and borrow areas for more than 500 projects at port facilities along the west coast of the United States. This work has been performed both on-shore and over water.

Resumes of Selected Personnel

The Gregg companies are directed by the following professionals:

John M. Gregg

President: Gregg Drilling & Testing, Inc. and Gregg In-Situ, Inc.

Mr. Gregg is the founder and President of *Gregg Drilling & Testing, & Inc.* and *Gregg In-Situ, Inc.* He has more than 20 years of professional experience in environmental and geotechnical contracting, consulting and project management. He has a bachelor's degree in Geological Engineering, and he is a Registered Water Well Contractor and Registered Environmental Assessor in California.

Education:

B.S., Geological Engineering, 1984, University of Nevada - Reno, Mackay School of Mines.

Related Experience:

Gregg Drilling & Testing, Inc. / Gregg In-Situ, Inc., Signal Hill, CA, 1985 to present

As President, Mr. Gregg manages the overall operations for both the drilling and cone penetration companies. These companies employ over 60 people in California and Texas.

Environmental Science & Engineering, Inc., Fountain Valley, CA, 1984 to 1985

As a field geologist, Mr. Gregg managed drill rig operations, sampled soil and groundwater, and prepared technical reports.

California Silver, Inc., Markleeville, CA, 1983 to 1984

In this position, Mr. Gregg's duties included the sampling and mapping of an underground gold mine.

Certifications and Associations:

California State Well Drilling (C57) Contractor's License
Arizona, Nevada, Louisiana, South Carolina Well Drilling Contractor's License
Registered Environmental Assessor, California
OSHA 29 CFR 1910.120 - 40 hour & Supervisor Training
Director - National Drilling Association
National Ground Water Association
California Ground Water Association



Appendix E-2

DIAZ YOURMAN

- **Qualifications and Project Experience**
- **Resumes**
- **Small Business Certification**



FIRM PROFILE

Diaz•Yourman & Associates (DYA) is a privately-held geotechnical consulting services corporation, founded in December 1992. We have grown in size, capacity, and breadth of services and currently have 25 employees, including 16 engineers with graduate level degrees in geotechnical engineering. Our engineers are supported by a staff of technicians, word processors, and drafters (AutoCAD and Intergraph), as well as an extensive technical library. Our Southern California office is located at 1616 East 17th Street, Santa Ana, California 92705; telephone number (714) 245-2920; fax number (714) 245-2950.

DYA provides geotechnical design and construction services for a wide array of project types, including transportation, infrastructure, industrial, commercial, institutional, airports, ports and harbors, and environmental. More than 100 years of combined geotechnical engineering experience by our principals and a history of translating the latest technologies to innovative, sound, and practical solutions have resulted in notably successful projects and satisfied clients. Our working environment fosters technical excellence and dedication to your needs. Our commitment is to provide service, quality, experience, innovation, and value, resulting the in the successful completion of your project.

DYA has been recognized by our peers for innovation and technical excellence. We have received Outstanding Project Awards in four of the last eight years from the California Geotechnical Engineers Association (CGEA), as well as awards from the American Society of Civil Engineers (ASCE), Orange County Engineering Council (OCEC), and Consulting Engineers and Land Surveyors of California (CELSOC).

DYA is certified as a minority business enterprise and disadvantaged business enterprise (MBE/DBE) through the Orange County Transportation Authority (OCTA) under the California Unified Certification Program (CUCP), and we are certified as a Small Disadvantaged Business (SDB) by the Small Business Administration (SBA). DYA is also registered as a small or community business with several agencies, such as the Metropolitan Water District, City of Los Angeles, and Port of Long Beach.



RELEVANT PROJECT EXPERIENCE

Puente Hills Landfill, Whittier, California

Diaz•Yourman & Associates (DYA) provided the geotechnical engineering analyses to evaluate proposed repair and construction methods at the PERG facility. Our engineers performed slope stability analyses using the computer program PCSTABL and were able to evaluate optimal repair and construction methods. The repair methods considered reinforced earth walls.

Key Personnel: V.R. (Nadesh) Nadeswaran, P.E., G.E. – Geotechnical Manager
Allen M. Yourman, Jr., P.E., G.E. – Geotechnical Principal

Owner:

Sanitation Districts of Los Angeles County (SDLAC)
1955 Workman Mill Road
Whittier, CA 90601
562-699-7411

Client:

Advanced Earth Science
Mr. Kris Khilnani
20 Fairbanks, Suite 178
Irvine, CA 92618
949-458-3832 x17

Completion Date: 1996

DYA Fees: \$1,000

Sycamore Landfill Supplemental Grading, San Diego, California

DYA provided geotechnical services for the grading associated with the proposed landfill expansion and its associated improvements. The preliminary geotechnical report was used for planning approval and grading permit applications for the City of San Diego (City). The landfill was in operation with one refuse fill cell, as well as perimeter and access roads. The proposed project consisted of grading to create a new landfill cell for municipal solid waste, and grading related to new support facilities and roads. DYA reviewed data, conducted a limited field investigation, performed laboratory tests on selected samples, and performed engineering analyses to develop preliminary conclusions and recommendations regarding the following: site preparation and grading, stability of temporary and permanent cut/fill slopes, and pavement thickness design. A written report was prepared.

Key Personnel: Saroj Weeraratne, PhD, P.E., G.E. – Geotechnical Project Manager
Allen M. Yourman, P.E., G.E. – Geotechnical Principal

Owner:

City of San Diego
202 C Street
San Diego, CA 92101
619-236-5555

Client:

A-Mehr Incorporated
Mr. Ali Mehr
2316 Mill Creek Drive
Laguna Hills, CA 92653
949-206-0157

Completion Date: 2003

DYA Fees: \$15,700



RELEVANT PROJECT EXPERIENCE

Tequesquite Landfill Construction and Testing, Riverside, California

DYA provided geotechnical services for post-closure repairs at the Tequesquite Landfill which were based on construction quality assurance requirements. DYA collected samples and performed laboratory tests for the on-site soils as well as import soils. Field moisture, density, and nuclear gauge tests were performed on-site.

Key Personnel: Jorge Sandoval, P.E. – Geotechnical Project Engineer
Allen M. Yourman, Jr., P.E., G.E. – Geotechnical Manager

Owner:

City of Riverside
3900 Main Street
Riverside, CA 92522
951-826-5311

Completion Date: 2004

Client:

SCS Engineers
Mr. Ambrose McCreedy
3711 Long Beach Boulevard
9th Floor
Long Beach, CA 90807-3315
562-426-9544

DYA Fees: \$3,000

Sunshine Canyon Landfill, Sylmar, California

DYA provided a geotechnical investigation for the proposed expansion at the Unit 2, Cell A entrance area. The proposed project would be to construct a scale house (approximately 6 feet x 10 feet in plan view), an access road, and surface drainage swales (approximately 700 feet long) within the landfill site. The purpose of DYA's investigation was to provide geotechnical input for the design of the proposed project. The scope of our services consisted of the following tasks: reviewing data, conducting a field investigation, performing laboratory tests on selected samples, performing engineering analyses to develop conclusions and recommendations regarding the following; site preparation and grading, foundation type and allowable bearing capacity, estimated total and differential foundation settlements, resistance to lateral loads, slab-on-grade support, pavement thickness design, and corrosion potential.

Key Personnel: Saroj Weeraratne, PhD, P.E., G.E. – Geotechnical Manager
Gerald M. Diaz, P.E., G.E. – Geotechnical Principal
Allen M. Yourman, P.E., G.E. – QA/QC Review

Owner & Client:

A-Mehr Incorporated
Mr. Ali Mehr
2316 Mill Creek Drive
Laguna Hills, CA 92653
949-206-0157

Completion Date: 2003

DYA Fees: \$7,400



Emphasis

- Landfill Liners/Covers
- Landfill Sitings/Design
- Closure Plans
- QA/QC Programs

Professional Registration

1997/Geotechnical Engineer,
CA – No. 2374
1993/Professional Engineer,
CA – No. 49853

Education

1988/PhD/Civil Engineering/
University of Massachusetts
1982/M Eng/Soil Engineering/
Asian Institute of Technology
1977/BS/Civil Engineering/
University of Peradeniya

PROJECT EXPERIENCE

Eastern Canyon Expansion, Puente Hills Landfill, Los Angeles County, California – Project engineer for the slope stability analyses of conceptual cut, lined and refuse fill slopes for the undeveloped “eastern canyons” area of Puente Hills Landfill. The analyses consisted of both 2D and 3D stability analyses, and analyses for seismic loading conditions including pseudostatic stability analyses and Newmark types simplified deformation analyses.

Frank R. Bowerman Landfill, Phase I, Orange County, California – Project engineer for the stability analysis of landfills, cut slopes, and fill slopes. He designed remedial measures and performed 2D and 3D static and dynamic stability analysis of proposed slopes for potential instability along the interface of the high density polyethylene (HDPE) and clay composite lining system at Frank R. Bowerman Landfill. Dr. Weeraratne used TECHBASE during the clay borrow analyses, developed graphical representation of 2D cross-sections from 3D data, developed graphical representations of downhole histograms from borehole data adjacent to cross-sections, constructed contour maps of the landfill from 3D data points using 3D estimators, and calculated the

Professional Overview

Dr. Weeraratne has over 14 years of geotechnical experience on a wide range of projects including QA/QC programs for construction of landfill liners and covers; landfill sitings and designs; seismic hazards analysis; landfill closure and post-closure maintenance plans; review of construction drawings, QA/QC of plans and specifications review; clay borrow evaluations; and transportation corridors, harbor facilities, and commercial and residential developments. He has managed and coordinated field explorations, instrumentation and laboratory testing programs, engineering analyses, and report preparations.

volume of clay from subsurface data.

Frank R. Bowerman Landfill, Phase I & II, Orange County, California – Quality control manager in charge of clay liner placements, totaling 38 acres, for the Phase I and Phase II design and development of Frank R. Bowerman Landfill. Dr. Weeraratne was responsible for daily direction of technicians performing observation, sampling, and testing of clay liner. In addition he created a database to generate daily and weekly reports of the construction activities, provided full-time field observation of clay liner construction to verify its sustainability to receive 3 million square feet of synthetic liner/geotextile (high density polyethylene), conducted the verification of excavation and backfill compaction control, conducted and coordinated quality control testing, including grain size distribution, Atterberg limits, moisture density, in site moisture density (nuclear, microwave, and sand cone), in situ BAT™ permeability, triaxial laboratory permeability, and sealed double-ring infiltrometer (SDRI).

Olinda/Olinda Alpha Landfill, Orange County, California – Project engineer provided geotechnical support in developing the master grading for the vertical expansion of Olinda/Olinda Alpha Landfill located in Orange County, California. Dr. Weeraratne's analyses were conducted in three phases (20, 50, and 90 percent) and included stability analyses of maximum fill refusal plan, 3D wedge-failure analyses for buttresses, and analyses for seismic loading conditions including pseudostatic stability and Newmark-type simplified deformation analyses.

Badlands Landfill, Riverside County, California – Geotechnical manager for a project to coordinate fieldwork involving density testing, BAT™ field permeability testing, laboratory testing, and data documentation for the 1,081-acre Badlands Landfill. Dr. Weeraratne provided a geotechnical evaluation for both the Canyon 1 and Canyon 3 expansions.

Lamb Canyon Phase II Expansion, Riverside County, California – Geotechnical engineer for an investigation and laboratory testing for the Phase II expansion. Dr. Weeraratne's work included a fault investigation, subsurface exploration, geotechnical data analysis, and slope stability evaluation of bedrock, landfill and cut/fill slopes.

Reclaimed Water Distribution System, Puente Hills Landfill, Los Angeles County, California – Geotechnical engineer for an investigation on a sitting reclaimed water distribution system which included a 10 million gallon reservoir and pipelines. Dr. Weeraratne's services included drilling, laboratory testing, slope stability evaluation, and foundation recommendations for reservoir and retaining walls.

Phase IV Expansion, Puente Hills Landfill, Los Angeles County, California – Assistant quality assurance (CQA) manager for a Phase IV composite liner construction. Dr. Weeraratne was responsible for day-to-day organization of the CQA staff and providing overall QA/QC for both earthworks and geosynthetics.



Emphasis

- Landfill Liners/Covers
- Sitings/Designs
- QA/QC Programs
- Project Oversight

Professional Registration

1987/Geotechnical Engineer,
California - No.269
1979/Civil Engineer, Texas -
No.57610
1963/Civil Engineer, California -
No.13932

Education

1979/MCE/Geotechnical
Engineering/University of
Houston
1959/BS/CivilEngineering/ New
Mexico State University

Professional Overview

Mr. Diaz has over 45 years of geotechnical and geo-environmental engineering experience. While most of his experience has been throughout California, he has completed projects across the United States and overseas. His project experience includes landfills, hazardous waste sites, contaminated site remediation, commercial and industrial facilities, roads and highways, elevated and depressed roadways, mass grading, landslides, and ground improvement and liquefaction mitigation. He has directed multi-disciplined soil, foundation, and geologic studies for various types of projects.

His input to design considers both constructability and practicality, and his solutions for difficult field or construction problems are made with a clear understanding of design considerations.

PROJECT EXPERIENCE

Bee Canyon Landfill, Orange County, California – Geotechnical project principal for the investigation and grading for a new landfill. Site and canyon excavations were conducted in preparation for liner construction. Mr. Diaz performed suitability evaluation of the onsite materials for liner.

Bradley Landfill, Los Angeles, California – Geotechnical project director and consultant for a soil/rubble fill, up to 200 feet high. Mr. Diaz provided recommendations for foundation support of the MRF Transfer Facility and prepared the report.

Durham Road Landfill, Fremont, California – Geotechnical project director and consultant for seismic design studies to evaluate the feasibility of increasing a 90 foot high landfill, by 40 feet. The site is located over San Francisco "Bay Mud". Mr. Diaz provided evaluations including predicting ground motions, liquefaction potential, static and dynamic slope stability, and seismic deformation.

Olinda Landfill, Orange County, California – Geotechnical project director for studies in the design and construction of a dynamically loaded landfill gas powered electric power plant. Mr. Diaz oversaw testing and analyses and prepared the report.

Rohm & Haas Chemical Plant, Houston, Texas – Geotechnical manager for a project to conduct soil and geologic investigations and laboratory studies in order to select sites suitable for waste disposal. Lab studies were conducted to optimize mix ratios of inert waste with local soils to create a usable site upon completion. Mr. Diaz directed investigations and prepared the report.

Low Level Radioactive Waste Site, Southern California – Geotechnical engineer for a project to perform a reconnaissance level investigation for a low level radioactive waste landfill. The area studied included an area of California south of Bakersfield. Mr. Diaz identified potential sites which were investigated in more detail after passing initial screening tests.

Chemical Plant, Pasadena, Texas – Geotechnical manager for the investigation of a proposed disposal site for waste products from chemical plants. Mr. Diaz evaluated the sites' suitability based on soil and geologic conditions, designed containment, and recommended predisposal processing to ease handling and minimize disposal volume.



U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, DC 20416

MAR 12 2003

RECEIVED MAR 17 2003

Mr. Gerald Diaz
President
Diaz Yourman & Associates
1616 East 17th St.
Santa Ana, CA 92705

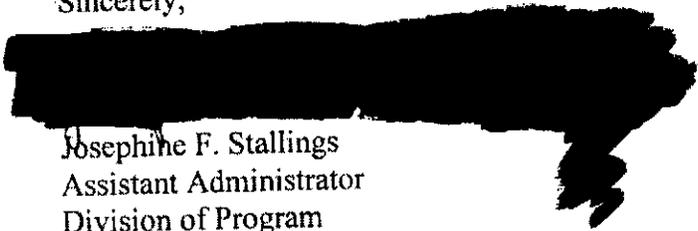
REF: SDB Tracking #: WA0001-00011531
Expiration Date – (Three years from date above)

Dear Mr. Diaz:

We are pleased to inform you that your firm is certified as a Small Disadvantaged Business (SDB) under U.S. Small Business Administration (SBA) guidelines. You are now eligible to participate in the SDB Program. Certification is valid for three years from the date of this letter. Your firm will be added to SBA's list of certified SDBs found in PRO-Net, SBA's on-line registry, at <http://pro-net.sba.gov>.

The SDB Program regulations in Title 13 of the Code of Federal Regulations, Section 124.1016(b), require that during your three-year term you report within 10 days any changes in ownership and control or any other circumstances which could adversely affect the eligibility of your firm as an SDB. Failure to do this could result in the decertification of your firm. Please note also that in order for your firm to continue to participate as an SDB after its three-year term, you must reapply for the SDB Program. I wish you much success in your future business endeavors.

Sincerely,


Josephine F. Stallings
Assistant Administrator
Division of Program
Certification and Eligibility
Office of Business Development



Appendix E-3

I.K. CURTIS SERVICES, INC.

- **Qualifications and Project Experience**
- **Resumes**
- **Small Business Certification**

I.K. Curtis Services, Inc.

Aerial Photography

(IKCS) is an aerial photography firm located in Burbank California, specializing in the capture of aerial images for Engineering, Government, Utility, Transportation, Environmental, Real Estate, and other Commercial Markets.

Services

I. K. Curtis Services, Inc. (IKCS) is a full service aerial photography firm. We have the largest fleet of aircraft, full-time flight crews, and cameras in the southwest. We take great pride in our high quality of photography and flight services. Also, by partnering with key companies we provide mapping, ortho-photo, or multi-spectral products. Our aircraft excel in medium and large area projects, yet we still provide the same quality and personal service to the smallest of jobs.

Aircraft

Our aircraft are specially equipped with additional fuel and engines that are highly efficient at all altitudes. This gives us maximum photo capacity on every flight. Our flight crews are extraordinary, and have over 20,000 combined aerial photography flight hours. Other firms often use our aircraft as a platform for research and development of airborne sensors and specialized equipment. Our in-house mechanics equip the planes according to our customer's requirements and special needs.

Photography

Customers have stated our cameras are "the best on the West Coast". I.K. Curtis Services primarily uses two cameras with optics of the highest quality - We also offer unique photography using cameras largely unavailable to other companies. These include three 16 mega-pixel digital cameras, oblique cameras and a variety of large format cameras (up to 9"x18" negatives). Our photography can be delivered on nearly any media including CD's, DVD's and AirPhotoUSA PhotoMapper software which is ready for immediate implementation into your GIS system.

Stock Photos

We have a stock library of over 35,000 negatives, going back annually to the early 1970's. It covers areas from San Luis Obispo County to the Mexican border, and from the Pacific Ocean into parts of San Bernardino and Riverside Counties. In the last five years, we have additional coverage throughout California, including Kern County, Sacramento, San Francisco, Sonoma, and the Coachella Valley. Photos can be reviewed at our corporate office.

Imagery

Because IKCS is an authorized distributor for AirPhotoUSA, we are able to offer off-the-shelf CD's of the stock imagery listed above. We can also digitally mosaic, add custom graphics and print the images, meeting our customer's every request.

Background

IKCS is a small, woman and veteran owned California corporation which was founded in 1969 by Joan and Ivan Curtis and. Joan, President and Chief Financial Officer, owns the majority of stock. There are no other officers of the corporation.

Location

Our corporate offices are located at 2501 Burbank Boulevard suite 301, in Burbank, California, while the hangar facilities are on the Burbank Airport, only a mile away.

www.IKCurtis.com



JOAN J. CURTIS

President

I. K. Curtis Services, Inc.

Aerial Photography

“Because Image is Everything”

Project Assignment

Project Manager

Key Qualifications

Joan Curtis brings over 32 years of experience in managing the aerial photography firm of I. K. Curtis Services, Inc. Joan received her initial training and photographic experience during her naval career. She attended United States Navy Schools of Photography in the mid 1950's and was assigned to The Naval Photographic Center in Washington D. C. . Her training was carried over into the civilian market where she worked in motion picture labs in both Washington D.C. and Hollywood, California.

I. K. Curtis Services, Inc. was established in 1969 by Joan and Ivan Curtis. The company is now the largest and most versatile aerial photography company in Southern California. The Company specializes in aerial photography for mapping and survey with a full service photo lab. Digital products and services have been growing in the past few years. The company currently has a contract with Caltrans to secure pure digital capture of all 15,000 miles of California's highways.

Relevant Experience

- Joan has successfully negotiated and/or bid contracts with the City and County of Los Angeles and numerous departments within the City and County for thirty two years. The projects vary from vertical and oblique shots of Los Angeles Harbor to one of \$400,000. for the Los Angeles Department of Water and Power. A sampling of projects is listed on our the Form 254.
- Joan has put together a team of professional pilots, photographers, photo lab technicians and equipment that are ready and able to work on projects like the Los Angeles County Public Works Project. These teams have completed many projects like this, in Los Angeles City and County.
- I. K. Curtis Services, Inc. is the only aerial photography firm which resides in Los Angeles County.
- Joan attends 20 hours of continuing education twice a year through the Management Association of Private Photogrammetrists and Surveyors (MAPPS.)

FAST FACTS

Years of Experience

32

Education

U.S. Navy School of Photography

Bachelor of Science, Business & Personnel Management;

California State University, Northridge

Registrations/Affiliations

Management Association of Private

Photogrammetrists and Surveyors (MAPPS)

American Society of Photogrammetry and Remote Sensing (ASPRS)

Photo Marketing Association (PMA)

- Proven management skills
- Successfully built and managed aerial photography company for 32 years.

GEORGE H. HALLEY

GENERAL MANAGER

I. K. Curtis Services, Inc.
Aerial Photography
“Because Image is Everything”

Project Assignment

Project Manager, Quality Assurance, and
Flight Operations Management

Key Qualifications

George's relevant expertise is in the GIS/Remote Sensing and Information Technology field. He has broad experience in the military application of Remote Sensing in all spectrums and using ESRI and ERDAS applications. He has an engineering and project management background with strong quality assurance training and skills. He has received many military commendations for being an innovative problem solver with proven success in both independent and team environments. George has strong qualitative and analytical skills with a detail oriented, self-starting personality. He has held TS/SCI clearances.

Relevant Experience:

Self-Employed GIS/IT Consultant, Pasadena, CA 7/98 to present
GIS consultant, Project Manager, SysAdmin, and Help Desk Technician

- GIS consultant for Bechtel and other corporations. Example projects listed below.
- Developed small technical multi-media department reaching an international audience.
- Converted campus with 150+ computers from peer-to-peer to client-server network.
- Sys Admin, help desk, and technical trainer for CMS and others corporations for 3 years
- Created mobile video editing and Internet upload suite used throughout the Middle East.
- Numerous projects of programming, hardware setup and repair, and database development

National Reconnaissance Office OD-4/DX, Sunnyvale, CA 7/95 - 7/98
Operations Engineer/Commander & Chief of Customer Support

- Operations leader of multi-billion dollar remote-sensing systems. Perfect mission record
- Led group that tested and recommended operational NRO wide changes.

1st Space Surveillance Squadron, Rome, NY 3/93 - 6/95 Operations Engineer

Site received highest rating from IG; George recognized as top member in position.

19th Space Surveillance Squadron, Diyarbakir, Turkey 1/92 - 2/93 Operations Commander
Tactical missile warning, space intelligence and surveillance near Iraqi border

FAST FACTS

Years of Experience

13 years training and experience in IT and GIS
National Recon Office OD-4DX, Sunnyvale, CA
1st Space Surveillance Squadron, Operations Engr.
19th Space Surveillance Squadron, OperationCmdr.
Self-employed GIS/IT Consultant serving Bechtel
and other corporations.

Qualifications:

U.S. Air Force Academy, B.S. Degree 1991
Syracuse University, Information Systems and
Telecommunication Mgmt, MSC 1995
Various USAF training schools
Penn State ArcGIS classes

ANDERS JERMSTAD

Lead Aerial Photographer
I. K. Curtis Services, Inc.
Aerial Photography
“Because Image is Everything”

Project Assignment

Aerial Photographer

Key Qualifications

Anders Jermstad began his photography career as a field Production Intern with KFMB – TV a CBS affiliate in San Diego, in 1989.

Mr. Jermstad went on to get his degree in Photography, with a specialty in Cinematography from the University of Southern California, in 1997. Anders worked several years in various fields of photography including studios, communications, publishing and freelance, winning many honors and awards along the way. After Anders became a licensed private pilot, he put his love of photography and his love of flying together and came to work for I. K. Curtis Services, Inc. as an aerial photographer in November of 1998.

Anders has been involved with all aspects of aerial photography, from flight planning through film editing of the processed film. He has flown in excess of 2000 hours of aerial photography missions; many of them with airborne GPS (ABGPS.)

Some of his unique skills include piloting, scuba diving, music/composing, and computer technology.

His computer skills are an asset to flight planning, GPS, and flight management systems currently used for aerial photography.

Relevant Experience

- Anders has flown over 2000 hours of photo survey missions. projects is listed on our the Form 254.
- On going training through workshops and seminars on new equipment as I. K. Curtis Services, Inc. procures new technology.
- Numerous airborne GPS projects successfully accomplished.
- Has flown missions with RC8, RC10, RC20, RC30 precision mapping cameras; used the LH Systems gyro- stabilized mount; 9”X18” camera with 24”fl camera; video and digital cameras, and an array of hand held oblique cameras.

FAST FACTS

Years of Experience

12

Education

Bachelor of Arts, Cum Laude, University of Southern California, 1997 Cinema - Television

A.A. Degree, with honors, San Diego City College

MAPPS Workshop on Airborne GPS

L H Systems workshops on RC30

Skills:

- 2000 hours photo navigation
- RC10, RC20, RC30 mapping cameras
- Flight management systems
- Airborne GPS

JACK METHOT

Pilot

I. K. Curtis Services, Inc.
Aerial Photography
“Where Image is Everything”

Project Assignment

Pilot

Key Qualifications

Jack Methot has been a survey pilot with I. K. Curtis Services, Inc. since April 2002. He has flown over 900 survey hours and has over 2000 total flight hours. Jack holds FAA ratings in commercial single engine aircraft land and sea, multi engine aircraft land, instrument flight, and private privileges glider. He is experienced in training civilian pilots in a variety of disciplines including image collection and flight training.

During a career spanning thirty-three years, Jack has had varied experience within the aviation industry, as a pilot, sales and marketing specialist, LiDAR Imaging Operator and Manager and a Digital Mapping Manager. He is skilled in GPS navigation, LiDAR Imaging techniques, Digital Map Making Systems, aviation contract preparation and federal international shipping regulations. He is quick to seek out and learn new technology.

Mr. Methot served as a Captain in the U.S. Marine Corps. His military experience included being a carrier qualified jet pilot, a nuclear attack pilot, an air-to-air combat instructor and an airline hi-jack pursuit and maintenance test pilot.

His responsibilities with I.K. Curtis Services include, flying aerial survey missions, flight planning duties, and keeping abreast of all legal and technical information required for intelligent, safe and logistic flight operations.

Jack has previously been employed by such companies as Airborne 1, TerraPoint LLC, Etak Incorporated, Mirage Systems, Del Monte Aviation and Parks-Jaggers Aerospace.

Relevant Experience

- Jack has flown 2000 total flight hours including 900 survey hours.
- 33 years of industry related experience in various aerospace, imaging and mapping firms.
- Experienced Optech LiDAR Field Operator adept in flight line creation, PDOP charting, GPS navigation and FAA flight restrictions.
- Captain and pilot in U.S. Marine Corps.

FAST FACTS

Years of Experience

33 years of industry experience.

Qualifications:

B.A. Degree in Geography, San Jose State.
U. S. Marine Corps Naval Aviator.
Experience with LiDAR Image Projects.
Experience with Aircraft Sales and Marketing.
Knowledge of Digital Map Making Systems.
FAA ratings: Commercial Single Engine, Land and Sea, Multi Engine Land, Instrument & Private Glider

Registrations/Affiliations

- Experimental Aircraft Association
- American Production & Inventory Control Soc.
- California Teaching Credential



I.K. Curtis Services, Inc.

Aerial Photography

2501 Burbank Blvd, Ste 301, Burbank, CA 91505

818.842.5127 FAX 818.842.7235

Website: www.ikcurtis.com Email: sales@ikcurtis.com

EQUIPMENT/MATERIAL LIST

The equipment listed below is owned by I.K. Curtis Services, Inc.

AIRCRAFT

- Turbo Cessna 310 N111SD
- Turbo Cessna 210 N7568N
- Turbo Cessna 210 N610KC
- Turbo Cessna 206 N9125Y

Aircraft are equipped with TCAD early warning systems, GPS and flight management systems capable of recording geographic coordinates during exposure.

CAMERAS

- LH Systems RC30 lens #13367 (FMC) (ABGPS) Gyro Mount
- LH Systems RC30 lens #13408 (FMC) (ABGPS) Gyro Mount
- LH Systems RC20 lens #13157 (FMC) (ABGPS)
- CHS 9x18 24"fl -Pentax 6x7 Camera
- CHS 9X9 24"fl -Video Cameras
- CHS 9X9 12"fl
-

FILM PROCESSING

- Kodak 11CM Versamat for B&W

PRINTING AND PRINT PROCESSING

- LogE B&W SP10-70-C strip contact printer
- EPC electronic dodging printer
- LogE Mark II B&W contact printer
- 2 LogE Mark III color contact printer
- 2 LogE Mark IV color contact printer
- LogE Mini printer
- HK auto size auto focus color enlarger
- 9"x18" B&W contact printer
- 20"x24" B&W contact printer
- Dupont ERF 42" Rapid access B&W processor
- 2 Durst 10"x10" -enlargers, color/B&W
- 32" Kreonite color print processor

DIGITAL

- Two 5.3k x 4k and one 4x4 digital color camera systems (excellent for corridor type work)(can record date, time, coordinates)
- PC Computers for image processing
- Epson 1640XL 12"X17" Flat bed scanner
- 44" Epson 9600 archive quality inkjet printer
- 13"X19" Epson 1270 inkjet printer

MISCELLANEOUS

- Computerized film titling
- Richards automated light tables
- Houston Fearless splicers
- Densitometer/Sensitometer



PROCUREMENT DIVISION

Office of Small Business and DVBE Certification

707 Third Street, 1st Floor, Room 400 * PO Box 989052

West Sacramento, California 95798-9052 * (800) 559-5529

SB APP 20040831

August 31, 2004

REF# 0024299
I K CURTIS SERVICES INC
2501 BURBANK BLVD #301
BURBANK CA 91505

Dear Business Person:

Congratulations on your certified small business status with the State of California. Your certification entitles you to benefits under the state's Small Business Participation Program within state contracting, including a five percent bidding preference and special provisions under the Prompt Payment Act.

Certification period

Your certification period for each business type is:

Industry

SERVICE



Annual Submission Requirement

To maintain your certified status, you must annually submit to the Office of Small Business and DVBE Certification (OSDC), proof of annual receipts and proof of employees for your firm and each of your affiliates (if any).

Proof of Annual Receipts

Submit to OSDC, a copy of your firm's and any affiliate firm's ENTIRE federal tax return each year following your certification. Include ALL accompanying schedules, forms, statements, and any other support documents filed with that specific tax return.

If you request a tax filing extension with the Internal Revenue Service, submit to our office a copy of the extension form. When your tax returns are filed, submit a copy of the entire federal tax return to our office.

Proof of Employees

If you have employees whose taxable wages are reported to the California Employment Development Department (EDD) on a quarterly basis, you must annually submit to our office along with your proof of annual receipts, proof of employees for your firm and any affiliates.

We will accept a copy of the EDD's "Quarterly Wage and Withholding Report" (Form DE6) or other format accepted by the EDD. Your employee documents must cover the same four quarters as the tax return you submit for your proof of annual receipts.

If you have out-of-state employees, submit the employee documentation comparable to EDD's "Quarterly Wage and Withholding Report" for the same four-quarter period.

Maintain Your Online Certified Firm Profile



COUNTY OF LOS ANGELES
OFFICE OF AFFIRMATIVE ACTION COMPLIANCE

Kenneth Hahn Hall of Administration
500 West Temple Street, Room 780
Los Angeles, California 90012
(877) 669-CBES / FAX (626) 457-3112
TDD (626) 293-5708
Website: <http://oaac.co.la.ca.us>

Address all correspondence to:
CONTRACT COMPLIANCE
1000 S. Fremont Avenue
Building A-9 East, 1st Floor
Mail: Unit #24
Alhambra, CA 91803-8862

Dennis A. Tafoya
Director

May 13, 2005

Joan Curtis
I K CURTIS SERVICES INC
2901 Empire Avenue
Burbank, CA 915043108

Vendor #: 02217701

Dear Joan Curtis:

Congratulations! Your business has been certified as an eligible participant in the County of Los Angeles Local Small Business Enterprise Preference Program (Local SBE). Your Local SBE certification is valid until August 31, 2006.

In order for Local SBE preference consideration, each eligible solicitation for the Local SBE preference will include the "Request for Local SBE Preference Program Consideration" form. You must complete the form and provide the above Vendor Number in your bid/proposal for each response to a County solicitation.

The County of Los Angeles Office of Affirmative Action Compliance reserves the right to request additional information and/or conduct an on-site visit at any time during the certification process and/or period to verify any documentation submitted by the applicant. If there are any changes in the State of California Office of Small Business and DVBE Certification (OSDC) SBE status, ownership, control of the firm or principal place of business during the certification period, you are required to notify this office and the OSDC immediately.

Again, congratulations on your certification. If you have any questions regarding the Local SBE Program, visit our website at <http://oaac.co.la.ca.us/SBEMain.htm> or call the Local SBE Customer Service at (877) 669-CBES.

Sincerely,

DENNIS A. TAFOYA
DIRECTOR


OZIE L. SMITH
Senior Deputy Compliance Officer

DAT:OLS

**BOARD OF PUBLIC WORKS
MEMBERS**

—
CYNTHIA M. RUIZ
PRESIDENT

DAVID SICKLER
VICE PRESIDENT

PAULA A. DANIELS
PRESIDENT PRO TEMPORE

YOLANDA FUENTES

VALERIE LYNNE SHAW

—
JAMES A. GIBSON
EXECUTIVE OFFICER

CITY OF LOS ANGELES

CALIFORNIA



ANTONIO R. VILLARAIGOSA
MAYOR

RECEIVED
NOV 21 2005

BY: _____

JOHN L. REAMER, JR.
Inspector of Public Works
And
DIRECTOR OF

BUREAU OF
CONTRACT ADMINISTRATION
221 N. Figueroa St., Suite 700
Los Angeles, CA 90012
(213) 580-1382

Office of Contract Compliance
600 S. Spring St., Suite 1300
Los Angeles, CA 90014
(213) 847-6480

<http://www.lacity.org/bca>

October 24, 2005

Ms. Joan Curtis
I. K. Curtis Services, Inc.
2501 Burbank Blvd. Ste 301
Burbank, CA 91505

Dear Ms. Curtis:

**RE: CITY OF LOS ANGELES WOMEN BUSINESS ENTERPRISE
(WBE) CERTIFICATION RENEWAL File No. CCA - 2413**

Your **Women Business Enterprise (WBE)** certification renewal date has been extended to 11/23/2007. You will be notified at a future date as to the renewal of your certification.

If you have any questions, please contact John Pattison at (213) 847-5574 or e-mail at jpattiso@bca.lacity.org.

Sincerely,

HELMUT PEINDL, Certification Manager
Office of Contract Compliance
Bureau of Contract Administration



Appendix E-4

HUSHMAND ASSOCIATES

- **Qualifications and Project Experience**
- **Resumes**
- **Small Business Certification**



HUSHMAND ASSOCIATES, INCORPORATED

Geotechnical, Earthquake and Environmental Engineers

Statement of Qualifications



Solid Waste Landfill Construction
Riverside County, California



Dynamic Testing of Concrete Bridge
Lake Elsinore, California



Office Building Foundation Construction
City of Los Angeles, California



Landslide Evaluation and Mitigation
Orange County, California

Hushmand Associates, Inc.
15451 Red Hill Avenue, Suite A
Tustin, California 92780
Tel: (714) 247-1655
Fax: (714) 247-1652
e-mail: hai@hushmand-associates.com

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1.0 FIRM BACKGROUND

Hushmand Associates, Inc. (HAI) is a consulting geotechnical, earthquake and environmental engineering firm with a team of highly qualified engineers and geologists. HAI's staff has extensive experience in major public works, water resources, infrastructure, power, municipal and hazardous solid waste management, and industrial engineering projects involving conventional and specialty geotechnical and earthquake engineering.

HAI's key professionals are thoroughly familiar with all phases of geotechnical investigations, including field exploration, laboratory testing, engineering analysis, earthwork and foundation analysis and recommendations, design and construction quality assurance/quality control and peer review procedures, and construction management methods. HAI's professionals have provided detailed design and QA/QC services for pavements, shallow and deep foundations, pipelines, mine sites, power plants, temporary shorings, slope stabilization, and earthwork procedures and specifications.

HAI has provided state-of-the-art engineering services on numerous major civil engineering projects. These included geotechnical and seismic performance evaluation for the Metropolitan Water District (MWD) Jensen Filtration Plant in Sylmar, Los Angeles County, California; Santa Anita Reservoir fault rupture hazard evaluation, Arcadia, California (City of Arcadia); National Ignition Facility project in Livermore, California (Parsons/U.S. Department of Energy); El Toro Marine Corps Air Station (MCAS), El Toro, Orange County, California; final cover of OII Landfill Superfund Site in Monterey Park, Los Angeles County, California (U.S. EPA); and several other projects for the U.S. Geological Survey and National Science Foundation.

Hushmand Associates offers exceptionally strong capabilities and experience in seismic hazard evaluations, earthquake engineering and soil dynamics. Our capabilities and experience cover the full range of geotechnical engineering aspects of seismic design and site-specific evaluations of seismically-induced geologic hazards, including ground shaking, ground rupture potential, slope instability, pore water pressure buildup and liquefaction potential, as well as related ground settlement, lateral spreading, and bearing capacity failure and mitigative measures. Both deterministic- and probabilistic-type seismic hazard evaluations to allow for making risk management decisions by facility owners and for complying with applicable regulations are routinely performed in our projects.

HAI has provided seismic geology and earthquake engineering services to clients throughout the highly seismic western U.S. and is actively engaged in government-sponsored seismic research work under the National Earthquake Hazard Reduction Program (NEHRP). HAI has also pioneered strong motion instrumentation studies and seismic response analyses of landfills for the U.S. Environmental Protection Agency (USEPA). In addition, HAI's personnel have performed numerous site-specific liquefaction potential assessments for a wide variety of water/wastewater, commercial, industrial, and infrastructure facilities. Recent examples are the geotechnical investigations, including liquefaction evaluation, for Morro Bay Power Plant in Morro Bay, California.

2.0 HAI's PROFESSIONALS

Resumes of HAI's key California-Registered professionals, namely, Mr. Ben Hushmand, Ph.D., PE; Mr. Julio Badel, PE; Mr. Bill Lu, Ph.D., PE, GE; Mr. Bruce Schell, RG, CEG; Mr. Kenneth Wilson, RG, CEG; and Mr. Ramon Chavez, RG, CEG are included in the full version of the HAI's SOQ and can be provided upon request. Figure 1 presents HAI's company organization chart. Primary point of contact with clients will be Mr. Julio Badel or Dr. Ben Hushmand. Dr. Hushmand, who is currently a part-time faculty of the California Institute of Technology (Caltech) in Pasadena, California, provides seismic and geotechnical engineering and vibration control design services for HAI's projects according to the latest developments in the state-of-the-practice and regulations.

Mr. Kenneth Wilson, HAI's lead geologist, will support Mr. Badel and Dr. Hushmand in geotechnical and seismic engineering projects. Dr. Bill Lu, a California registered geotechnical engineer, will provide peer review of HAI's projects. Messrs. Schell and Chavez provide geological services and assist Mr. Badel with managing HAI's field and laboratory activities. Mr. Bruce Schell is currently a member of the State Building Hospital Safety Board. The following provides summary qualifications of the key HAI's personnel and associates, including HAI's field/laboratory technicians.

**BEN HUSHMAND, Ph.D., P.E. # 44777, California
Faculty Associate, California Institute of Technology
Principal Geotechnical and Earthquake Engineer**

Dr. Hushmand's 20 years of experience includes consulting, research, and teaching. As the principal geotechnical and seismic engineer, he provides overall quality control, management, technical supervision and performance for geotechnical, earthquake, structural engineering, and solid waste management projects. Dr. Hushmand received his Ph.D. degree from Caltech in 1983 and is a faculty associate at Caltech teaching and performing research in geotechnical and earthquake engineering from 1990 to present. He performs and supervises geotechnical and seismic engineering investigations, design, and construction management for transportation and public works projects, ports and harbors, municipal and hazardous solid waste landfills, commercial and residential developments, dams and reservoirs, and water and sewer treatment plants.

Dr. Hushmand has worked on a number of water resources facility projects in California and other western states in the country. Examples of these projects are geotechnical investigation for design of levees and dikes at Naval Air Station, City of Alameda, Alameda County, and Morro Bay Power Generating Plant in Morro Bay, San Luis Obispo County, California; post Northridge Earthquake seismic evaluation and testing at Jensen Filtration Plant, Metropolitan Water Districts of Southern California (MWD); fault rupture hazard studies at Santa Anita and Mira Monte reservoirs, Cities of Arcadia and Sierra Madre, California; geotechnical investigation at Springdale Street, Saint Joseph, Groove Street, Whittier, Cucamonga, Norwalk, Van Nuys, Longden, Amherst, Wheeler, and many other reservoirs in southern California; geotechnical and seismic evaluation for Orange County Sanitation Districts Plant No. 1 and Pepperdine University wastewater treatment plants; geotechnical and seismic evaluation for Palo Verde Nuclear Generating Station evaporation pond; geotechnical and seismic evaluation for Dos Pueblos, Linden, and Palisades dams, and North Simi storm water detention basin in counties of Santa Barbara, Ventura, Riverside, and Orange.

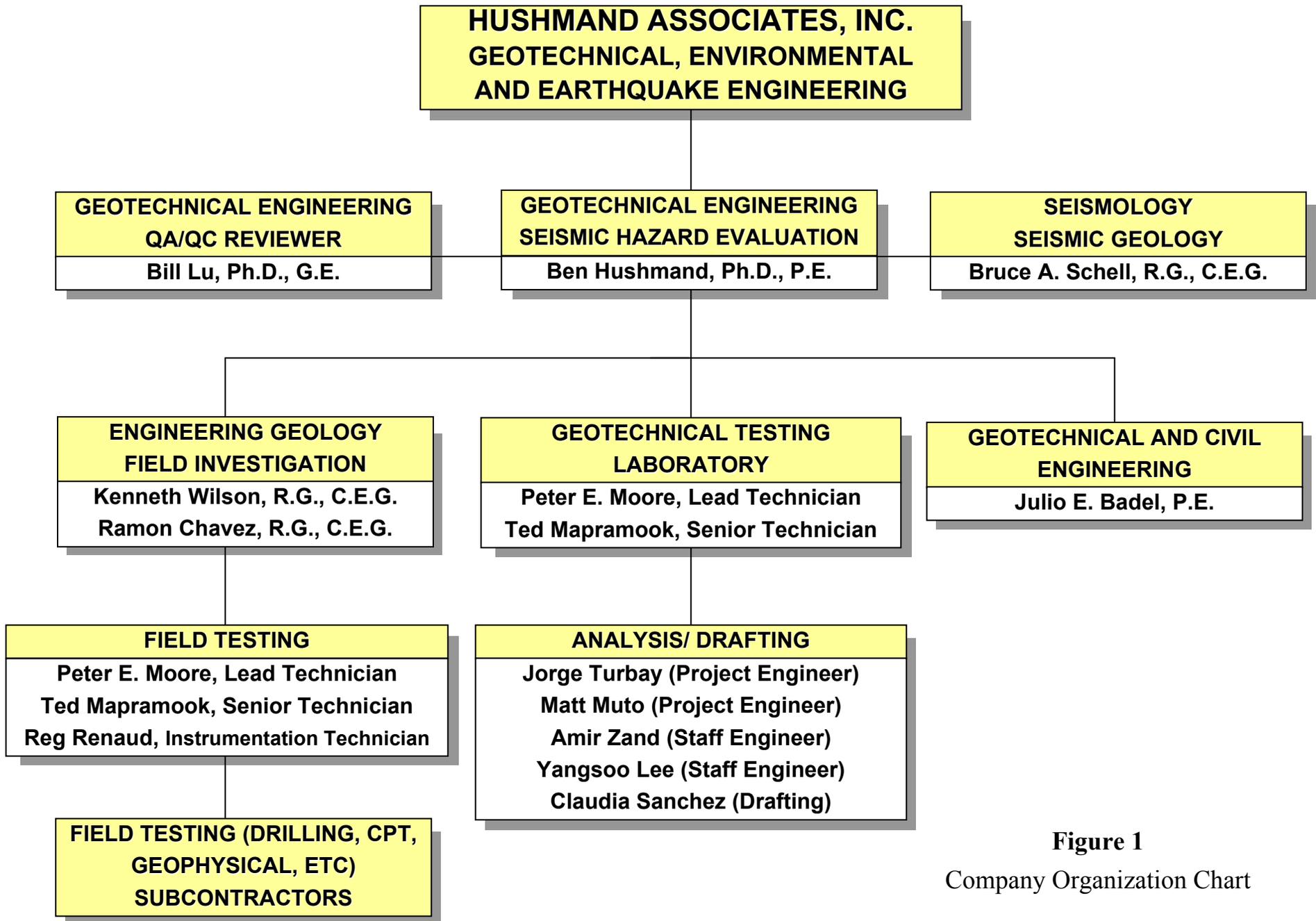


Figure 1
Company Organization Chart

During the past 20 years, Dr. Hushmand has worked on some of the most challenging geotechnical and earthquake engineering projects including geotechnical and vibration studies of the National Ignition Facility (NIF) at four DOE national laboratories in California, Nevada, and New Mexico; seismic monitoring of OII Superfund site in Monterey Park, California; MX (intercontinental ballistic missile siting) project; Port of Los Angeles 2020 project; Superconducting Super Collider (SSC) project in Texas; Metro Rail project in Los Angeles; and low- and high-level nuclear waste storage programs in California, Nevada, New Mexico, and Texas.

Dr. Hushmand's pioneering work in dynamics of foundations and seismic instrumentation and monitoring of landfills is internationally recognized. He has been a consultant for the USGS, Nuclear Regulatory Commission, DOE, and the EPA studying earthquake ground motions and dynamic behavior of foundations and landfills. Dr. Hushmand is a member of the American Society of Civil Engineers, Earthquake Engineering Research Institute, Seismological Society of America, and is a Registered Civil Engineer in California. He has also authored or coauthored more than 100 technical papers and reports.

**BILL T.D. LU, Ph.D., P.E., G.E. # 2128, California
Retained Technical Advisor/Peer Reviewer**

Dr. Lu has more than 30 years of experience in diversified geotechnical and earthquake engineering services for virtually all types of civil engineering facilities. He obtained his Ph.D. degree in geotechnical engineering from California Institute of Technology (Caltech) in 1973 and a M.S. degree in geotechnical engineering from Duke University in 1967. Dr. Lu is a California-licensed Professional Engineer (Certificate No. CE39739) and Geotechnical Engineer (Certificate No. GE 2128). Dr. Lu is a member of American Society of Civil Engineers. He has worked as an Adjunct Professor at Cornell University in 1977 and New Jersey Institute of Technology in 1975, where he taught graduate courses in soil dynamics and earthquake engineering.

Dr. Lu has directed more than 200 geotechnical engineering projects for design and construction of various civil engineering facilities including dams and reservoirs; ports, and terminals, near-shore and offshore facilities; transportation corridors and infrastructures; large aboveground and underground facilities; and residential and commercial developments. He has authored more than 100 engineering project reports and a number of technical papers, covering a wide range of geotechnical engineering topics. Dr. Lu has been a member of Hushmand Associates technical team since 1994 as a retained consultant, serving as an expert technical advisor and peer reviewer for several critical projects such as Port of Los Angeles, Pier 300 Geotechnical Investigation and Alameda Naval Air Station (Alameda, California) Geotechnical and Seismic Evaluations for the site closure study.

Dr. Lu is well known for his goal-oriented and schedule/budget-conscientious approach as well as his record of providing innovative and practical solutions as exemplified by his long-term relationships with his clients. Dr. Lu has worked on Los Angeles Metro Rail Program for many years demonstrating that he has been the consultant of first choice for this critical and high-profile project since 1987.

JULIO E. BADEL, P.E. # 51326, California

Principal Geotechnical/Civil Engineer

Mr. Badel has in-depth diversified experience in civil and geotechnical engineering. He received his M.S. degree in Geotechnical Engineering from California State University, Long Beach in 1979 and his Civil Engineering degree from Universidad Javeriana in Colombia. He is a Registered Civil Engineer in California and Colombia. During the past 25 years, he has been involved in project planning and management, field investigation and testing, engineering analysis and design, construction quality assurance/quality control and construction management for various types of projects including offshore facilities, nuclear power plants, municipal solid waste and hazardous waste landfills, ports and harbors, liquid waste containment structures and tailings facilities, commercial developments, excavation and grading for numerous infrastructure and industrial facilities, pipelines, railroad tracks, roads, drainage structures, and land development projects.

Mr. Badel's extensive experience in civil and geotechnical engineering design, construction monitoring and management, and supervising CADD operations for a variety of major civil engineering projects including power plants, water resources, parks, and roads and bridges will be exceptionally valuable for the proposed Los Angeles County Department of Public Works consulting and construction services project. His experience involves civil engineering design of surface water management systems, roads, large excavations and fills, and development and evaluation of geotechnical data, field testing including offshore drilling, laboratory geotechnical testing, geosynthetic materials/soil interface shear strength testing, permeability measurement, slope stability evaluation, liner and cover selection, and preparation of construction drawings and specifications.

BRUCE SCHELL R.G., C.E.G. #1434

Principal Engineer Geologist

Conducting engineering geological investigations for government agencies, other geotechnical firms, land developers, insurance companies, law firms, and property owners. Typical investigations comprise 1) seismological hazards analyses such as identifying earthquake sources, compiling historical seismicity, estimating maximum earthquakes, calculating earthquake probabilities, and evaluating seismically induced ground failures (e.g. liquefaction), 2) evaluating geological hazards such as faults, landslides, ground subsidence, and erosion, 3) developing geological and hydrological maps and cross-sections, 4) site characterization such as determining geological and engineering conditions of soil, sediments, and rocks, and 5) environmental assessments, evaluating environmental impacts, and recommending and monitoring mitigations.

Mr. Schell has performed several geological and seismological research projects. Current research interests include 1) the relationship between earthquake faults and seismically induced ground failures (surface rupture, liquefaction, and landslides), 2) fault rupture and earthquake frequency in the western U.S., and 3) subduction-zone seismicity and tectonics.

KENNETH WILSON, R.G., C.E.G. #928, California

Principal Engineering Geologist

Kenneth Wilson is responsible for management, technical supervision, and performance of engineering geology, geotechnical, groundwater/hydrogeologic, environmental impact, and environmental geology projects. He is a Registered Geologist and Certified Engineering Geologist in California. He performs and supervises environmental assessments for commercial, industrial, and governmental projects covering the disciplines of hydrogeology, engineering geology, geology, hydrology, seismicity, tectonics, faulting, mineral resources, and waste management. Geotechnical studies include fault evaluations, ground failure assessments, slope stability and foundation materials characterization, liquefaction potential, flooding hazards evaluation and site selection to aid in defining geologic and geotechnical conditions and hazards, which may affect the feasibility and design of any type of development project.

Mr. Wilson has over 28 years of technical performance and project experience in critical facilities (such as schools, hospitals, and water reservoirs) studies, waste management (hazardous/radioactive/mixed), impacts to surface and groundwater resources, waste disposal site development, and engineering geology investigations for dams and reservoirs and numerous other engineered structures. Specialized experience is in engineering geology in support of geotechnical studies, site selection/evaluation, seismic safety, integration of multidisciplinary technical teams, environmental impact assessments/statements/reports and project management.

RAMON CHAVEZ, R.G., C.E.G. #1599

Principal Engineering Geologist

Mr. Ramon Chavez received his M.S. degree in Geology from University of Texas at El Paso and his B.S. degree in Geology from Instituto Politecnico Nacional, Mexico. He is a State of California Certified Engineering Geologist with over 21 years of experience specializing in the design and construction of solid and hazardous waste management facilities, site assessment and remediation of contaminated sites, environmental and health & safety compliance, and engineering and seismic geology and geotechnical projects. His experience has been acquired while working in the US and Mexico.

He has performed engineering geology and environmental studies for solid and hazardous waste landfills and facilities and contaminated sites, manufacturing facilities, buildings, and other civil infrastructure projects. He has also performed materials characterizations, and borrow source evaluations for site selection, feasibility, and development studies. As part of his responsibilities, Mr. Chávez has worked on over 30 solid waste landfills/hazardous waste management facilities and has performed the design of landfill liner and cover systems under international standards including the preparation of construction specifications, drawings, QA/QC Plans, and cost estimates. His design experience includes the application of geomembranes, geosynthetic clay liners, geotextiles, geonets, geocomposites, and geogrids. He has also prepared permitting documents for landfill development and closure.

JORGE TURBAY, MSCE

Project Engineer

Mr. Turbay received his M.S. degree in Geotechnical and Civil Engineering from Los Andes University in Colombia and his B.S. degree in Civil Engineering from Del Norte University, Colombia. He has extensive experience in geotechnical projects for water resources, highways, bridges and electric power plants. Mr. Turbay has been involved in geotechnical investigations, drilling, soils testing, dynamic characterization and evaluation of response of one-dimensional soil deposits, pavement design, slope stability analysis, and analysis of field and laboratory data to develop geotechnical design parameters.

MATT MUTO, MSCE

Project Engineer

Mr. Muto is a project engineer at Hushmand Associates, Inc. (HAI). He obtained his Master of Science (MS) degree in Civil Engineering with emphasis on earthquake engineering from the California Institute of Technology (Caltech) in Pasadena, California in 2001. As a Project Engineer Mr. Muto worked on a number of geotechnical engineering projects involving site-specific seismicity evaluations, liquefaction potential and ground deformation evaluations, slope stability analyses, analysis and design of shallow and deep foundations, ground control and improvement, and numerical analysis and experimental evaluation of soil-structure interaction problems of foundations and retaining structures.

AMIR ZAND, MSCE

Staff Engineer

Mr. Amir Zand has received his B.S. and M.S. degrees in Geotechnical and Civil Engineering from University of Tehran, Iran. He is a Ph.D. student at University of Southern California (USC) studying soil liquefaction and dynamic response of earth structures. His work experience includes geotechnical investigations, foundation design for bridges and industrial facilities, evaluation of geotechnical design parameters, finite element analysis and computer programming for geotechnical and solid waste engineering.

YANGSOO LEE, MSCE

Staff Engineer

Mr. Lee has received his M.S. degree in Geotechnical and Civil Engineering from University of Southern California (USC) and he is presently a Ph.D. student at the same university. He specializes in centrifuge testing associated with dynamic geotechnical problems such as liquefaction and seismic deformations. Mr. Lee also has a certificate in geographic information system (GIS) and extensive experience in computer modeling and laboratory testing for application in geotechnical engineering projects.

PETER E. MOORE

Soils/Concrete Laboratory and Field Technician

Mr. Peter Moore has more than 30 years of experience as a construction quality assurance monitor working on a variety of geotechnical engineering projects involving massive grading activities, slope stabilization, foundation preparation and installation, oriented-drilling, subdrain installation, injection/grouting stabilization, and field instrumentation for construction and post-construction monitoring. Mr. Moore's extensive experience in geotechnical field investigation and laboratory testing has provided him with exceptional in-depth understanding of soil behavior and foundation construction. Mr. Moore has worked on a wide range of geotechnical and environmental engineering projects such as slope stabilization; reservoirs; power plants; residential, commercial and industrial developments; and roads and bridges.

TED MAPRAMOOK

Senior Field Technician

Mr. Ted Mapramook has more than 13 years of experience as a construction quality assurance monitor working on a variety of geotechnical engineering projects involving massive grading activities, foundation preparation and installation, landfill liner installation, and field instrumentation for construction and post-construction monitoring. Additionally, Mr. Mapramook's extensive experience in geotechnical field investigation and laboratory testing has provided him with exceptional in-depth understanding of soil behavior and foundation construction.

Mr. Mapramook has worked on a wide range of geotechnical and environmental engineering projects such as landfills, landslide and slope stabilization, earth reservoirs, large housing and commercial developments, and roads and bridges.

REGIS PHILLIP RENAUD

Senior Instrumentation Technician

Mr. Renaud has more than 23 years of experience as a geotechnical instrumentation, field testing, and environmental engineering technician working on a variety of geotechnical and environmental engineering projects. Mr. Renaud began his career in the geotechnical offshore drilling industry, then transitioned into the onshore geotechnical industry. Following twelve years of field experience in site investigation (offshore drilling, pile load testing, CPT testing, drilling in Alaska using innovative methods, etc.), construction monitoring, and development of geotechnical test equipment (e.g., piezometers, different cone tip designs for CPT testing, mini CPT's, etc.), Mr. Renaud entered the environmental industry. His extensive knowledge and versatile skills developed in the geotechnical field became instrumental in his success in the following twelve years in the environmental field.

3.0 SERVICES

Specific geotechnical, earthquake and environmental engineering services that we can provide include:

- Site selection and characterization
- Phase 1 and 2 environmental/site assessments
- Field investigation and laboratory testing
- Site grading recommendations
- Foundation design: shallow and deep foundations
- Construction monitoring [quality assurance/quality control (CQA/CQC) for soil compaction, vibration monitoring, slope and settlement monitoring, etc.]
- Geotechnical engineering for reservoirs, pipelines, and pump stations
- Landfill design including liners and monitoring systems
- Temporary of temporary and permanent earth retaining structures, shoring, and tieback anchors
- Slope and landslide stability analysis and stabilization
- Ground improvement recommendations for sites with marginal soil conditions
- Earthquake ground motion/hazard assessment
- Analytic/experimental evaluation of dynamic load carrying capacity of structures
- Retrofitting existing foundation systems and structures for seismic loading
- Innovative testing and numerical analysis of complex and unusual problems using state-of-art and state-of-the-practice computer programs such as FLAC, PLAXIS, LINOS, DYNFLOW, FEADAM84, QUAD4M, ABAQUS
- Preparation of plans and specifications
- Preparation of remedial action plans and remedial designs,
- Construction management.

4.0 EXPERIENCE

HAI's professionals are thoroughly familiar with the latest changes and developments in codes and regulations applying to different California's municipalities and counties. Examples of these codes/regulations for the City of Los Angeles and Los Angeles County are listed below:

- 1997 Uniform Building Code (1997 UBC), and 2001 California Building Code (CBC)
- 2002 City of Los Angeles Building Code based on the 2001 CBC and 1997 UBC
- County of Los Angeles Department of Public Works Manual for Preparation of Geotechnical Reports, and Los Angeles County Safety Element,
- State of California geotechnical guidelines and compliance with the 2001 CBC,
- State of California Seismic Hazard Mapping Act (1990),
- State of California Department of Conservation, Division of Mines and Geology (CDMG)'s Guidelines for Evaluating and Mitigating Seismic Hazards in California (Special Publication 117 [1997]),
- California Geological Survey Note 48, Note 42 (and others), which will be followed in evaluating geologic and seismic hazard evaluation reports.

4.1 Examples of HAI's Project Experience

Commercial/Residential

- *The Court Yard Two-Story Office/Shopping Center Plaza*, Geotechnical and Seismic Investigation, 152/154 North Glassell Street, Orange, Orange County, California
Project consisted of demolishing an existing historical building while preserving its exterior walls and facade, and replacing it with a new office/shopping center plaza. Drilled piers (caissons) were used to support the new structure and the existing historical outside walls.
Client: LPA Architects/Leason Pomery, 1999.
- *Ritz-Carlton Hotel and Parking Structure, Park Place Business Center*, Geotechnical Investigation and Development of Foundation and Seismic Design Parameter.
Client: Leighton & Associates, 1999.
- *Media Studios Plaza*, Geotechnical and Seismic Evaluation of Phase III and Phase IV Buildings, Burbank, Los Angeles County, California.
Client: Smith-Emery Geoservices, 1999.
- *Little Tokyo Mixed-Use (Residential/Commercial) Development*, Environmental and Geotechnical Investigation and Construction Monitoring, Downtown Los Angeles, California
Performed environmental and geotechnical investigations to evaluate subsurface conditions for possible existence of methane gas and to provide foundation and temporary shoring design recommendations. Provided construction monitoring (QA/QC) during construction of the development.
Client: The Related Companies of California, 2003-2003.

- *Bolsa Chica Waterfront Residential Development, Huntington Beach, California*
Geotechnical Investigation including Evaluation of Liquefaction Potential and its Effects
Evaluated site seismic design parameters which included field subsurface investigation, laboratory testing, and liquefaction potential analysis.
Client: Signal Landmark Co./ Earth Technology Corporation, 1991
- *Rancho Santa Fe Groundwater Assessment, Residential Subdivision, Rancho SantaFe, San Diego County, California.* Groundwater Assessment.
Client: Sylvester Construction, 2000.
- *Anaheim GardenWalk, Anaheim, California*
Planned, supervised and prepared the geotechnical site investigation and foundation recommendations for this major commercial development planned for the Disneyland area. Development includes high rise hotels, restaurants, shops, a 30 foot high aquarium with unique foundation loads, parking lots and drives. CPT and borings were completed, samples analyzed in the geotechnical laboratory, and detailed settlement analysis and cost comparisons of various foundation and grading options were performed.
Client: Price Legacy, 2002.
- *OII Superfund North Parcel Commercial Development, Monterey Park, California*
Provided third party environmental and geotechnical review of site investigations, contamination remediation, site grading and compaction for The Ezralow Company. Site development plans included 100,000 cy earthwork, removal of several thousand cubic yards of contaminated soil, installation of landfill gas controls and monitoring, capping and LFG controls over a portion of the closed OII landfill. Commercial facilities to be built include Home Depot, LA Fitness, Target and several restaurants as well as major entrance road improvements and extensive parking areas.
Client: The Ezralow Company, 2001.
- *WDI Superfund Site Closure and Redevelopment, Santa Fe Springs, California*
Developed closure plans for this 30+ acre site contaminated with major oil field waste, provided oversight during partial closure, and developed concepts for future redevelopment as commercial properties with appropriate controls to protect new land users.
Client: WDI Superfund Group, 2000.

Power

- *Palo Verde Nuclear Generating Station Evaporation Pond, Blythe, Arizona*
Investigated seepage, slope stability, and settlement problems in the nuclear power plant evaporation pond. Interpreted piezometer and inclinometer data to graph water level fluctuations over time and produce settlement history plots. Performed static and dynamic slope stability analyses.
Client: Earth Tech, Arizona Nuclear Power Project , 1989.

- Morro Bay Power Project, Foundation and Perimeter Levees Investigation and Design*
Morro Bay, San Luis Obispo County, California
 Geotechnical investigation for design and construction of two 530 MW, natural gas-fired, combined cycle power plants within the existing Morro Bay Power Plant site. The new facility includes four new gas turbine generators, four heat recovery steam generators with stacks, two steam turbine generators, gas compressors, an administration/warehouse building, a control room, two substations, storage tanks, piperacks, pipe sleepers and underground pipeways, underground sumps and utilities, transformers, takeoff towers, roads and a bridge, area pavements, and other miscellaneous items. The investigation included analysis and design of shallow and deep foundations and retaining structures for static and seismic loading conditions, and evaluation and design of remediation alternatives for existing perimeter flood control berms/levees. Analysis and design of levees were performed for static and seismic loading conditions according to the USACOE Manual EM-1110-2-1913 requirements.
 Client: Duke Energy North America/Fluor Constructors, International, Inc., 2000
- American Electric Power/Dow Chemical Company Power Plant Project - Plaquemine, Louisiana*
 Vibration testing and analysis of pile foundations for four gas turbines with heat recovery steam generators and one steam-condensing turbine were performed. These are part of a cogeneration facility at Dow Chemical Company's Plaquemine site located in Plaquemine, Louisiana. The goal of the vibration testing project was to provide dynamic stiffness and damping parameters for design of the foundations of the turbines. The turbines are vibratory equipment and are very sensitive to settlements generated by dynamic loads. Therefore, their foundation system should be design such that vibrations and settlements are minimized.
 Client: American Electric Power/URS Corporation, 2000-2001.
- Otay Mesa Generating Project, Foundation Investigation and Design, Otay Mesa, San Diego County, California*
 Geotechnical investigation for design and construction of two gas turbine generators. The new facility includes two new gas turbine generators, two heat recovery steam generators with combined 140-foot high smokestacks, one steam turbine generator, air-cooler condensers, a control/administration/ warehouse building, a water treatment building, piperacks, pipe sleepers and underground sumps and utilities, pipeways, transformers, a fire pump house, water storage tanks, roads, area pavement, and other miscellaneous items. The investigation included analysis and design of foundations and retaining structures for static and seismic loading conditions.
 Client: Duke Energy North America/Fluor Constructors, International, Inc., 2001.

Water/Waste Water

- Jensen Filtration Plant Post Northridge Earthquake Seismic Investigation, Sylmar, San Fernando Valley, California*
 An experimental and engineering analysis investigation was performed by HAI to study dynamic response of several structures at the filtration plant and determine effect of the site soils on recorded ground motions at the filtration plant. The site soils liquefied in some areas during the 1971 San Fernando earthquake which resulted in major damage at the facility. The Northridge earthquake, however, did not cause substantial damage at the site of the plant. Understanding dynamic response of soils at this site and its effect on water filtration/treatment and conveyance structures is essential because of the critical nature of facility which should remain operational in the event of a major earthquake.
 Client: National Science Foundation, USGS, Metropolitan Water Districts, 1999.

- 4.1-MG Santa Anita Reservoir, Arcadia, California*
 Geotechnical investigation including site-specific faulting and seismic ground shaking hazard analyses were performed for seismic retrofit design of the existing 4.1-MG Santa Anita Reservoir No. 3. The reservoir is a concrete rectangular structure built in 1960's. The site is less than 0.1 km north of the Sierra Madre fault capable of generating a maximum magnitude earthquake of 7.5. A site-specific probabilistic fault rupture hazard analysis demonstrated that the probability of fault rupture displacement under the reservoir site is small during the life of the project. The investigation included field and laboratory testing, seismicity analysis, and evaluation of settlement and provided recommendations for static and seismic foundation design parameters.
 Client: RBF, City of Arcadia, and U.S. Army Corps. of Engineers, 1999-2000.
- New 6.0-MG Van Nuys Reservoir, Buster Pump Station and 24-inch Parallel Pipeline Project, San Marino, California*
 Geotechnical investigation and construction monitoring for siting and expansion of a 6-MG rectangular concrete reservoir including a booster pump station, and a 1.4-mile-long water pipeline, including field and laboratory testing, seismicity and liquefaction analyses, and evaluation of settlement and static and seismic foundation design parameters. The site is located less than 500 feet from Raymond Hill Fault, a major active fault capable of generating a maximum magnitude 6.7 earthquake. Due to its proximity to a major fault and San Marino High School, the reservoir design (seismic, geotechnical, and structural) was reviewed by the Department of Safety of Dams (DSOD) and later approved for construction.
 Client: San Gabriel County Water District/Civiltec Engineering, Inc., 1996-1999.
- Orange County Sanitation District Plant No. 1, Fountain Valley, Orange County, California*
 Site-specific faulting studies and probabilistic seismic hazard analysis were performed for expansion of the existing wastewater treatment facility at Orange County Sanitation District Plant No. 1.
 Client: Converse Consultants/Orange County Sanitation District, 1999.
- Geotechnical and Seismic Investigation for the New Wastewater Flow Equalization Station (WFES) site at Pepperdine University, Malibu Campus, Los Angeles County, California*
 Geotechnical investigation for siting and construction of a new Wastewater Flow Equalization Station consisting of two reinforced concrete well storage structures, a reinforced concrete pump and control room, and associated sewer pipes and manholes. The investigation included field and laboratory testing, seismicity analysis, and evaluation of settlement and static and seismic foundation design parameters.
 Client: Pepperdine University and Civiltec Engineering, Inc., 1998.

Solid Waste Management

- Geotechnical Engineering Evaluation, Marine Corps Air Station (MCAS), Landfill Sites 2 and 17, Remedial Action Plan, El Toro, Orange County, California*
 Geotechnical and Geological Investigation, including site-specific seismic hazard evaluation for landfill closure design of Landfill Sites 2 and 17 at El Toro Marine Corps Air Station. Investigation included evaluation of static and seismic stability of refuse slopes and landfill cover system; liquefaction, ground rupture, and landslide hazard evaluations; estimating settlements; and design of the landfill cover and surface water management system.
 Client: Earth Tech, Inc./Department of the Navy, Commander, South Division, 2000-2002.

- Expansion Design for Tajiguas Municipal Solid Waste Landfill, Santa Barbara County, California*
 As design firm for a 70-acre, 10-million-cubic-yard expansion of Tajiguas Landfill, evaluated expansion layout alternatives and provided grading designs to optimize landfill capacity and borrow sources for soil needed for landfill liner system and daily cover. Performed site-specific seismic hazard analysis, static and seismic analysis and design of landfill slopes and soil buttress for stabilizing slopes, and settlement analysis. Evaluated liner and cover systems for optimum waste fill configurations. Civil design of the landfill expansion included evaluation of cut and fill volumes for soil and waste mass and design of access roads and surface water management system.
 Client: County of Santa Barbara, Department of Public Works, 2000-2001.
- Seismic Monitoring and Cover Design, OII Landfill Superfund Site, Monterey Park, California*
 In support of the general closure studies of the OII landfill, installed two seismic stations to record landfill behavior during earthquakes and analyze recorded landfill response to estimate dynamic properties of municipal solid waste. These properties were used in seismic design of the cover system. Evaluated cover alternatives. Performed slope stability and settlement analysis. Evaluated surface drainage and grading alternatives.
 Client: Operating Industries Inc., EPA/CH2M Hill, Roy F. Weston, SAIC, CDM, 1993-1994.
- Static and Seismic Slope Stability, Lower Western Cut, MRF Development, Puente Hills Landfill, Whittier, Los Angeles County, California.* Geotechnical investigation for development of a Materials Recovery Facility (MRF), consisting of investigation and geotechnical remediation of an existing landslide. It included evaluation of static and seismic stability of cut and buttress fill slopes up to 270 feet high in outdipping sedimentary (claystone, siltstone) bedrock (Fernando and Puente Formation), recommendations for site grading including removal, buttress fill construction and subdrains and horizontal drains (hydraugers) and localized stabilization buttresses.
 Client: County of Los Angeles Sanitation Districts, 1999.

Transportation/Ports

- Pasadena Metro Blue Line (between Down Town Los Angeles and Pasadena)*
 Cities of Los Angeles and Pasadena, Los Angeles County, California
 Site-specific Probabilistic Earthquake-Induced Ground Motion Assessment for Seismic Design of Underground Structures (tunnels and stations).
 Client: Parsons Transportation/Group Delta, 2000.
- Orange County Transportation Emergency Management Center (A Base-Isolated Multi-Story Building) - Irvine, Orange County, California*
 Performed seismic hazard analysis and provided earthquake acceleration time histories for dynamic evaluation and design of the base-isolated critical facility according to CDMG Note 48. Provided support for permitting and preparation of responses to review comments by CDMG, office of the State Architect, and Caltrans.
 Client: Caltrans/Holmes and Narver/Diaz-Yourman Associates, 1998.

- *Alameda Mid-Corridor Trench Between Compton Boulevard and Butler Avenue*
Compton, Los Angeles County, California
Site-specific Probabilistic Earthquake-Induced Ground Motion Assessment for Seismic Design of Pedestrian, Vehicular, and Railroad Overpasses.
- *Port of Los Angeles 2020 Expansion Project, Piers 300 & 400*
San Pedro, Los Angeles County, California
Performed small scale model testing in a geotechnical centrifuge to study liquefaction effects on settlement and stability of hydraulic fills, dikes, sheet pile walls, and wharfs. The results of the experiments were used to calibrate numerical models, which were used for analysis and design of the Pier 300 and Pier 400 port structures.
- *Bridge Expansion - Euclid Street over Carbon Canyon Creek, Anaheim, California*
A geotechnical investigation was performed to collect existing subsurface soil data and perform an engineering analysis to develop geotechnical design parameters for widening of the bridge at Euclid Street over Carbon Canyon Creek, in the city of Anaheim, Orange County, California. The purposes of this geotechnical investigation were to review and evaluate existing data to assess subsurface soil conditions, and to provide geotechnical parameters for design and construction of the proposed bridge expansion.
Client: Merit Civil Engineering, Inc., 2000.
- *Static and Dynamic Full-Scale Testing of Transverse Response of Older Reinforced Concrete Bridges, Moses Lake, Washington*
A freeway bridge along Interstate I-90 in Moses Lake, Washington, was subjected to slowly varying cyclic loads in transverse direction. These tests permitted the measurement of the strength, stiffness, and toughness of the bridge in the transverse direction. The systematic and accumulative structural damage that occurred as the bridge was pushed and pulled to increasing displacements was also measured. The changes of dynamic properties associated with this damage were also evaluated in steady-state vibration tests performed on the bridge.
Client: Dames and Moore & Washington Department of Transportation.
- *Port of Los Angeles, Berths 121-131 Wharf Upgrade Program, San Pedro, California*
Developed seismic design criteria (design acceleration and response spectra) for Operational Level Earthquake (OLE), Contingency Level Earthquake (CLE), and Maximum Credible Earthquake (MCE) for seismic evaluation and design of the port structures.
Client: Port of Los Angeles, City of Los Angeles/Diaz & Yourman Associates, 1998.

Public Works/Federal Government

- *City of Arcadia Police Station, Arcadia, California*
Geotechnical and site-specific ground motion assessment for design and construction of the City of Arcadia new police station. The investigation for this critical facility was performed according to CDMG Note 48 guidelines and recommendations. The second phase of the project involved construction monitoring, which included field and laboratory soil testing during grading, pavement construction, and foundation installation.
Client: City of Arcadia, 2000, 2002.

- City of Long Beach Emergency Communication Center/Emergency Operations Center (ECC/EOC), A Base-Isolated Multi-Story Building for 911 Center - Long Beach, Los Angeles County, California*
 Geotechnical and site-specific seismic hazard analysis according to CDMG Note 48, which included providing earthquake acceleration time histories for dynamic analysis and design of the base-isolated 911 Center (a critical facility). Attended meetings with permitting/reviewing agencies and client representatives.
 Client: City of Long Beach/Fluor Daniel/Diaz-Yourman Associates, 1998-2001.
- Los Alamos Storm Drain Construction Monitoring and Testing, San Clemente, California*
 Hushmand Associates performed geotechnical construction monitoring and testing along a 3-mile long storm drain improvement in the City of San Clemente.
 Client: City of San Clemente, 1999.
- National Ignition Facility (NIF) Project, Lawrence Livermore National Laboratory, North Las Vegas Test Site, Albuquerque Sandia and Los Alamos National Laboratories*
 Performed detailed ambient vibration and seismic velocity measurements at four Department-of-Energy laboratories for siting and construction of the proposed National Ignition Facility (NIF). Ambient vibrations were measured at depth and at the ground surface over several days at each site. Results of the measurements and data analyses and recommendations for minimizing effects of vibrations on foundations of NIF Laser and Target Area Building were presented in a report.
 Client: Department of Energy/Parsons Infrastructure & Technology Group Inc., 1995-1997.
- County of Los Angeles Neighborhood Park, 1000 204th Street, Los Angeles County, California, Geotechnical Investigation and QA/QC during construction of a Park on a 10-acre Tract of Land.* Client: C₂REM, Environmental Management Development Company, May, 2001.

Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
Geotechnical Characterization and Seismic Evaluation, Landfill Sites 1 and 2 Former Naval Air Station (NAS), Alameda Point, Alameda, California	Geotechnical analysis, seismic hazard assessments, ground motion evaluations and slope stability analysis, evaluation of soil improvement for seismic hazard mitigation	Southwest Division Naval Facilities Engineering Command, Foster Wheeler Environmental Corporation (FWEC) Mr. Abid Loan (949) 756-7514	2001-Present	2,000	150

Installation Restoration Landfill Sites 1 and 2

Due to the former use of the site as a landfill and its close proximity to the San Francisco Bay, the main concern is potential release of waste into the San Francisco Bay due to liquefaction and slope instability during a large seismic event. Hushmand Associates, Inc. is providing ongoing consulting services to Foster Wheeler Environmental Corporation (which is retained by the Southwest Division Naval Facilities Engineering Command) for geologic/geotechnical evaluations, seismic hazard analyses, evaluation of seismic ground motions, site response, slope stability analysis including seismically-induced permanent displacement analysis, liquefaction analyses, and development of mitigation alternatives such as soil/cement mixing to stabilize, under seismic loading, existing slopes along shoreline.



Site 1, San Francisco Bay Shoreline View



Site 1, Drilling Activities



Site 2, Plan View

Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
Campbell Shipyard Remediation Port of San Diego San Diego, California	Sheetpiling analysis and design, vibration monitoring, CQA for backfilling of excavations	Weston/Port of San Diego Mr. Dwight German (707) 562-3552 Mr. Paul Brown (619) 686-6597	December 2001	10,000	700

Campbell Shipyard Remediation

Hushmand Associates, Inc. performed a geotechnical characterization, analysis and design of sheetpiling, vibration monitoring during sheetpiling installation, and CQA during backfilling of the excavation areas after removal and remediation of contaminated soils by cement mixing.



Sheetpiling Installation, South Side



Sheetpiling Installation, North Side

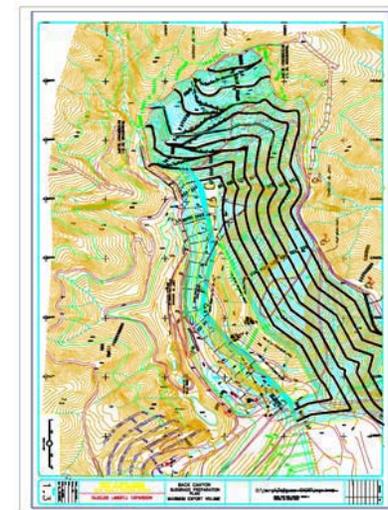
Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
Tajiguas Landfill Expansion Santa Barbara County, California	Performed seismic hazard analysis, ground motion evaluation, slope stability analysis, and development of liner system and subgrade preparation, top of liner, and fill plans	Santa Barbara County Public Works Department Ms. Imelda Cragin (805) 882-3613	April 2001	3,000	110

Tajiguas Landfill Expansion

Hushmand Associates, Inc. (HAI) performed seismic hazard evaluation and seismic design, material property characterization, liner system evaluation, slope stability analysis including seismically-induced permanent displacement analysis. HAI prepared borrow source grading plans, subgrade preparation, top of liner, and fill plans for the front and back canyon configurations and evaluated material quantities, soil and rock excavation, groundwater-liner separation, and other relevant construction issues.



Landfill Expansion Area



Back Canyon Subgrade Preparation Plan

Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
Geological Fault Investigation Wal-Mart Store Rosemead, California	Geologic fault investigation, trench excavation, shoring, logging, synthesis and analysis, report preparation	Development Resource Consultants (DRC) Mr. Steve Reiner (714) 685-6860	September 2002	2,000	70

Wal-Mart Store, Southern California Edison Property Fault Investigation

Hushmand Associates, Inc. performed a geological investigation to fulfill the state criteria to show that there are no active faults at the proposed building location. The investigation included: site reconnaissance, utility clearance, analyses of aerial photographs, photographic documentation, synthesis and analysis of trench data, developing of recommendations and report preparation.



Left: Trench shoring and logging
Bottom: Trench excavation

Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
Silver Hawk Residential Community Los Angeles, Los Angeles County, California	Provided technical drawings and technical specifications for road repairs and curb/gutter replacement and performed QA/QC during implementation of remedial measures.	Knowles U.S.A. Mr. Bryan Morrell (818) 222-8343	October 2002	70	20

Silver Hawk Residential Community Road Repairs and Curb/Gutter Replacement

Hushmand Associates, Inc. (HAI) provided design drawings and technical specifications for road repairs and the replacement of curbs and gutters at a residential community in Los Angeles constructed on deep fills. Fill settlements and ground movements due to a fault crossing resulted in road damage. The depth of the fill made removal and replacement unfeasible. HAI developed temporary, cost-effective solutions consistent with a concept of periodic repair/corrections that was judged to be a better solution than a more drastic and costly approach. HAI also performed Quality Assurance/Quality Control (QA/ QC) during the implementation of the remedial measures.



Cracked Pavement at Site



Remediation Efforts

Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
ICI West Capacity Project ICI Paints Plant City of Commerce, Los Angeles County, California	Provided geotechnical observations and testing services during Construction of foundation installations and placement and compaction of base material in the silos and railroad spurs areas	Fluor Daniel, Inc. Mr. Larry Robinson (323) 833-3157	April 2003	2,000	60

ICI Paints Plant Geotechnical Observation and Testing of Compacted Fills

Hushmand Associates, Inc. (HAI) performed geotechnical field and laboratory testing services for the new construction at the plant. Earthwork mainly consisted of subgrade preparation, excavation for foundation installations, removal of unsuitable materials and replacement with Crushed Miscellaneous Base (CMB), and railroad spurs and pavement construction. HAI also performed Quality Assurance/Quality Control (QA/ QC) during construction stages.



**Subgrade Preparation
Silos Area**



Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
El Sobrante Landfill Expansion Riverside County, California	Performed seismic hazard analysis, ground motion evaluation, slope stability analysis, geotechnical/geosynthetic laboratory testing, liner design, and development of subgrade preparation and fill plans	TRC / Environmental Solutions Mr. Mike Leonard, P.E. (714) 549-8921	1994	800	100

El Sobrante Landfill Expansion

Hushmand Associates, Inc. performed seismic hazard evaluation and ground motion evaluations, two- and three-dimensional slope stability analysis including Newmark's seismic deformation analysis, geotechnical and geosynthetic laboratory testing, liner design, development of design drawings, subgrade preparation and fill plans, and technical specifications.

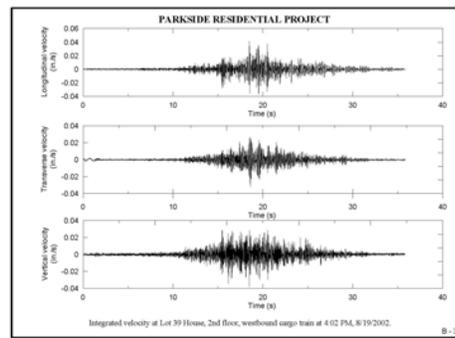


View of Landfill Expansion Construction Activities

Project Name and Location	Nature of Firm's Responsibility	Client's Name and Phone Number	Completion Date	Estimated Cost (thousands)	
				Entire Project	Work of Firm
Parkside Residential Development Anaheim Hills, Orange County, California	Performed long-term continuous and transient measurements of train-induced vibrations to assess impact on structures and humans.	D. R. Horton Custom Homes Ms. Cheryl Thompson (909) 272-9000	September 2002	20,000	35

Parkside Residential Development Vibration Monitoring

Hushmand Associates, Inc. (HAI) performed long-term continuous and transient measurements of train-induced vibrations at a new residential development to assess ground vibration levels and its effects on structures and building occupants. Vibration monitoring was performed before, during, and after construction to obtain a better understanding of the possible amplification of ground motions in the houses. The latest Federal Transit Administration (FTA) standards were used to assess the potential impact of vibrations on human comfort.



Above: Site Overview
Right: Train-induced vibrations
Far Right: Metrolink train passing by the site

4.2 Example Client Reference List

A list of representative geotechnical engineering projects and associated references is presented below:

Project Name and Location	Person Name and Position	Date of Completion	Phone Number
Wheeler Street Reservoir City of La Verne, Los Angeles County, California	Mr. David Byrum, Civiltec Mr. Brian Bowcock/ Dan Keeseey City of La Verne	May 1999	(626) 357-0588 (909) 596-8726
Amherst Reservoir Distress and Settlement Investigation City of La Verne, Los Angeles County, California	Mr. David Byrum, Civiltec Mr. Brian Bowcock/ Dan Keeseey City of La Verne	1998	(626) 357-0588 (909) 596-8726
Street Improvement and Rehabilitation City of Irwindale, Los Angeles County, California	Mr. Rod Posada Public Works Department City of Irwindale Now with Otay Mesa Water District	July 2001	(626) 430-2212
Los Alamos Storm Drain Improvement Construction of 36-inch RCP & Camino De Estrella Road Widening San Clement, Orange County, California	Mr. Hamid Torkamha City of San Clemente	October 2000	(949) 361-6139
Norwalk Park Development Reservoir Site Investigation for a new 5-MG Reinforced Concrete Reservoir, City of Norwalk, L A County, California	Mr. Steve Speakman, RBF Ms. Jill Anderson City of Norwalk	January 2001	(949) 472-3505 (562) 929-5770
Street Improvement and Rehabilitation, City of Covina, Los Angeles County, California	Mr. Dennis Parker Covina, Public Works Department	October 2001	(626) 858-7253
Grove Street Reservoir City of Sierra Madre, Los Angeles County, California	Mr. Steve Speakman, RBF Mr. Bruce N. Inman Director of Public Works City of Sierra Madre	April 2000	(949) 472-3505 (626) 355-7135
Santa Anita Reservoir No. 3, City of Sierra Madre, Los Angeles County, California	Mr. Sal Sheikh, RBF Mr. Gary F. Lewis City of Arcadia	May 2001	(949) 472-3505 (626) 256-6583

Project Name and Location	Person Name and Position	Date of Completion	Phone Number
San Joseph Reservoir New Proposed 5.5 MG Reinforced Concrete Reservoir, City of Arcadia, Los Angeles County, CA	Mr. David Byrum, Civiltec Mr. Gary F. Lewis, City of Arcadia Mr. Steve Bucknum Bucknam & Associates	February 2000	(626) 357-0588 (626) 256-6552 (949) 363-6461
Assessment of Existing Pavement Conditions on Azusa Ave (SR-39) from Garvey Ave to Badello St West Covina, California	Mr. Frank Bigdeli Quantum Consulting/ City Representative	August 2002	(818) 209-8774
City of Arcadia Santa Anita Canyon Road Slip-out Repair Project	Mr. Mark Rynkiewicz City's Project Engineer	July 2003 (on-going)	(626) 256-6552
City of Arcadia Street Rehabilitation Projects, Bus Pads Construction Arcadia, California	Mr. Dan Lazo Assistant City Engineer Development Services Department	July 2003 (on-going)	(626) 574-5481
USC Thermal Storage Facility Reservoir, University of Southern California, Los Angeles, California	Mr. Sal Sheikh, RBF Consulting Mr. Gregory Desario, (USC)	June 2003, (on-going)	(949) 855-3603 (213) 821-5510
Anaheim GardenWalk Anaheim, California	Mr. Geoff Sherman Director of Construction Price Legacy	September 2002	(858) 716-0331 (619) 778-4241
New City of Arcadia Police Station Arcadia, Los Angeles County, California	Mr. Don Penman Mr. Dan Lazo Assistant City Engineer Development Services Department	December 2000	(626) 574-5414 (626) 574-5481
Campbell Shipyard, San Diego, San Diego County, California	Mr. Roy F. Weston Mr. Paul Brown, Port of San Diego	January 2002	(707) 562-3352 (619) 686-6597
Santa Anita Reservoirs No. 3 and No. 4 City of Sierra Madre, Los Angeles County, California	Mr. Gary F. Lewis City of Arcadia Mr. Sal Sheikh, RBF Consulting	May 2003 (on-going)	(626) 256-6554 (949) 855-3603
Pasadena Metro Blue Line Cities and Los Angeles and Pasadena, California	Mr. Carlos Amante Group Delta Consultants	June 2001	(949) 609-1020

Project Name and Location	Person Name and Position	Date of Completion	Phone Number
Longden Reservoir and Longden-Van Nuys Reservoirs Pipeline Project City of San Marino, Los Angeles Co., California	Mr. Charles Shaw, General Manager, San Gabriel County water District Mr. Carlos Alvarado, P.E. City of San Marino	September 1999	(626) 287-0341 (626) 300-0714
City of Long Beach 911 Center, Long Beach, Los Angeles County, CA	Mr. Jerry Diaz Diaz-Yourman Consultants	November 2001	(714) 838-8565
Whaler's Cove Development Long Beach, California	Mr. Sean Shahin ENV America	July 1998	(949) 453-6161
South Bay Power Plant, Unit 3 SCR, Chula Vista, San Diego County, California	Mr. Farhad Boniadi, Chief Geotechnical Engineer Duke/Fluor Daniel	April 2000	(949) 349-2763
Otay Mesa Generating Project, Otay Mesa, San Diego County, California	Mr. Tom Miller Calpine Ms. Luisa Tafur, Contracts Administrator, Duke/Fluor Daniel	Investigation Phase, 2001; Construction Phase Ongoing	(619) 710-8701 (949) 349-4863
Morro Bay Power Plant Morro Bay, California	Mr. Russell J. Poquette, Executive Project Director & Mr. Farhad Boniadi, Chief Geotechnical Engineer Duke/Fluor Daniel	August 2000 & July 2001	(949) 349-2102 (949) 349-2763
Dow Chemical Company Power Plant Plaquemine, Louisiana	Dr. C. B. Crouse, Vice President Rick Brouillette, Project Manager URS Corporation	May 2001	(206) 438-2700 (225) 751-1873
Sycamore Landfill, Santee, San Diego County, California	TRC & Emcon/The IT Group, Inc. Mr. Michael Leonard, now with SCS Mr. Daya Bettadapura, now with ATC	Phase 1, July 1999; Phase 2, Dec., 2001	(562) 426-9544 (949) 453-2877
Landfill Gas Flare Stations at Otay and Sycamore Landfills, Chula Vista and Santee, San Diego County, California	Mr. Robert Fifarek Allied Waste Industries, Inc.	August 2000	(619) 449-4053
Republic Landfill, El Centro Imperial County, California	Mr. Daya Bettadapura Emcon/The IT Group, Inc., (now with ATC)	January 1999	(949) 453-2877
Gregory Canyon Landfill, San Diego County, California	Ms. Sally Doehle, President Higman Doehle, Inc.	September 1998	(310) 544-6244

Project Name and Location	Person Name and Position	Date of Completion	Phone Number
El Toro Marine Base Landfills, El Toro, Orange County, California	Ms. Shannon Wright, Earth Tech, (now with CH2MHILL)	2000 and 2002	(562) 951-2084 (916) 286-0417
El Sobrante Landfill, Riverside County, California	Mr. Michael Leonard TRC/Environmental Solutions, Inc. Now with SCS Engineers	August 1996	(562) 426-9544
Tajiguas Landfill, Gaviota, Santa Barbara County, California	Ms. Imelda Cragin Santa Barbara County, Dept. of Public Works	September 2001	(805) 346-7348
Kettleman Hills Landfill, Kettleman Hills, Kings County, California	Mr. John Workman Waste Management, Inc.	2001 (ongoing)	(661) 753-5276
Puente Hills Landfill, Lower Western Cut, Whittier, Los Angeles County, California	Mr. Chuck Dowdell/ Mr. Paul Mikulas LA County Sanitation Districts (LACSD)	June 2001	(562) 699-7411 ext. 2451
OII Superfund North Parcel Commercial Development, Monterrey Park, California	Mr. Lawrence Dinovitz Construction Consultant The Ezralow Company	May 2001	(818) 222-2530 Ext. 2 (818) 512-6800
Burbank Landfill No. 3 Phase II Excavation and Drainage Improvements, City of Burbank, California	Ms. Bonnie Teaford City Engineer City of Burbank	May 1998	(818) 238-3921
Arco Gas Station, Convenient Stores and Restaurants Development National City, San Diego County California	Mr. Robert VanHying England-GeoSystem, Inc.	February 2002	(949) 453-8085

**PARTIAL LIST OF HUSHMAND ASSOCIATES, INC.
HAI STAFF LANDFILL / SOLID WASTE FACILITIES PROJECT EXPERIENCE**

- *Fink Road Landfill*
Grading observation and material testing during cutting and preparation and backfilling of the landfill slope. Quality Assurance/ Quality Control (QA/QC), inventory of all liner materials (GCL, HDPE, Geotextile); inspection of all fusion welds, air pressure test, and stitching for geotextile.
Client: Shaw/EMCON, 2005.
Contract amount: \$80,000.

- *Antelope Valley Landfill Cell IV - Steps 3 To 5*
Construction quality assurance (CQA) services during earthwork grading and testing, testing of backfills, observation and testing of geosynthetic materials during installation, preparation of field CQA progress reports, field and laboratory testing of fill materials and aggregates, and quality control of fill placement. The leachate collection and removal system (LCRS) consists of GCL, HDPE, geotextile, gravel, HDPE piping and operations layer.
Client: Waste Management, Inc., 2003-2004.
Contract amount: \$80,000.

- *Phase 1A Liner System Lancaster Landfill*
Construction Quality Assurance (CQA) services during the construction of the Class III waste management unit, 10-acre Phase 1A Liner system at the Lancaster Landfill & Recycling Center, primarily consisting of a level base surrounded by 2:1 cut slopes varying in height from 60 to 80 feet. The leachate collection and removal system (LCRS) consists of GCL, HDPE, geotextile, gravel, HDPE piping and operations layer.
Client: Waste Management, Inc., 2004.
Contract amount: \$75,000.

- *San Timoteo Sanitary Landfill*
Construction Quality Assurance (CQA) services for verification of screening for operations soil, and observations of screened operations soil placement for completion of the Unit 2 Liner Area at San Timoteo Sanitary Landfill.
Client: Shaw – Emcon/Owt, Inc., 2003.
Contract amount: \$38,000.

- *Sunshine Canyon Landfill Phase IV-A*
Construction quality assurance (CQA) services during earthwork grading and testing, observation and testing of clay liner and geosynthetic materials during installation, preparation of field CQA progress reports, field and laboratory testing of fill materials and aggregates, and quality control of fill placement.
Client: Golder Associates, Inc., 2004.
Contract amount: \$45,000.

- *Independent Technical Review of Slope Stability Evaluation, Tajiguas Landfill, Santa Barbara County, California*
Independent geotechnical reviews of stability of cut and fill slopes up to 350 feet high.
Client: County of Santa Barbara Department of Environmental Health Services, 1999.
Contract amount: \$14,000.

- *EIR Preparation and Expansion Design (Civil and Geotechnical Design) for Tajiguas Municipal Solid Waste Landfill, Santa Barbara County, California*
As design firm for a 70-acre, 10-million-cubic-yard expansion of Tajiguas Landfill, evaluated expansion layout alternatives and provided grading designs to optimize landfill capacity and borrow sources for soil needed for landfill liner system and daily cover. Performed site-specific seismic hazard analysis, static and seismic analysis and design of landfill slopes and soil buttress for stabilizing slopes, and settlement analysis. Evaluated liner and cover systems for optimum waste fill configurations. Civil design of the landfill expansion included evaluation of cut and fill volumes for soil and waste mass and design of access roads and surface water management system.
Client: County of Santa Barbara, Department of Public Works, 2000-2001.
Contract amount: \$120,000
- *Proposed Elsmere Canyon Landfill, San Fernando Valley, Los Angeles County, California*
A detailed review of EIR/EIS documents prepared for the proposed landfill was conducted and an independent site-specific seismic hazard analysis was performed for comparison with existing data.
Client: City of Santa Clarita/Gibson Environmental & Management Consultants, 1994.
Contract amount: \$28,000
- *Gregory Canyon Landfill, San Diego County, California*
Review of geotechnical issues of EIR/EIS documents for County of San Diego.
Client: Higman Doehle/Gregory Canyon Limited & County of San Diego, Department of Environmental Health, 1997-1998.
Contract amount: \$17,000
- *Static and Seismic Slope Stability Evaluation, MSW Landfill Unit B-19, Kettleman Hills Facility, Kings County, California*
Static and seismic stability evaluation of 200-foot-high permanent refuse slopes using 3-D Computer Program CLARA, and 2-D static and dynamic slope stability analysis programs PCSTABL 5M and QUAD4M. Based on these analyses optimized the size of the stabilization buttress fill.
Client: Waste Management, 2001-2003.
Contract amount: \$95,000
- *Static and Seismic Slope Stability Evaluation, MSW Landfill Unit B-19, Kettleman Hills Facility, Kings County, California*
Static and seismic stability evaluation of 150-foot-high permanent refuse slopes, landfill liner system and localized stabilization by buttress fill; interim slope stability of 100-high cuts into sedimentary rock, and full seismic hazard, dynamic response, stability and permanent displacement analyses.
Client: Rust Environment and Infrastructure/Waste Management, Inc., 1997-98.
Contract amount: \$65,000
- *Preliminary Stability Evaluation, Lancaster Landfill Expansion, Los Angeles County, California*
Probabilistic seismic hazard and final cover slope stability evaluation.
Client: Waste Management of Lancaster, 1997-1998.
Contract amount: \$16,000

- *Kettleman Hills Hazardous Waste Landfill, Kettleman City, Kings County, California. Chemical Waste Management, Inc./Environmental Solutions, Inc.*
Construction of Landfill Unit B-18, Phase II liner system was delayed due to unpredicted weather problems. This required vertical expansion of Phase I Cell. Seismic hazard analysis was performed to evaluate landfill seismic design parameters which were used in a finite element analysis to optimize landfill's vertical expansion design by evaluating allowable slope displacements and liner stresses to assure liner integrity during earthquakes. Directed geotechnical testing program and analysis tasks including liner interface testing, field permeability testing and clay source studies. Conducted slope stability analysis and evaluation of intermediate and final cover configurations. Evaluated surface hydrology to upgrade landfill's surface water management system. Also evaluated landfill layout alternatives and capacity of leachate collection and removal systems and performed settlement analysis.
Client: TRC/Environmental Solutions, Inc. and Waste Management, Inc., 1993.
Contract amount: \$70,000
- *El Corazon Mine Reclamation and Land Development Project, Oceanside, San Diego County, California*
Project included providing review of existing conditions at the site and geotechnical input for project planning, tentative land development map and input to environmental report preparation. Former US Silica Co.'s sand mining site is approximately 400 acres in area, and includes nine large 100- to 200-foot deep ponds, partly filled with mine tailings. Recommendations were used as planning tools for location of structures and recreational facilities, to implement ground improvement measures for existing tailings ranging in thickness from 5 to 100 feet.
Client: Manchester Resorts, 1999.
- *Alameda Naval Air Station, Landfill Sites 1 and 2, Alameda County, California*
Performed static and seismic stability of the landfill and the perimeter berm along the site south, west, and north boundaries by the San Francisco Bay. Analyses included seismic hazard and site response evaluations, evaluation of the landfill cover settlement due to excessive compressibility of the soft bay mud, and potential slope failure through bay mud and computation of the slope deformations. Client: Foster Wheeler Environmental and U.S. Navy, 2001-2002.
Contract Amount: \$150,000
- *Camp Roberts Landfill (CRL), Geotechnical and Seismic Evaluation and QA/QC During Construction, Camp Roberts, San Luis Obispo County, California*
Hushmand Associates, Inc. (HAI)'s work was performed to support preparation of the Camp Roberts Joint Technical Document (JTD) prepared by England GeoSystem and to provide quality control and monitoring during construction of the landfill for grading and landfill liner installation. Engineering studies included static and seismic stability analyses of the proposed final and intermediate configurations. Specifically, our assessment included evaluations of the stability of cut slopes, refuse slopes, and base and sideslope liners. Grading (excavation and fill) plans and cross sections for the proposed CRL were developed by HAI and England GeoSystem and were presented in the JTD. Grading Plans and Cross Sections used for stability analysis.
Client: England GeoSystem, California National Guard, 2001-2002.
Contract Amount: \$88,000

- *EIR Preparation and Expansion Design for El Sobrante Municipal Solid Waste Landfill, Riverside County, California*
As part of feasibility study and siting of El Sobrante landfill expansion, evaluated expansion layout alternatives, performed site-specific seismic hazard analysis, static and seismic analysis and design of landfill slopes, and settlement analysis. Evaluated liner and cover systems and optimum waste fill configurations. Directed clay source studies and prepared technical specifications for clay liner and geosynthetics.
Client: Western Waste Industries, Inc. & Riverside County/Environmental Solutions, Inc., 1992-1996.
Contract amount: \$80,000
- *Static and Seismic Slope Stability, Lower Western Cut, MRF Development, Puente Hills Landfill, Whittier, Los Angeles County, California*
Geotechnical investigation for development of a Materials Recovery Facility (MRF), consisting of investigation and geotechnical remediation of an existing landslide. It included evaluation of static and seismic stability of cut and buttress fill slopes up to 270 feet high in outdipping sedimentary (claystone, siltstone) bedrock (Fernando and Puente Formation), recommendations for site grading including removal, buttress fill construction and subdrains and horizontal drains (hydraugers) and localized stabilization buttresses.
Client: County of Los Angeles Sanitation Districts, 1999.
Contract amount: \$360,000
- *Trigo Onsite Disposal Vault, Trigo, Madera County, California*
Prepared calculations, construction drawings and technical specifications. Calculations included surface hydrology, pavement design, slope stability, settlement analysis, flood and erosion protection.
- *Evaluation of Site Conditions and Remedial Measures for Landfill Gas Management, Whaler's Cove Development, Long Beach, California*
Provided estimates of future settlements and gas production at the Whaler's Cove Development (condominiums and other buildings), which was constructed in the early 1980's over prior landfilled areas. The landfilled area is a portion of a larger landfill which was operated by the City of Long Beach between the years of approximately 1956 to 1966.
Client: ENV America, Inc./City of Long Beach, 1999-2000.
Contract amount: \$26,000
- *Proposed West Expansion, Republic Imperial Landfill, El Centro, Imperial County, California*
Liquefaction Potential and Slope Stability Evaluation: Performed 2-D static and pseudo-static slope stability analyses, 2-D dynamic finite element analyses using Computer Program QUAD4M, and Newmark double integration analysis to estimate displacements of landfill slopes. Using CPT and SPT data and the latest empirical procedures developed for evaluating liquefaction potential estimated the site liquefaction induced settlements and lateral displacements. Based on these analyses the landfill design was optimized.
Client: Emcon/IT & Allied Waste, 1998-99.
Contract amount: \$50,000

- *Bradley East Landfill - Partial Final Cover, Sun Valley, California*
Site geology and waste characterization; probabilistic seismic hazard evaluation; refuse and final cover slope stability and settlement evaluation; final cover design (per Subtitle D regulations); closure and post-closure cost, and post-closure site utilization evaluation.
Client: Waste Management of California, 1995-96.
Contract amount: \$24,000
- *Static and Seismic Slope Stability, Cells B-3 and C Development - Simi Valley Landfill Expansion, Ventura County, California*
Geotechnical/Geological/Hydrogeological Investigation, including site geological and hydrological investigation for an approximately 37 acre landfill expansion. Investigation included evaluation static and seismic stability of 100- to 200-foot-high cut slope into out-of-slope bedding outdipping sedimentary bedrock (Sespe) formation), delineation of existing waste limits; and refuse slopes.
Client: Rust Environment and Infrastructure, 1998.
Contract amount: \$25,000
- *Static and Seismic Slope Stability, Cell B-2 Development - Simi Valley Landfill Expansion, Ventura County, California*
Geotechnical investigation, including site geology and waste limits characterization; static and seismic stability evaluation of 120 to 200-foot-high slopes cut into sedimentary rock (claystone, siltstone, sandstone, Sespe Formation), with out-of-slope bedding; refuse, liner and cover slope stability evaluation; subgrade and composite liner design (per Subtitle D regulations). Probabilistic seismic hazard evaluation. Quality assurance services during construction, consisting of in-grade mapping, monitoring and testing of composite liner installation.
Client: Rust Environment and Infrastructure/Waste Management, Inc., 1995-96.
Contract amount: \$15,000
- *Phase II North Slope Landslide Evaluation for Center Ridge Development, Olinda-Alpha Landfill, Brea, Orange County, California*
Evaluation of multiple (progressive) landsliding of natural and cut slopes due to outdipping bedrock formation, buttress design and geotechnical support during construction for Phase II cell development.
Client: County of Orange Integrated Waste Management Department, 1997-1998.
- *Static and Seismic Slope Stability, Sump 5, Phase II Expansion, Bradley Landfill, Sun Valley, California*
Temporary slope stability of 150-foot high excavated alluvium and 100-foot high fill slopes.
Client: Waste Management Inc., 1995.
Contract amount: \$12,000
- *Toland Road Landfill, Ventura County, California*
Ventura Regional Sanitation District/Environmental Solutions, Inc.
As part of landfill expansion study, performed geotechnical investigation including field and laboratory testing and static and seismic analysis and design of landfill slopes, liner, and cover systems.
Client: TRC/Environmental Solutions, Inc. - Ventura County Sanitation District, 1994-1996.
Contract amount: \$25,000

- *Sycamore Landfill/Gravel Recovery Mine Facility, San Diego, California*
San Diego County/EMCON
Performed geotechnical subsurface investigation and engineering analyses to evaluate gravel recovery potential at Sycamore Landfill and to analyze cut slopes in gravelly formation underlying the site. The final report included an evaluation of the quality and quantity of aggregates to be excavated during landfill construction based on the field and laboratory data and geologic cross-sections. As part of slope stability evaluation of the landfill/mine excavation walls, seismic shaking hazard at the site was evaluated and static and dynamic stability of the slopes were analyzed.
Client: TRC/San Diego County Waste Management.
Contract amount: \$22,000
- *Sycamore Landfill Expansion, Santee, San Diego County, California*
Engineering studies included static and seismic stability analyses of cut and fill sideslopes supporting liners and municipal solid waste (MSW) fill slopes, and evaluations of the stability of base and sideslope liner and final cover slopes.
Client: EMCON/IT & Allied Waste.
Contract amount: \$36,000
- *Static and Seismic Slope Stability, Westerly Slope, Canyon 1, Phase 3, Badlands Landfill Expansion, Riverside County, California*
Geotechnical Investigation and Slope Stability Evaluation of Colluvium on 90-foot-high sedimentary rock cutslopes. Investigation, design and quality assurance services during construction, consisting of in-grade mapping, monitoring and testing of composite liner installation.
Client: Riverside County Waste Resource Management District, 1995-1996.
- *Cactus Road Landfill, Otay Mesa, San Diego County, California*
Faulting, seismicity and seismic hazard studies including settlement and static and seismic slope stability and deformation analyses were performed in support of landfill cover design.
Client: Sesi-Cactus Road Properties/ENV America, 1997-1999.
Contract amount: \$31,000
- *Seismic Monitoring and Cover Design, OII Landfill Superfund Site, Monterey Park, California*
In support of the general closure studies of the OII landfill, installed two seismic stations to record landfill behavior during earthquakes and analyze recorded landfill response to estimate dynamic properties of municipal solid waste. These properties were used in seismic design of the cover system. Evaluated cover alternatives. Performed slope stability and settlement analysis. Evaluated surface drainage and grading alternatives.
Client: Operating Industries Inc., EPA/CH2M Hill, Roy F. Weston, SAIC, CDM, 1993-1994.
Contract amount: \$90,000
- *Tequesquite Municipal Landfill, Riverside County, California*
Integrity evaluation of existing perimeter flood-containment levee.
Client: City of Riverside, California, 1989.

- *Landfill Gas Flare Station, Otay Landfill, Chula Vista, San Diego County, California*
Geotechnical investigation.
Client: Allied Waste/San Diego Landfills, 2000.
Contract amount: \$90,000
- *Landfill Gas Flare Facility Expansion, Sycamore Landfill, Santee, San Diego County, California*
Geotechnical investigation.
Client: Allied Waste/San Diego Landfills, 2000.
- *Toyon Landfill, Los Angeles, California*
As part of closure study of the landfill, provided support in design and installation of two seismic stations at the base and top of the landfill.
Client: Bing Yen Associates/City of Los Angeles, 1993-1994.
Contract amount: \$8,000
- *Mesquite Regional Landfill, Imperial County, California*
Faulting, seismicity and seismic hazard evaluations to obtain permits for a new large regional landfill. Client: Western Waste Industries/Environmental Solutions, Inc., 1994.
Contract amount: \$12,000
- *Geotechnical Engineering Evaluation, Marine Corps Air Station (MCAS), Landfill Sites 2 and 17, Remedial Action Plan, El Toro, Orange County, California*
Geotechnical and Geological Investigation, including site-specific seismic hazard evaluation for landfill closure design of Landfill Sites 2 and 17 at El Toro Marine Corps Air Station. Investigation included evaluation of static and seismic stability of refuse slopes and landfill cover system; liquefaction, ground rupture, and landslide hazard evaluations; estimating settlements; and design of the surface water management system.
Client: Earth Tech, Inc./Department of the Navy, Commander, South Division, 2000-2001.
Contract amount: \$35,000
- *ACME Municipal and Hazardous Waste Landfill, Alameda County, California*
Landfill liner and cover design including settlement and slope stability evaluations and surface and groundwater flow analysis.
Client: ACME Corp./Environmental Solutions, Inc., 1993.
Contract amount: \$11,000
- *Puerto Rico Dump, Saipan, Northern Marianas Islands, USA.*
Geotechnical recommendations for conceptual design of a perimeter dike and final cover.
Client: Earth Tech/U.S. Navy, 1999.
Contract amount: \$19,000
- *Waimanalo Gulch Sanitary Landfill, Oahu, Hawaii*
Seismic Stability of 170-foot-high MSW and ash slopes for post-closure conditions (per Subtitle D regulations), including composite base liner system.
Client: Rust Environment and Infrastructure/Waste Management, Inc., 1995.
Contract amount: \$10,000

- *Outer Bair Island Mitigation Project, Redwood City, California*
The Outer Bair Island restoration site is located at the mouth of Redwood Creek where it flows into San Francisco Bay. As design firm for the project, HAI provided mitigation measures to create new wetland habitat and enhance existing diked salt marsh wetlands. HAI provided engineering services for analysis and design of new dikes, construction of approximately 34 acres of new seasonal pan habitat and 19 acres of associated high marsh transition habitat within an approximately 53-acre upland area at the southwest corner of the project site, and creation of 6 acres of tidal salt marsh habitat through the removal of an existing interior dike and the re-establishment of marsh plane elevations. The construction of wetlands involved using innovative grading methods to overcome difficulties involved with using heavy construction equipment on very soft marshy ground.
Client: California Wildlife Foundation/ITSI, 2000.
Contract amount: \$28,000
- *Penn Mine Closure and Reclamation, Calaveras County, California*
East Bay Municipal Utility District (EBMUD) and the Central Valley
Regional Water Quality Control Board (RWQCB)
Performed seismic hazard, slope stability, and settlement analyses for closure and reclamation of Penn Mine in Calaveras County, California.
Client: TRC/Environmental Solutions, Inc.
Contract amount: \$12,000
- *Castle Air Force Base Landfill Closure Design, Merced County, California*
Evaluation of seismic hazards including strong ground motions, stability of landfill slopes and cover system, and landfill cover settlement.
Client: ITSI, Jacobs Engineers, U.S. Air Force, 1997-1999.
Contract amount: \$20,000.
- *Static and Seismic Stability, Waimanalo Gulch Sanitary Landfill - MSW Cell 4C Development, Oahu, Hawaii*
Stability Evaluation of 100- to 180-foot-high cut slopes into basalt bedrock during construction, and composite base and sideslope liner system stability and integrity evaluation during pre- and post-closure operations.
Client: Rust Environment and Infrastructure/Waste Management, Inc., 1995.
Contract amount: \$17,000
- *Interim Refuse and Liner Stability Evaluation, Phase III, Module 1 Development, City of Watsonville Landfill, Santa Cruz County, California*
Faulting, seismicity and seismic hazard analyses in support of landfill liner and cover design, including static and seismic slope stability analyses, were performed for landfill expansion and closure. The analysis included probabilistic seismic hazard and interim slope stability evaluation of 45- and 70-foot-high refuse slopes.
Client: City of Watsonville/RUST Environment and Infrastructure, 1996-1997.
Contract amount: \$22,000
- *Fremont Sanitary Landfill Expansion, Fremont, California*
Evaluation of vertical and horizontal landfill expansion.
Client: Waste Management of North America, 1991.

- *Agana Power Plant Removal/Restoration Design Plan, Navy Clean Project, Island of Guam*
Performed seismic hazard analysis, slope stability and settlement evaluations.
Client: Earth Tech, U.S. Navy, 1999-2000.
Contract amount: \$25,000.
- *Puente Hills Municipal Solid Waste Landfill, Los Angeles County, California*
Los Angeles County Sanitation District/Earth Technology Corporation
Liner and cover systems selection and design and settlement and seismic deformation analyses were performed for expansion and closure of the existing landfill units, 1988-89.
- *Mesquite Regional Landfill, Imperial County, California*
Performed slope stability and settlement analysis. Evaluated structural integrity of piping system and capacity of leachate collection and removal systems. Prepared technical specifications for piping system, geosynthetics, and clay liner.
- *Feather River Class I Landfill/Superfund Site, Oroville, Butte County, California*
Construction manager for an RCRA landfill cell closure designed to contain 100,000+ cubic yards of contaminated soils. Construction included rough grading and cell berms, installation of vadose monitoring systems, a 3-foot clay liner and two layers of HDPE liners and geocomposite drainage layers followed by placement of 45,000 cubic yards of the contaminated soils. Landfill closure included placement of the contaminated soils and installation of the final cap consisting of a GCL, HDPE liner, geocomposite drainage layer and vegetative layer. In addition to onsite management of the overall construction work, also handled project contract administration, cost tracking and forecasting and schedule updating for the project.
- *Chimney Creek Gold Mine, Humboldt County, Nevada*
Evaluated geotechnical and drainage aspects of phase II tailings facility expansion, 1987-1993.
- *Royal Mountain King Gold Mine, Calaveras County, California*
Evaluated seepage, surface drainage, erosion control, and developed geotechnical design parameters for closure of tailings facilities.
- *Molycorp, Inc. Mountain Pass Mine, Mountain Pass, San Bernardino County, California*
Performed settlement and slope stability analysis for tailings facility expansion, landfills and block storage area. Evaluated P-16 tailings closure alternatives.
- *Koppers Company, Inc. Superfund Site, Onsite Disposal Cells Nos. 1 and 2, Oroville, Butte County, California*
Evaluated geotechnical, surface drainage and construction aspects. Prepared construction drawings and specs and worked as Resident Engineer during construction and filling of the Cells.
- *Sedimentation Basin - Simi Valley Landfill Expansion, Ventura County, California*
Geotechnical Investigation for a 30-foot-high water retention embankment.
Client: Waste Management of California, 1996.
- *Landfill Gas Facility Expansion, Bradley Landfill - Sun Valley District, Los Angeles, California*
Geotechnical investigation and construction observation and testing support.
Client: Waste Management of California, 1997-98.

A list of representative references is presented below:

Project Name and Location	Person Name and Position	Date of Completion	Phone Number
Lancaster and Antelope Valley Landfills, California	Mr. John Workman Waste Management, Inc.	2004	(661) 753-5276
El Toro Marine Base Landfills, El Toro, California	Ms. Shannon Wright Earth Tech	2000 and 2001 (ongoing)	(562) 951-2084
Castle Air Force Base Landfill Closure and Outer Bair Island Restoration Site in San Francisco Bay	Dr. Dev Shukla ITSI	1999 and 2000	(925) 256-8898
El Sobrante Landfill, Riverside County, California	Mr. Michael Leonard TRC/Environmental Solutions, Inc.	1996	(949) 727-7300
Elsmere Canyon Landfill City of Santa Clarita, Los Angeles County, California	Mr. Donald M. Williams City of Santa Clarita	1994	(805) 255-4330
Tajiguas Landfill, Gaviota, Santa Barbara Co., California	Mr. David Brummond Santa Barbara County, Dept. of Environmental Health - Local Enforcement Agency	1999	(805) 346-7348
Tajiguas Landfill, Gaviota, Santa Barbara Co., California	Ms. Imelda Cragin Santa Barbara County, Dept. of Public Works	2001 (ongoing)	(805) 346-7348
Gregory Canyon Landfill, San Diego County, California	Ms. Sally Doehle, President Higman Doehle, Inc.	1998	(805) 882-3613
Kettleman Hills Landfill, Kettleman Hills, Kings County, California	Mr. Scott Sumner TRC/Environmental Solutions, Inc.	1998 and 2001 (ongoing)	(949) 727-7300
Puente Hills Landfill, Lower Western Cut, Whittier, Los Angeles County, California	Mr. Chuck Dowdell/ Mr. Paul Mikulas LA County Sanitation Districts (LACSD)	June 2001	(562) 699-7411 ext. 2451

BEN HUSHMAND, Ph.D., P.E.
Principal, Geotechnical and Earthquake Engineering
Hushmand Associates, Inc.
Faculty Associate, California Institute of Technology

PROFESSIONAL EXPERIENCE

Dr. Hushmand is president of Hushmand Associates and is also a faculty associate at the California Institute of Technology in Pasadena since 1990, teaching and conducting research in geotechnical and earthquake engineering areas. He has more than 16 years of experience in geotechnical and environmental research, testing, and applications, specializing in soil dynamics, and analysis and design of soil-structure systems. Dr. Hushmand has directly relevant experience at the Puente Hills Landfill including the most recently completed Lower Western Cut Slope Stability Analysis project completed for the Districts.

He has managed and acted as lead engineer in some of the most challenging national and private projects of the last two decades involving seismic hazard evaluations and geotechnical investigations for large public works, landfill, industrial, and commercial projects; design and seismic evaluation of critical facilities such as schools and hospitals, police stations, 911 centers, traffic management centers; dynamic load response evaluation of bridges, dams, and underground structures; development of large databases for load carrying capacity of highway bridges and culverts; liquefaction potential evaluations for dams and marine structures; soil-structure interaction problems of foundations and retaining structures; site-specific seismicity evaluations; physical modeling similitude studies of engineering and geologic systems at normal and elevated gravity; and large scale subsurface exploration and geotechnical design of buried structures.

Dr. Hushmand has conducted a wide range of research projects in both earthquake and geotechnical engineering. He has worked on several projects studying the dynamic behavior of shallow foundations, piles, gravity base offshore platforms, dams, bridges, retaining walls, and liquefiable soils. He has specialized expertise related to experimental and computer modeling studies of the dynamic response of landfills (including OII, Toland Road, El Sobrante, Tajiguas, Mesquite Regional, Badlands, among many others in Southern California), earth structures and foundations. As part of his PhD degree program, he conducted pioneering experimental and theoretical studies on the dynamic behavior of shallow surface and embedded foundations to investigate stability and settlement of footings under cyclic steady-state machine and transient seismic loading conditions. His broad and extensive background in dynamic testing has been recognized internationally, and he is one of a select cadre of renowned experts in this field.

Dr. Hushmand has extensive experience in finite element analysis and computer programming for testing and design. He has improved and used several finite element programs (LINOS, DYNAFLOW, ABAQUS, QUAD4M, CANDE, etc.) for analysis and design of landfills, culverts, bridges, and underground structures subjected to static and dynamic loads.

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REGISTRATION: *Registered Civil Engineer, California No. C044777*

EDUCATION

- *Ph.D., Civil (Geotechnical and Earthquake) Engineering, California Institute of Technology, 1983*
- *M.S., Civil Engineering, California Institute of Technology, 1978*
- *B.S., Structural Engineering, AMUT, Tehran, Iran, 1977*

PROFESSIONAL ORGANIZATIONS

- *International Society of Soil Mechanics and Foundation Engineers (ISSMFE)*
- *American Society of Civil Engineers (ASCE)*
- *Earthquake Engineering Research Institute (EERI)*
- *Seismological Society of America (SSA)*
- *Member Soil Dynamics Committee (ASCE)*
- *Proposal and technical publication reviewer for National Science Foundation (NSF), U.S. Geological Survey (USGS), and ASCE journal of Geotechnical Engineering*

EMPLOYMENT HISTORY

- *1990 - Present, President, Hushmand Associates, Tustin, California*
- *1990 - Present, Faculty Associate, Caltech, Pasadena, California*
- *1983 - 1990, Earth Technology Corporation, Long Beach, California*
- *1987 - 1988, Lecturer, University of Southern California*
- *1979 - 1983, Perera and Associates, Los Angeles, California*
- *1978 - 1983, Teaching and Research Assistant, Caltech, Pasadena, California*

PUBLICATIONS

- *"Earthquake Engineering for Landfills" coauthor with Michael L. Leonard and Scott Brown, Proc. of the 11th World Conference on Earthquake Engineering, Acapulco, Mexico, June, 1996.*
- *"In Situ Dynamic Testing of Pore Pressure Transducers at Treasure Island, California Using Caltech Piezometer" coauthor with Ronald F. Scott, Proc. of the 11th World Conference on Earthquake Engineering, Acapulco, Mexico, June, 1996.*
- *"Dynamic Tests of A Pipe Pile in Saturated Peat," coauthor with C. B. Crouse, Steven L. Kramer, and Robert Mitchell, Journal of Geotechnical Eng., Vol. 119, No. 10, Oct. 1993.*
- *"Dynamic Behavior of a Structure on a Pile Group in a Liquefiable Sand Deposit," coauthor with Yuji Miyamoto, Kenji Miura, Kiichi Suzuki, and Ronald F. Scott, Proceedings of the 10th World Conference on Earthquake Engineering, Madrid, Spain, July, 1992.*

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- "*Soil-Pile Response in the Liquefiable Sand (Part 1: Centrifuge Test)*," coauthor with Ronald F. Scott, Yuji Miyamoto, and Kenji Miura, published in Summaries of Technical Papers of Annual Meeting, Architectural Institute of Japan, 1991.
- "*Experimental Studies of Dynamic Response of Foundations*," Ph.D. Thesis, California Institute of Technology, Pasadena, California, 1983.
- "*Foundation Settlement under Slowly Varying Loads*," coauthor with K. M. Talaei, Arya Mehr University of Technology Publications, Tehran, Iran, 1976.
- "*Dynamic Soil-Structure Interaction of a Single Span Bridge*," coauthor with C. B. Crouse and G. R. Martin, Jour. of Earthq. Eng. and Struct. Dynamics, Vol. 15, No. 6, August 1987.
- "*Dynamic Centrifuge Testing of a Bridge-Soil Model*," Proceedings of the Second International Conference on Geotech. Centrifuge Modeling, Centrifuge '88, Paris, France, 25-27 April 1988.
- "*Seismic Response of Landfill Slopes*," coauthor with Donald G. Anderson and G. R. Martin, Proceedings of a Specialty Conference, Stability and Performance of Slopes and Embankments-II, ASCE Geotechnical Special Publication No. 31, Berkeley, California, June 29-July 1, 1992.
- "*Dynamic Tests of A Pipe Pile in Saturated Peat*," coauthor with C. B. Crouse, Steven L. Kramer, and Robert Mitchell, Journal of Geotechnical Eng., Vol. 119, No. 10, Oct. 1993.
- "*Model No. 3 Primary Test Description and Test Results*," coauthor with Ronald F. Scott and H. Rashidi, Proc. of VELACS Conf., Vol. 1, 1993.
- "*Dynamic Behavior of a Structure on a Pile Group in a Liquefiable Sand Deposit*," coauthor with Yuji Miyamoto, Kenji Miura, Kiichi Suzuki, and Ronald F. Scott, Proceedings of the 10th World Conference on Earthquake Engineering, Madrid, Spain, July, 1992.
- "*In-Situ Calibration of Pore-Pressure Transducers at USGS Instrumented Liquefiable Sites*," Proc. of the 10th World Conference on Earthquake Engineering, Madrid, Spain, July, 1992.
- "*Soil-Pile Response in the Liquefiable Sand (Part 1: Centrifuge Test)*," coauthor with Ronald F. Scott, Yuji Miyamoto, and Kenji Miura, published in Summaries of Technical Papers of Annual Meeting, Architectural Institute of Japan, 1991.
- "Frictional Base Isolation with Smooth Geomembranes," coauthor with Geoffrey R. Martin, Edward Kavazanjian, Jr., and James L. Beck, Proceedings of the Third United States Conference on Lifeline Earthquake Engineering, Los Angeles, California, August, 1991.

- "Accuracy of Pore-Water Pressures Recorded at the USGS Liquefaction Array Site During the Magnitude 6.6 Imperial Valley Earthquake of 24 November, 1987," ASCE Geotechnical Special Publication No. 29, "Recent Advances in Instrumentation, Data Acquisition and Testing in Soil Dynamics," also presented in the ASCE 1991 Orlando Convention.
- "Interaction of a Pile Group with a Liquefiable Soil," Coauthor with Ronald F. Scott and K. Miura, Proceedings of the 9th International Symposium on Earthquake Engineering, Roorkee, India, December, 1990.
- "Seismic Monitoring and Evaluation of a Landfill," Proceedings of the Fourth U.S. National Conference on Earthquake Engineering, Palm Springs, California, May 20-24, 1990.
- "*Soil-Structure Interaction and Nonlinear Site Response at the Differential Array Accelerograph Station*," coauthor with C. B. Crouse, Proceedings of the Fourth U.S. National Conference on Earthquake Engineering, Palm Springs, California, May 20-24, 1990.
- "*Soil-Structure Interaction Effects on 1987 Whittier Earthquake Free-Field Measurements at the Tarzana Accelerograph Station*," ASCE Structures Congress, Baltimore, Maryland, May 1990.
- "*Foundation Impedance Functions: Theory vs. Experiment*," coauthor with C. B. Crouse, J. Enrique Luco, and H. L. Wong, Journal of Geotechnical Eng., Vol. 116, No. 3, March 1990.
- "*Soil-Structure Interaction at USGS and CDMG Accelerograph Stations*," coauthor with C. B. Crouse, Bulletin of the Seismological Society of America, Vol. 79, No. 1, February 1989.
- "*Dynamic Centrifuge Testing of a Bridge-Soil Model*," Proceedings of the Second International Conference on Geotech. Centrifuge Modeling, Centrifuge '88, Paris, France, 25-27 April 1988.
- "*Centrifuge Liquefaction Tests in a Laminar Box*," Geotechnique 38, No. 2, 1988.
- "*Dynamic Soil-Structure Interaction of a Single Span Bridge*," coauthor with C. B. Crouse and G. R. Martin, Jour. of Earthq. Eng. and Struct. Dynamics, Vol. 15, No. 6, August 1987.
- "*Site Response and Liquefaction Studies Involving the Centrifuge*," Proceedings of 3rd International Conference on Soil Dynamics and Earthquake Engineering, Princeton University, Princeton, N.J., June 1987.
- "*Estimation of Bridge Foundation Stiffness from Forced Vibration Data*," coauthor with C. B. Crouse, Proceedings of 3rd International Conference on Soil Dynamics and Earthquake Engineering, Princeton University, Princeton, N.J., June 1987.

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- "*Site-Response and Liquefaction Studies Involving the Centrifuge*," coauthor with C. B. Crouse and R. F. Scott, U.S. Geological Survey Publication in National Earthquake Hazards Reduction Program, Summaries of Technical Reports, Volume XXIII, 1986.
- "*Dynamic Response of Bridge-Abutment-Backfill Systems*," coauthor with C. B. Crouse, G. Liang, G. R. Martin, and J. Wood, Proceedings of Joint U.S. - New Zealand Workshop on Seismic Resistance of Bridges, Applied Technology Council, 1985.

REPRESENTATIVE PROJECT EXPERIENCE

- *Static and Seismic Slope Stability, Lower Western Cut, MRF Development, Puente Hills Landfill, Whittier, Los Angeles County, California.* Geotechnical investigation for development of a Materials Recovery Facility, consisting of investigation and geotechnical remediation of an existing landslide. It included evaluation of static and seismic stability of cut and buttress fill slopes up to 270 feet high in outdipping sedimentary (claystone, siltstone) bedrock (Fernando and Puente Formation), recommendations for site grading including removal, buttress fill construction and subdrains and horizontal drains (hydraugers) and localized stabilization buttresses. Client: County of Los Angeles Sanitation Districts, 1999.
- *Puente Hills Landfill Blower Station, Whittier, Los Angeles County, California*
A geotechnical investigation was conducted for the proposed Puente Hills Landfill Blower Station, which is part of a proposed energy distribution system for the IC Engine Facility, located below the existing PERG Facility. Field exploration, laboratory testing, and engineering analyses were performed to provide recommendations for earthwork and foundation design. The project report was reviewed and approved by the Los Angeles County Sanitation Districts and Department of Public Works. Client: Los Angeles County Sanitation Districts, 2002.
- *Puente Hills Municipal Solid Waste Landfill Vertical Expansion and Closure Design, Los Angeles County, California.* Performed a geotechnical investigation to fulfill the requirements of California Administrative Code, Subchapter 15 (Discharge of Waste to Land) for vertical expansion and closure of the existing landfill units. Investigation included geophysical testing, drilling exploration borings, faulting and seismicity evaluation to estimate earthquake ground motions and select representative time histories for dynamic (QUAD4 finite element) analysis, liner and cover systems selection and design, and settlement and seismic deformation analyses. Client: EarthTech/Los Angeles County Sanitation Districts, 1988-89.
- *Static and Seismic Slope Stability Evaluation, MSW Landfill Unit B-19, Kettleman Hills Facility, Kings County, California.* Static and seismic stability evaluation of 200-foot-high permanent refuse slopes using 3-D Computer Program CLARA, and 2-D static and dynamic slope stability analysis programs PCSTABL 5M and QUAD4M. Based on these analyses optimized the size of the stabilization buttress fill. Client: TRC/Waste Management, 2001-2002.

- *Kettleman Hills Hazardous Waste Landfill, Kettleman City, Kings County, California*
Construction of Landfill Unit B-18, Phase II liner system was delayed due to unpredicted weather problems. This required vertical expansion of Phase I Cell. Seismic hazard analysis was performed to evaluate landfill seismic design parameters which were used in a finite element analysis (QUAD4M & LINOS) to optimize landfill's vertical expansion design by evaluating allowable slope displacements and liner stresses to assure liner integrity during earthquakes. Directed geotechnical testing program and analysis tasks including liner interface testing, field permeability testing and clay source studies. Conducted slope stability analysis and evaluation of intermediate and final cover configurations. Evaluated surface hydrology to upgrade landfill's surface water management system. Also evaluated landfill layout alternatives and capacity of leachate collection and removal systems and performed settlement analysis. Client: TRC/Environmental Solutions, Inc./Waste Management, Inc., 1993.
- *Static and Seismic Slope Stability Evaluation, MSW Landfill Unit B-19, Kettleman Hills Facility, Kings County, California.* Static and seismic stability evaluation of 150-foot-high permanent refuse slopes, landfill liner system and localized stabilization by buttress fill; interim slope stability of 100-high cuts into sedimentary rock, and full seismic hazard, dynamic response, stability and permanent displacement analyses. Seismic hazard analysis was performed to evaluate landfill seismic design parameters which were used in a finite element analysis to optimize landfill's expansion design by evaluating allowable slope displacements and liner stresses to assure liner integrity during earthquakes. Seismic stability evaluations included 1-D SHAKE91 and 2-D QUAD4M site response analyses. Client: Rust Environment and Infrastructure/Waste Management, Inc., 1997-98.
- *Independent Technical Review of Slope Stability Evaluation, Tajiguas Landfill, Santa Barbara County, California.* Independent geotechnical review of stability of cut and fill slopes up to 350 feet high. Client: County of Santa Barbara Environmental Health Services, 1999.
- *Sycamore Landfill/Gravel Recovery Mine Facility, San Diego, California*
Performed geotechnical subsurface investigation and engineering analyses to evaluate gravel recovery potential at Sycamore Landfill and to analyze cut slopes in gravelly formation underlying the site. The final report included an evaluation of the quality and quantity of aggregates to be excavated during landfill construction based on the field and laboratory data and geologic cross-sections. As part of slope stability evaluation of the landfill/mine excavation walls, seismic shaking hazard at the site was evaluated and static and dynamic stability of the slopes were analyzed. Client: TRC/San Diego County Waste Management, 1997-1998.
- *Geotechnical Engineering Evaluation, Marine Corps Air Station (MCAS), Landfill Sites 2 and 17, Remedial Action Plan, El Toro, Orange County, California.* Geotechnical and Geological Investigation, including site-specific seismic hazard evaluation for landfill closure design of Landfill Sites 2 and 17 at El Toro Marine Corps Air Station. Investigation included evaluation of static and seismic stability of refuse slopes and landfill cover system; liquefaction, ground rupture, and landslide hazard evaluations; estimating settlements; and design of the surface water management system. Client: Earth Tech, Inc./Department of the Navy, Commander, South Division, 2000-2002.

- *Penn Mine Closure and Reclamation, Calaveras County, California*
East Bay Municipal Utility District (EBMUD) and the Central Valley Regional Water Quality Control Board (RWQCB). Performed seismic hazard, slope stability, and settlement analyses for closure and reclamation of Penn Mine in Calaveras County, California. Client: TRC, 1997.
- *Agana Power Plant Removal/Restoration Design Plan, Navy Clean Project, Island of Guam.*
Performed seismic hazard analysis, slope stability and settlement evaluations for the site of a power plant in Island of Guam. Client: Earth Tech, U.S. Navy, 1999-2000.
- *Castle Air Force Base Landfill Closure Design, Merced County, California.* Evaluation of seismic hazards including strong ground motions, stability of landfill slopes and cover system, and landfill cover settlement. Client: ITSI/Jacobs Engineers/U.S. Air Force, 1997-99.
- *Seismic Monitoring and Cover Design, OII Landfill Superfund Site, Monterey Park, California.*
In support of the general closure studies of the OII landfill, installed two seismic stations to record landfill behavior during earthquakes and analyze recorded landfill response to estimate dynamic properties of municipal solid waste. These properties were used in seismic design of the cover system. Evaluated cover alternatives. Performed slope stability and settlement analysis. Evaluated surface drainage and grading alternatives. Client: EPA/CH2M Hill, Roy F. Weston, SAIC, CDM, 1993-1994.
- *EIR Preparation and Expansion Design for El Sobrante Municipal Solid Waste Landfill, Riverside County, California.* As part of feasibility study and siting of El Sobrante landfill expansion, evaluated expansion layout alternatives, performed site-specific seismic hazard analysis, static and seismic analysis and design of landfill slopes, and settlement analysis. Evaluated liner and cover systems and optimum waste fill configurations. Directed clay source studies and prepared technical specifications for clay liner and geosynthetics. Client: Environmental Solutions, Inc. & Western Waste Industries, Inc. 1992-1996.
- *Cactus Road Landfill, Otay Mesa, San Diego County, California*
Faulting, seismicity and seismic hazard studies including settlement and static and seismic slope stability and deformation analyses were performed in support of landfill cover design. Client: Sesi-Cactus Road Properties/ENV America, 1997-1999.
- *Sycamore Landfill Expansion, Santee, San Diego County, California*
Engineering studies included static and seismic stability analyses of cut and fill sideslopes supporting liners and municipal solid waste (MSW) fill slopes, and evaluations of the stability of base and sideslope liner and final cover slopes.
Client: EMCON/IT & Allied Waste, 1999-2000.
- *Landfill Gas Flare Station, Otay Landfill, Chula Vista, San Diego County, California.* *Geotechnical investigation.* Client: Allied Waste/San Diego Landfills, 2000.

- *Alameda Naval Air Station, Landfill Sites 1 and 2, Alameda County, California*
Performed static and seismic stability of the landfill and the perimeter berm along the site south, west, and north boundaries by the San Francisco Bay. Analyses included seismic hazard and site response evaluations, evaluation of the landfill cover settlement due to excessive compressibility of the soft bay mud, and potential slope failure through bay mud and computation of the slope deformations. Client: Foster Wheeler Environmental and U.S. Navy, 2001-2002.
- *Landfill Gas Flare Facility Expansion, Sycamore Landfill, Santee, San Diego County, California. Geotechnical investigation.* Client: Allied Waste/San Diego Landfills, 2000.
- *Gregory Canyon Landfill, San Diego County, California*
Review of geotechnical issues of EIR/EIS documents for County of San Diego.
Client: Higman Doehle/Gregory Canyon Limited & County of San Diego, Department of Environmental Health, 1997-1998.
- *Toland Road Landfill, Ventura County, California*
As part of landfill expansion study and preparation of an EIR document, performed geotechnical investigation including field and laboratory testing and static and seismic analysis and design of landfill slopes, liner, and cover systems. The analyses included faulting, seismicity and seismic hazard analyses in support of landfill liner and cover design, including static and seismic slope stability analyses. Client: TRC (ESI) & Ventura Regional Sanitation District, 1996-1997.
- *Expansion Design for Tajiguas Municipal Solid Waste Landfill, Santa Barbara County, California.*
As design firm for a 70-acre, 10-million-cubic-yard expansion of Tajiguas Landfill, evaluated expansion layout alternatives and provided grading designs to optimize landfill capacity and borrow sources for soil needed for landfill liner system and daily cover. Performed site-specific seismic hazard analysis, static and seismic analysis and design of landfill slopes and soil buttress for stabilizing slopes, and settlement analysis. Evaluated liner and cover systems for optimum waste fill configurations. Civil design of the landfill expansion included evaluation of cut and fill volumes for soil and waste mass and design of access roads and surface water management system.
Client: County of Santa Barbara, Department of Public Works, 2000-2001.
- *Toyon Landfill, Los Angeles, California.* As part of closure study of the landfill, provided support in design and installation of two seismic stations at the base and top of the landfill.
Client: Bing Yen Associates/City of Los Angeles, 1995.
- *Mesquite Regional Landfill, Imperial County, California*
Faulting, seismicity and seismic hazard evaluations to obtain permits for a new large regional landfill. Also performed slope stability and settlement analysis. Client: Environmental Solutions, Inc./Western Waste Industries, 1994.

- *Waimanalo Gulch Sanitary Landfill, Oahu, Hawaii*
Landfill liner and cover design including settlement, static and seismic slope stability, and seismic deformation analyses for expansion and closure of the existing landfill units. Analyses included seismic stability evaluation of 170-foot-high MSW and ash slopes for post-closure conditions (per Subtitle D regulations), including composite base liner system.
Client: Rust Environment and Infrastructure/Waste Management, Inc., 1995.
- *Waimanalo Gulch Sanitary Landfill - MSW Cell 4C Development, Oahu, Hawaii*
Stability Evaluation of 100- to 180-foot-high cut slopes into basalt bedrock during construction, and composite base and sideslope liner system stability and integrity evaluation during pre- and post-closure operations. Client: Rust Environment and Infrastructure/Waste Management, Inc., 1995.
- *ACME Municipal and Hazardous Waste Landfill, Alameda County, California*
Landfill liner and cover design including settlement and slope stability evaluations and surface and groundwater flow analysis. Client: ACME Corp./Environmental Solutions, Inc., 1993.
- *Evaluation of Site Conditions and Remedial Measures for Landfill Gas Management, Whaler's Cove Development, Long Beach, California.* Provided estimates of future settlements and gas production at the Whaler's Cove Development (condominiums and other buildings), which was constructed in the early 1980's over prior landfilled areas. The landfilled area is a portion of a larger landfill which was operated by the City of Long Beach between the years of approximately 1956 to 1966.
Client: ENV America, Inc./City of Long Beach, 1999-2000.
- *Proposed West Expansion, Republic Imperial Landfill, El Centro, Imperial County, California. Liquefaction Potential and Slope Stability Evaluation:* Performed 2-D static and pseudo-static slope stability analyses, 2-D dynamic finite element analyses using Computer Program QUAD4M, and Newmark double integration analysis to estimate displacements of landfill slopes. Using CPT and SPT data and the latest empirical procedures developed for evaluating liquefaction potential estimated the site liquefaction induced settlements and lateral displacements. Based on these analyses the landfill design was optimized. Client: Emcon/IT & Allied Waste, 1998-99.
- *Bradley East Landfill - Partial Final Cover, Sun Valley, California.* Site geology and waste characterization; probabilistic seismic hazard evaluation; refuse and final cover slope stability and settlement evaluation; final cover design (per Subtitle D regulations); closure and post-closure cost, and post-closure site utilization evaluation. Client: Waste Management of California, 1995-96.
- *Preliminary Stability Evaluation, Lancaster Landfill Expansion, Los Angeles County, California.* Probabilistic seismic hazard and final cover slope stability evaluation. Client: Waste Management of Lancaster, 1997-1998.
- *Static and Seismic Slope Stability, Sump 5, Phase II Expansion, Bradley Landfill, Sun Valley, California.* Temporary slope stability of 150-foot high excavated alluvium and 100-foot high fill slopes. Client: Waste Management Inc., 1995.

- *Static and Seismic Slope Stability, Cells B-3 and C Development - Simi Valley Landfill Expansion, Ventura County, California.* Geotechnical/Geological/Hydrogeological Investigation, including site geological and hydrological investigation for an approximately 37 acre landfill expansion. Investigation included evaluation static and seismic stability of 100- to 200-foot-high cut slope into out-of-slope bedding outdipping sedimentary bedrock (Sespe) formation), delineation of existing waste limits; and refuse slopes. Client: Rust Environment and Infrastructure, 1998.
- *Static and Seismic Slope Stability, Cell B-2 Development - Simi Valley Landfill Expansion, Ventura County, California.* Geotechnical investigation, including site geology and waste limits characterization; static and seismic stability evaluation of 120 to 200-foot-high slopes cut into sedimentary rock (claystone, siltstone, sandstone, Sespe Formation), with out-of-slope bedding; refuse, liner and cover slope stability evaluation; subgrade and composite liner design (per Subtitle D regulations). Probabilistic seismic hazard evaluation. Quality assurance services during construction, consisting of in-grade mapping, monitoring and testing of composite liner installation. Client: Rust Environment and Infrastructure/Waste Management, Inc., 1995-96.
- *Puerto Rico Dump, Saipan, Northern Marianas Islands, USA.* Geotechnical recommendations for conceptual design of a perimeter dike and final cover. Client: Earth Tech/U.S. Navy, 1999.
- *Interim Refuse and Liner Stability Evaluation, Phase III, Module 1 Development, City of Watsonville Landfill, Santa Cruz County, California.* Faulting, seismicity and seismic hazard analyses in support of landfill liner and cover design, including static and seismic slope stability analyses, were performed for landfill expansion and closure. The analysis included probabilistic seismic hazard and interim slope stability evaluation of 45- and 70-foot-high refuse slopes. Client: City of Watsonville/RUST Environment and Infrastructure, 1996-1997.

PETER E. MOORE
Soils/Concrete Laboratory and Field Senior Technician
Hushmand Associates, Inc.

PROFESSIONALEXPERIENCE

Mr. Moore has more than 30 years of experience as a Construction Quality Assurance monitor working on a variety of geotechnical engineering projects involving massive grading activities, slope stabilization, foundation preparation and installation, oriented-drilling, subdrain installation, injection/grouting stabilization, and field instrumentation for construction and post-construction monitoring. Mr. Moore's extensive experience in geotechnical field investigation and laboratory testing has provided him with exceptional in-depth understanding of soil behavior and foundation construction. Mr. Moore has worked on a wide range of geotechnical and environmental engineering projects such as slope stabilization; reservoirs; power plants; residential, commercial and industrial developments; and roads and bridges.

EDUCATION AND CERTIFICATIONS

- *Mentruyt Technical Institute (1968)*
- *40-Hour OSHA Trained, 29 CFR 1910.120 (e)(2)/8 CCR 5192*
- *Radiation Safety and Use of Nuclear Gauges, CPT Training Course No. 36211*

EMPLOYMENT HISTORY

- *1999 - Present, Hushmand Associates, Inc. (HAI), Senior Engineering Technician, Laboratory Testing and CQA Monitor*
In charge of HAI's Soils Laboratory and Field Testing Services in Tustin, California. Responsible for geotechnical Construction Quality Assurance (CQA), field exploration, in-situ testing, earthwork (compaction) control, geotechnical instrumentation installation, vibration monitoring, soils laboratory testing for earthwork and foundation design and construction of a wide spectrum of infrastructure, industrial, commercial, and land development projects. Representative southern California projects include Puente Hills Landfill Lower Western Cut in Whittier, Los Angeles County, California (providing field exploration support, geotechnical laboratory testing and data management); Sycamore and Otay Landfill Gas Plants Geotechnical Investigations, San Diego County; American National Can Plant Expansion, Chatsworth; Hem Memorial Park, Lynwood; Arcadia Police Station, Arcadia; La Verne Development Complex, La Verne; Rancho Santa Fe Development, San Diego County; Morro Bay Power Plant Expansion, Morro Bay, San Luis Obispo County; San Miguel and Templeton Monopole Tower Studies, San Luis Obispo County, California; Otay Mesa Power Generating Plant, San Diego County, California; Campbell Shipyard Sheet Pile Wall Installation and Vibration Monitoring and Construction Monitoring during backfill operations, Port of San Diego, San Diego, California; Parkside Residential Development, Anaheim, California; Springdale Reservoir, Huntington Beach, California; Alameda Naval Air Station Landfill Closure, Alameda County, California (responsible for field exploration, construction monitoring, and geotechnical laboratory testing tasks), Sunshine Canyon Landfill Phase IV Part II (construction monitoring, and geotechnical laboratory testing tasks of clay liner); El Sobrante Landfill. (construction monitoring, and geotechnical laboratory testing tasks of clay liner); Carmax-Buena Park (construction monitoring 25,000 cubic yards of backfill operations); Congregate Banning Facility (construction monitoring of backfill operations).

- *1996 - 1999 - Geoconsult, Inc., Senior Engineering Technician, CQA Monitor*
In charge of soil laboratory and field testing services. Geotechnical CQA, field exploration, testing and instrumentation and soils laboratory testing for earthwork and foundation design and construction of a wide spectrum of infrastructure, industrial, commercial, and residential development projects.
- *1992 - 1996 - Hidronor Co., Field Engineering Technician, CQA Monitor*
Construction monitoring, instrumentation and testing of a 1.2-mile long tunnel for remedial work under the foundation of El Chocon dam. It consisted of drilling a total length of 22 miles of borings for investigation and drainage purposes; treating the foundation by injecting approximately 94,000 gallons cement bentonite grout, and installing 140 piezometers.
- *1975 - 1992 - Hidronor Co., Senior Engineering Technician, Soils Laboratory Testing*
Geotechnical studies for numerous hydroelectric development projects on the Limay and Neuquen rivers, Argentina, including Arroyito compensating dam and powerhouse, Alicopa Complex (Alicura Dam, Collon Cura Dam, and Piedra del Aguila Dam).
- *1970 - 1975 - Sir Alexander Gibb & Partners (London, England), Assistant Technician in the Soils and Concrete Testing Laboratory*
Projects included the El Chocon – Cerros Colorados Hydroelectric Complex, Argentina, including the El Chocon earthfill dam, diversion tunnels, spillway, penstocks and power house; the Planicie Banderita earthfill dam diversion tunnels, spillway, penstocks and power house; the Portezuelo Grande earthfill dam and spillway; and the Loma de la Lata earthfill dam, control structure and perimeter dikes.

REPRESENTATIVE LANDFILL PROJECT EXPERIENCE

San Timoteo Landfill, San Bernardino, California

Performed mass earthwork grading and testing, testing of backfills, geosynthetic testing, concrete placement, field and laboratory testing of fill materials and aggregates, and quality control of fill placement. In charge of directing excavation of clay materials and transporting them to stockpiles for blending, screening, and moisture conditioning. Obtained soil samples and conducted particle size analysis and moisture/density measurements to identify which cuts or stockpiles meet specifications.

Sunshine Canyon Landfill, Los Angeles County, California

Conducted earthwork grading and testing, testing of backfills, observation and testing of geosynthetic materials during installation, preparation of field CQA progress reports, field and laboratory testing of fill materials and aggregates, and quality control of fill placement.

El Sobrante Landfill, Riverside County, California

Conducted earthwork grading and testing, testing of backfills, observation and testing of geosynthetic materials during installation, preparation of field CQA progress reports, field and laboratory testing of fill materials and aggregates, and quality control of fill placement.

Sycamore Canyon Landfill, San Diego County, California

Performed earthwork grading and testing, testing of aggregates, and quality control of fill placement.

Obtained soil samples and conducted particle size analysis and moisture/density measurements to evaluate the gravel content of the site deposits.

- **Soil Testing Expertise**

Direct shear, triaxial compression, odometer, consolidation, hydraulic conductivity in the triaxial cell, moisture content, sieve analysis, hydrometer, Atterberg limits, specific gravity of soil, sand and gravel, standard and modified compaction (Proctor), minimum and maximum index density (relative density), soluble salts, organic matter, constant head permeability, falling head permeability, Los Angeles Abrasion, California Bearing Ratio (CBR), expansion potential, and “Pinhole” (clay dispersivity) testing. *Field Soil Testing Expertise:* *In situ* density by sand replacement (sand cone) and nuclear gauge methods, “Oroville” Ring *In Situ* Density Method, geotechnical instrumentation installation (piezometers, etc.), percolation testing, resistivity testing, vibration monitoring, Standard Penetration Test (SPT) and Cone Penetration Testing (CPT).

- **Concrete Testing Expertise**

Concrete mixes, compression test, molding of concrete cylinders, capping of concrete cylinders, initial and final setting times, measurement of incorporated air, hydraulic conductivity of cement mixes in the triaxial cell, Abraham cone. *Field:* Bentonite/cement mixes for injection purposes, shotcrete mixes, and control of injection of bentonite/cement mixes measuring different parameters.

RECENT LABORATORY TESTING EXPERIENCE

The following is a list of recent projects and companies for which HAI has performed laboratory testing:

Project Name and Location	Company
<i>Sunshine Landfill, Los Angeles, California</i>	Golder Associates Inc.
<i>El Sobrante Landfill, Riverside County, California</i>	Golder Associates Inc.
<i>Kettleman Hills Landfill, Kettleman Hills, Kings County, California</i>	Golder Associates Inc.
<i>Carmax-Buena Park, Orange County, California</i>	Golder Associates Inc.
<i>Puente Hills Landfill, Lower Western Cut, Whittier, Los Angeles County, California</i>	LA County Sanitation Districts
<i>Campbell Shipyard, San Diego, San Diego County, California</i>	Weston/Recon

Project Name and Location	Company
<i>South Bay Power Plant, Unit 3 SCR, Chula Vista, San Diego County, California</i>	Duke/Fluor Daniel
<i>Otay Mesa Generating Project, Otay Mesa, San Diego County, California</i>	Calpine
<i>Arco Gas Station, Convenient Stores and Restaurants Development, National City, San Diego County, California</i>	England-GeoSystem
<i>Street Improvement and Rehabilitation, City of Irwindale, Los Angeles County, California</i>	City of Irwindale
<i>Morro Bay Power Plant, Morro Bay, California</i>	Duke/Fluor Daniel
<i>Norwalk Park Development Reservoir, Site Investigation for a new 5-MG Reinforced Concrete Reservoir, City of Norwalk, L.A. County, California</i>	RBF Consulting
<i>San Joseph Reservoir, New Proposed 5.5 MG Reinforced Concrete Reservoir, City of Arcadia, Los Angeles County, California</i>	City of Arcadia
<i>Santa Anita Reservoir No. 3, City of Sierra Madre, Los Angeles County, California</i>	City of Sierra Madre
<i>New City of Arcadia Police Station, Arcadia, Los Angeles County, California</i>	City of Arcadia
<i>Several Industrial/Commercial Projects</i>	ATC/Bing Yen and Associates
<i>Several Industrial/Commercial Projects</i>	AB International
<i>SDG&E - El Cajon</i>	Globus Engineering
<i>Geotechnical Investigation Santa Anita Reservoir, City of Sierra Madre, Los Angeles County</i>	RBF Consulting
<i>ICI Paints Project, City of Commerce, Los Angeles County.</i>	Fluor Daniel

REGINALD TUBAO, B.S.
Construction Management and Soils Technician
Hushmand Associates, Inc.

PROFESSIONAL EXPERIENCE

Mr. Tubao has worked in all aspects of construction projects ranging from field testing and Quality Control (QC) services to project management. He has been involved in all phases of construction projects encompassing bidding and estimating projects, assigning contractors for sub-contract work, scheduling, documenting project progress, and field supervision. Mr. Tubao organized, maintained, and drafted all project documents such as RFI's, Change Orders, T&M's, Submittals, and As-Builts. Conducted weekly construction meetings with foreman's for each trade to coordinate and resolve any scheduling and construction problems faced during the course of the project. He provided Quality Control services throughout each project. Provided Inspection and inventory of all materials and products entering the job site to ensure they met Contract Specifications. His construction monitoring tasks also included completing Punch List items during final stages of a project. Mr. Tubao has more than 3 years of experience as Soils Technician in all type of grading and landfill projects.

EDUCATION

- *B.S., Tele-Communications*, DeVry University, Long Beach, CA, 2002
- *Senior Status, Biology*, California State Polytechnic University, Pomona, CA

CERTIFICATIONS *CPN Training Course on Radiation Safety and Use of Nuclear Gauges*

EMPLOYMENT HISTORY

- 2004 - Present, Soils Technician, Hushmand Associates, Inc. (HAI), Tustin, California
- 2001 - 2004, Assistant Project Manager, Mallcraft Inc, Altadena California

REPRESENTATIVE PROJECT EXPERIENCE WITH MALLCRAFT, INC.

Arcadia Police Department Facility, City of Arcadia, Los Angeles County, California. Maintain and draft all documents for the entire project. The documents included RFI's, Submittals to the architect, State Board of Corrections, State and City Fire Marshall, Time and Material Tickets for all Change Orders; processed and estimated values for all Time & Material work as well as all change order work requested by the owner. Provide QA/QC and inventory of all material to assure meeting or exceeding specified contract requirements. Schedule and coordinate with the sub-contractors and the owner. Hold weekly foreman meetings to resolve any coordination and construction problems that could be foreseen. Schedule and correct any punch list items for the final stages of the project to receive retention and Final Completion Notice from the owner.

Reginald Tubao, B.S.
Hushmand Associates, Inc.
Page 2

Scope of Work: Police Facility including Jail and 911 Emergency and Communications Room, Maintenance Building including six bays for maintenance and repair of all police vehicles and a five-thousand gallon underground fuel tank and island, and Firing Range. Cost of Project: 17.5 million dollars. Client: City of Arcadia/Development Services Department, 2001-2003.

Melrose Elementary School, City of Placentia, Orange County, California. Maintain and draft all documents for the entire project. The documents included RFI's, Submittals to the architect, State and City Fire Marshall, and Time and Material Tickets for all Change Orders. Processed and estimated values for all Time & Material work as well as all change order work requested by the owner. Inventory and QA/QC all material to assure meeting or exceeding specified contract requirements. Scheduling for coordination purposes with the sub-contractors and the owner. Held weekly foreman meetings to resolve any coordination and construction problems that could be foreseen. Schedule and correct any punch list items for the final stages of the project to receive retention and Final Completion Notice from the owner. Scope of Work: Building #1- Kindergarten thru 3rd grade Classes. Building #2- Administrative Offices and 4th & 5th Grade Classes and Gymnasium. Cost of Project: 14 million dollars. Client: Placentia/Yorba Linda Unified School District, 2004.

REPRESENTATIVE PROJECT EXPERIENCE WITH HUSHMAND ASSOCIATES, INC.

Villa Verona Development, 1234 Wilshire Blvd., Los Angeles, California
Grading observation and material testing during footing system construction.
Client: Geopentech, 2005.

Loreto Elementary School, Los Angeles, California
Quality Assurance/Quality Control (QA/QC) and material testing services during backfilling of building pads; and observation during slot trenches excavation.
Client: Leighton & Associates, Inc., 2004.

Vulcan Materials Company Claremont Asphalt Plant, Montclair, California
Quality Assurance/Quality Control (QA/QC) and material testing services during backfilling of a former underground storage tank; and observation during slot trenches excavation.
Client: ENV America, Incorporated, 2004.

The Grove, Corona, California
Quality Assurance/Quality Control (QA/QC) and material testing services during grading operations.
Client: Petra Geotechnical, Inc., 2004.

Center Lake Corporation Center, Ontario, California
Quality Assurance/Quality Control (QA/QC) and material testing services during grading operations.
Client: Petra Geotechnical, Inc., 2004.

Centex, Rancho Cucamonga, California
Quality Assurance/Quality Control (QA/QC) and material testing services during grading operations.
Client: Petra Geotechnical, Inc., 2004.

Reginald Tubao, B.S.
Hushmand Associates, Inc.
Page 3

Baldwin Avenue and Santa Anita Avenue Rehabilitation Projects, Arcadia, California

Provided field observation and compaction testing services during preparation and construction of street subgrade, base, and asphalt pavement, and excavation and backfilling for sewer lines and manholes and other utility trenches.

Client: City of Arcadia, 2004.

Paramount Petroleum, Clean Fuels and Conoco Phillips Petroleum, Paramount and Wilmington, California. Assisted with QA/QC services during grading and preparation of concrete slab pads and foundations for tanks, boilers, and pipe racks.

Client: Globus Engineering, 2004.

Fink Road Landfill, Patterson, California

Grading observation and material testing during cutting and preparation and backfilling of the landfill slope. Quality Assurance/ Quality Control (QA/QC), inventory of all liner materials (GCL, HDPE, Geotextile); inspection of all fusion welds, air pressure test, and stitching for geotextile.

Client: Shaw/EMCON, 2005.

Phase 1A - Lancaster Landfill, Lancaster, California

Grading observation and material testing during cutting of the landfill slopes and preparation and backfilling of the cell floor. Quality Assurance/ Quality Control (QA/QC), inventory of all liner materials (GCL, HDPE, Geotextile); inspection of all fusion welds, air pressure test, and stitching for geotextile.

Client: Waste Management, Inc., 2004.

Cell IV, Step 5 - Antelope Valley Landfill, Palmdale, California

Grading observation and material testing during cutting and preparation and backfilling of the landfill slope. Quality Assurance/ Quality Control (QA/QC), inventory of all liner materials (GCL, HDPE, Geotextile); inspection of all fusion welds, air pressure test, and stitching for geotextile.

Client: Waste Management, Inc., 2004.



THE NETWORK

Bringing You Government Bids Throughout Southern California

Certified Small Business Enterprise

7/11/2005

Account #: 17776
Mr. Ben Hushmand
Hushmand Associates, Inc.
15451 Red Hill Avenue, Suite A
Tustin, CA 92780

Thank you for submitting your Vendor Application seeking Small Business Enterprise recognition with a *Coalition of Southern California Public Agencies*. Per our evaluation of the information you provided in your application and the North American Industry Classification System codes you identified, your status as a Small Business Enterprise (SBE) has been approved. This certification is recognized by the following organizations:

Metropolitan Water District *City of San Diego* *San Diego County Water Authority*
Minority Business Devel. Agency *Port of Long Beach* *Los Angeles Unified School District*
Los Angeles Community College Dist.

Metropolitan is pleased to issue this SBE Certificate subject to the terms and conditions identified below:

<p>NAICS code(s) for which SBE status is recognized: 541330 541380 SBE Certificate Effective Date: 7/8/2005 SBE Certificate Expiration Date: 7/8/2008</p>
--

Work performed by your firm that falls within the above-mentioned NAICS code(s) will be counted as SBE participation for work performed on contracts procured by the above agencies.

The agencies reserve the right to withdraw this certification if at any time it is determined that certification was knowingly obtained by false, misleading or incorrect information and reserve the right to audit all statements. If any firm attempts to falsify or misrepresent information to obtain certification, the firm may be disqualified from participation in any contracts for a period of up to five years.

SBE Certification is valid for a period of three (3) years. To maintain SBE status, firms must update their existing SBE Vendor Application on or before the expiration date mentioned above. All information is subject to verification.

If there are any changes in your status that may impact your certification, you are required to update your account information online. A copy of your information can be viewed by logging into your main menu and selecting the link to the "Small Business Certification Form".

Sincerely,


Nicole Meggerson de Martinez
Metropolitan Water District of Southern California
Interim Business Outreach Program Manager



MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Certified Small Business Enterprise

1/4/2005

Mr. Ben Hushmand
Hushmand Associates, Inc.
15451 Red Hill Avenue, Suite A
Tustin, CA 92780

Thank you for submitting your Vendor Application seeking Small Business Enterprise recognition with The Metropolitan Water District of Southern California (Metropolitan). Per our evaluation of the information you provided in your application and the North American Industry Classification System codes you identified, your status as a Small Business Enterprise (SBE) has been approved. This certification is recognized by Metropolitan and its reciprocating agencies LAUSD, city of San Diego and San Diego County Water Authority. Metropolitan is pleased to issue this SBE Certificate subject to the terms and conditions identified below:

NAICS code(s) for which SBE status is recognized: 541330 541380

SBE Certificate Effective Date: 1/3/2005

SBE Certificate Expiration Date: 1/3/2008

Work performed by your firm that falls within the above-mentioned NAICS code(s) will be counted as SBE participation for work performed on Metropolitan contracts or reciprocating agency contracts.

Metropolitan reserves the right to withdraw this certification if at any time it is determined that certification was knowingly obtained by false, misleading or incorrect information. Metropolitan reserves the right to audit all statements. If any firm attempts to falsify or misrepresent information to obtain certification, Metropolitan may, in its sole discretion, disqualify this firm from participation in any Metropolitan contracts for a period of up to five years.

SBE Certification is valid for a period of three (3) years. To maintain SBE status, firms must submit a new Vendor Application on or before the expiration date mentioned above. All information is subject to verification.

If there are any changes in your status that may impact your certification, you are required to update your account information online.

Sincerely,



Appendix E-5

LEE & RO

- **Qualifications and Project Experience**
- **Small Business Certification**

INTRODUCTION & PROJECT APPROACH

INTRODUCTION

LEE & RO has completed numerous solid and hazardous waste management projects including site assessment, remedial investigations, feasibility studies, remedial design, construction management, QA/QC plans and implementation, community relations and facility operations and maintenance and training support projects. Our exemplary track record and our team of experienced engineers and professionals will enable SCS Engineers to assemble a superior team that the CIWMB can clearly favor. We have worked in the past with the numerous public agencies and understand their systems, needs and concerns. We have provided a high-quality, broad range of engineering services to the public agencies like the CIWMB as an MBE subconsultant to the highly reputable prime engineering services firms like SCE, MWH, Jacobs, Parsons and Black and Veatch.

We have received significant repeat business from these prime consultants for the projects for the public agency clients. Our superior track record with the public agencies will help the SCS team differentiate favorably from the competition and help win the project.

We have assembled a team of experienced engineers with specific experience in the areas of site investigation and remediation of solid waste sites. Our team members have expertise in civil, mechanical, chemical, and regulatory support including permitting and community support. Our engineers excel in utilizing creative approach that satisfies needs of various Stakeholders of the project.

Areas of the Scope of Requested Services for which LEE & RO can provide strong expertise to strengthen the SCS team for the project are listed below:

- Title and Deed Searches
- Preparation of Site-Specific Construction Plans and Specifications for Site Remediation
- Site History and Operations Review and Research with the Local, State and Federal Agencies
- Permitting from Regulatory Agencies for Site Remediation
- Construction Management
- Construction Quality Assurance
- General Assistance for Presentations, Work Planning and Meetings

LEE & RO has completed numerous construction management and support projects for clients such as the City of Los Angeles, County of Los Angeles, Orange County Sanitation District, and the City and County of San Diego. Our team will be led by Mr. Dhiru Patel, an Environmental/Process Engineer with over 24 years of diverse environmental and facilities experience on related projects. Our staff comprising highly experienced civil, mechanical and electrical/instrumentation engineers and specialists in water resources, project management, construction management, and community relations will provide a complementary role to the SCS team. Along with the technical and management skills, we bring the expertise of working with the public agencies on complex, high profile and politically sensitive projects.

PROJECT APPROACH

LEE & RO's approach in managing projects is based on a philosophy that the smaller

tasks must not “fall into the cracks.” Over the years, we have successfully developed a culture and management techniques to handle small to medium-sized projects. The typical issues associated with such projects are:

- Tight budget and fast turnaround project
- Efficient project management with focus on big picture and attention to details.
- Multidisciplinary coordination.
- Maintain flexibility to track the client’s project schedule constraints and changing project priorities
- Recognize organizational constraints of public entities like the CIWMB.

LEE & RO’s approach in dealing with smaller projects or tasks are described below:

Communication

The scope of work must be clearly defined and our project manager must communicate with the SCS staff on a regular basis. The importance of this communication cannot be over-emphasized. Project managers must stay in touch at all times to keep the project moving on the right course.

Preliminary Memorandum for Decision making Process

Before we produce construction plans and documents, we define the work by producing a preliminary design memorandum (about 20% design). In today’s institutional environment, stakeholders must participate in the decision making process. Our team will arrange face-to-face meetings with stakeholders to make timely decisions and follow up with clear and concise meeting minutes.

Follow Standards

Most our large public agency clients like CIWMB have adopted the Standards. We follow the Guidelines very closely. We pay close attention to SCS and CIWMB guidelines and project control requirements.

Commitment of the Firm

To produce successful projects, LEE & RO is committed to providing responsive service. Mr. M. Steve Ro (the Company founding Principal) will be the Principal-in-Charge. Mr. Ro will pay personal attention to this contract to assure adequate and qualified LEE & RO resources are assigned to this contract. Mr. Ro will directly communicate with the SCS Principals and the Project Manager to receive her/his assessments of the team’s performance provides any immediate support needed to the project.

Quality Control

LEE & RO prepares and implements a design quality control Plan. The program focuses on the “key technical issues” which are identified at the project “kick-off” meeting and resolved by the time the preliminary design memorandum is completed.

Thoroughly Understand the CIWMB Practices and Procedures

With over 26 years of working with the public agency projects, LEE & RO and its staff members understand how the projects are implemented and how all sections within the CIWMB work together. This knowledge is an important element of our execution to deliver superior results.

Project Cost Control

Budget constraints are extremely important to the overall project success. LEE & RO will render opinions at the outset of the project whether the project construction costs are in check and consistent with the prevailing business conditions. LEE & RO will update construction costs at each milestone. Any change in the estimated project cost will be discussed with SCS during the progress meetings.

For any project, effective management of engineering budgets is a critical item. When there is a budget shortfall, the relationship between the Client and the consultant deteriorate. LEE & RO thoroughly monitors engineering costs relative to the actual progress for projects on a weekly basis.

PROJECT EXPERIENCE AND STAFF

LEE & RO has assembled an excellent team of architect/engineers that have completed projects similar in scope and complexity as those expected to be encountered under the CIWMB Solid Waste Cleanup Program.

Our team includes **Mr. Dhiru Patel**, an experienced engineer with expertise in site investigation, remediation design, process/mechanical engineering, gas management and permitting as the project manager. He has completed numerous site investigation and remediation and construction management projects **Mr. Sal Calderon**, a California Registered Mechanical Engineer with over 30 years of design and construction management experience including landfill systems design, gas collection and treatment and power generation will provide mechanical expertise. **Mr. Cezar Rosu**, a California Registered Electrical Engineer will provide electrical engineering and instrumentation support for the project. He has completed numerous site investigation, remediation design, construction and operation and maintenance projects.

Mr. John Stein, PE, a Civil Engineer will provide design, production and construction management expertise. **Mr. James Jetton**, a Senior Civil Engineer design experience in site investigation, remediation design and construction management will support the project team in construction management and construction quality assurance.

Mr. M. Steve Ro, one of our two founding Principals, will provide the technical and business oversight. Providing Quality Assurance and Quality Control on this project will be **Mr. Don Lee, PE**. Mr. Lee, our other founding Principal and Chief QA/QC Officer with 39 years of engineering and management experience will ensure all tasks performed meet or exceed the QA/QC benchmarks set by the company.

RELEVANT EXPERIENCE

Environmental Investigation, Engineering, and Hazardous Material/Pollution Prevention Management Service for McClellan Air Force Base and Satellite Facilities, Sacramento, California

LEE & RO was retained by the McClellan AFB to perform various environmental design, investigation, and hazardous material/pollution prevention tasks in response to EPA Region IX and the State of California DTSC CERCLA investigation and clean up directive. The tasks included environmental engineering requirements and scientific support services for the following: designs for environmental remediation; facilities design; hazardous waste/material investigations and restorations; hazardous waste/material minimization technology insertion; industrial hazardous waste/material management; toxic and hazardous contamination/waste studies; water and wastewater treatment plants, geological, geophysical, geotechnical, and hydrogeological investigations; hydrogeological studies; bioassay and relative potency determination; limnological studies; pilot-scale testing and pilot plant investigations; laboratory testing and/or field evaluation of environmental equipment and landfill leachate monitoring and landfill siting investigations; identification and quantification of pollutants; water and wastewater characterizations; data reduction; drilling; monitoring well installation; soil, air, industrial wastewater, and water (ground and surface) sampling and analysis; risk assessment; and general areas of environmental sciences and engineering dedicated to the improvement of environmental quality. The technical objective of the contract was to provide expertise pertinent to Superfund project cleanup and Resource Conservation and Recovery Act operations encountered in a large-scale military operation.

Caltrans Century Freeway Site 15 Landfill Remedial Investigations/Feasibility Study (RI/FS)

The California Department of Transportation (Caltrans) completed constructing the Century Freeway (I-105) in 1993. Along the right-of-way route for this freeway is Site 15, which is located northeast of the intersection of Western Avenue and 120th Street in an unincorporated area known as Athens in Los Angeles County, California. This site is listed in the California Expenditure Plan for the Hazardous Substances Cleanup Bond Act of 1984 (California "Superfund") as Caltrans I-105 Freeway Project 3, Parcel 15, an unregulated construction debris landfill contaminated with oily waste (volatile and semi-volatile organics) and heavy metals in soil and groundwater. In 1990, Cal-EPA awarded an Engineering Services contract to LEE & RO to complete the RI/FS for Site 15. The objective of this project was to complete the Caltrans RI/FS by gathering sufficient information to select the most appropriate remedial alternative(s). The selected remedial alternative must mitigate the risks to, minimize the damage to, and provide adequate protection of the public health, welfare, and the environment.

LEE & RO developed a workplan and a health and safety plan to conduct field investigations. The remedial investigation included groundwater monitoring well installation and sampling of groundwater, surface and subsurface soil, surface water and sediment, and soil-gas. The investigation was detailed in a summary report. Risks to human health and the environment resulting from the fate and transport of contaminants were assessed. The feasibility study was prepared which analyzed a variety of remedial alternatives. LEE & RO also participated in the development of a remedial action plan, community relations activities, fact sheet, and a California Environmental Quality Act (CEQA) initial study.

Meadowview Community Center Soils & Ground-water Remediation, Sacramento, California

LEE & RO prepared feasibility studies of groundwater treatment alternatives and prepared an analysis report of its findings for a community center in Sacramento, California. There are two plumes of contamination at the site; one from leaking underground fuel tanks, and one from a dry cleaner PCE spill. Work included researching extensive contamination history and present conditions, regulatory analysis, discharge limit analysis, cost estimates, evaluation of computer models used, alternatives for remediation of each plume, fate and transport modeling, and analysis of alternatives. Work also included analysis of the off-site remediation and intrinsic remediation of the PCE-contaminated groundwater (intrinsic remediation was modeled for the fuel plume).

Subsequently, LEE & RO designed and to constructed the facilities necessary to begin the remediation. Remediation-phase work included installing three groundwater monitoring wells downstream of the PCE plume to better define the edges of the plume; design a groundwater treatment system; aquifer pumping tests, and evaluation of the performance of treatment technologies – granular activated carbon (GAC), UV/peroxide and thermal oxidation (soil gas vapor from extraction wells). Construction included a groundwater extraction well at the source area and groundwater treatment system. Parts of the groundwater treatment system have been sized to allow for future expansion if additional extraction wells are installed.

LEE & RO is scheduled to continue work at the site to incorporate the results of the investigations, plus recently obtained results from the inventory of monitoring wells at the site, into a Remedial Action Plan (RAP). LEE & RO will determine if additional extraction wells are necessary, and will re-evaluate the most appropriate treatment technologies based upon the results of the pilot tests and projected flow rates. After preparation and regulatory acceptance of the RAP, LEE & RO will construct additional wells and treatment systems necessary.

Remedial Investigation/Feasibility Study at Vandenberg Air Force Base, California

LEE & RO performed remedial investigation/feasibility studies including natural attenuation studies for three Installation Restoration Program sites at Vandenberg Air Force Base, California. The sites include a former fueling island and a maintenance bay sump at Site 24, former fuel tanks and pipelines associated with a power plant at Site 53, and former underground storage tanks at a gasoline station at Site 60.

The remedial investigation conducted February through April 1997 was designed to rapidly delineate remaining contamination and evaluate remedial alternatives for each site. To streamline the project and minimize cost, the remedial investigation field work also included collection of the data required for a natural attenuation study at each of the sites.

Soil gas surveys were used to pinpoint source areas and delineate areas requiring further investigation. Geoprobe sampling of both soil and groundwater was used as possible to minimize cost, potentially hazardous waste production, and long-term monitoring requirements. The remedial investigation included the collection of approximately 100 soil gas samples, 40 geoprobe/hydropunch water samples, and 80 soil borings as well as the installation, development, and sampling of 18 monitoring wells. Slug tests or low flow pump tests were conducted on seven of the wells to supplement laboratory hydraulic conductivity analysis of aquifer material samples from each well boring.

Soil and groundwater contamination was found at all three sites. Sites 24 and 53 were found to have petroleum hydrocarbon and chlorinated solvent contamination in both soil

and groundwater. Site 60 has a gasoline and methyl-tert-butyl ether (MTBE) plume extending approximately 2,000 feet from the former service station site.

Data evaluation, fate and transport modeling, and risk assessment were performed. Remedial alternatives were evaluated and Remedial Investigation/Feasibility Study Reports were prepared for each site. Natural attenuation with limited hot spot removal by excavation was recommended as the optimum remedial strategy at Site 53. LEE & RO recommended natural attenuation with two-phase extraction at Site 24 and source area pump and treat at Site 60 as the most cost-effective approaches.

North City Raw Sludge and Reclaimed Water Pipelines & Raw Sludge Pump Station, San Diego, California

Pipeline Design: LEE & RO, Inc. prepared design plans for 24,400 feet of up to 48-inch diameter reclaimed water pipeline, 21,200 feet of 20-inch centrate pipeline, 21,200 feet of 16-inch blended sludge pipeline, and 14,600 feet of 10-inch landfill gas pipeline between the City of San Diego's Clean Water Program cornerstone facilities - the North City Water Reclamation Plant and the Metro Biosolids Processing Center (MBC). This \$17 million project included traffic control, traffic signal modifications, landscaping, tunneling, environmental mitigation measures, geotechnical evaluation, land/easement acquisition, underground utility location, surveying, a storm water pollution prevention plan (for erosion control during construction), and numerous alignment studies through environmentally sensitive areas within the Miramar Naval Air Station. The final alignment traversed two canyons and included a railroad crossing. A decomposed granite access road was designed along the pipeline route.

LEE & RO was responsible for permit acquisition from the agencies:

- Caltrans (encroachment permit)
- U.S. Corps of Engineers (Section 404 permit)
- San Diego Northern Railroad (right of entry permit)
- State Department of Health (Pipeline Separation)
- United States Department of Fish and Game (stream bed alternation agreement)
- Cal OSHA (Tunnel Classification)
- San Diego Gas & Electric (letter of permission)
- City of San Diego: Waste Discharge Permit (disposal of construction dewatering water into the City's sewer)
- City of San Diego Traffic Department (traffic control design approval)
- City of San Diego Building Department
- Metropolitan Transit Development Board (MTDB) – Railroad Crossing
- North City Transit District – Railroad Crossing

LEE & RO also coordinated with the U.S. Navy and prepared legal descriptions, right-of-way maps, and field surveys for acquisition of extensive right-of-way.

The pipelines crossed two major watercourses: San Clemente Canyon and Rose Canyon. For each of these areas, detailed scour analysis and designs were prepared for protection of the pipeline from future flooding. In addition, numerous jacking and boring operations were necessary as a means to protect the sensitive habitat. (Numerous reaches through

gnat catcher habitat and San Clemente riparian areas were designed with tunneled sections to limit the impact on the surface environment.) Multiple pipe installations were required in Miramar Road, resulting in numerous trench repairs in this high volume street.

Project challenges were significant and many. For example, more than 3,000 feet of the pipelines' alignment is contiguous to the Miramar Landfill. Soil borings in this reach revealed significant landfill debris along the pipeline alignment. Detailed studies were prepared comparing alternative pipeline installation techniques.

High-pressure pipeline design was an additional unique project element. LEE & RO utilized Primavera Project Planner for design schedule control. After initial schedule acceptance by the City, LEE & RO performed as scheduled, meeting scheduled delivery dates within 4 days of the original estimate.

Hazardous Waste Investigation: Existing underground petroleum and jet fuel pipelines were identified within the pipeline corridor. The pipeline corridor also extended to the perimeter of a Class III landfill. A Phase II environmental site assessment was performed to identify potential subsoil contamination with petroleum hydrocarbons prior to commencement of the pipeline construction. Field investigation included a limited geophysical survey, site drilling, and subsoil sampling. LEE & RO provided construction management, construction coordination, shop drawing review, and as-built drawing preparation services.

Site Assessment, Solid Waste Assessment Test (SWAT) Monitoring and Air Toxics Hot Spots Monitoring – Various Landfills in the State of California.

LEE & RO provided SWAT Reports and Air Emissions Inventory Reports after sampling and analyses of air toxics and groundwater samples from several landfills located throughout Southern California. The landfills included all City of Los Angeles landfills, Ft. Irwin (Barstow), City of Redlands, North City (San Diego) and County of Sacramento. The SWAT and Air Toxics testing and monitoring allowed the landfills to be compliance with the RWQCB and SCAQMD requirements. For Kiefer Landfill in Sacramento, the work included drilling three monitoring wells at the Kiefer Landfill. Each well extended down through a sand layer beneath the landfill so avoid methane at the wellhead during drilling was a significant concern. Several of the wells were also drilled through old landfill materials and the VOC escape from the wells was of significant concern.

DHIRU PATEL, PE

Project Manager – RI/FS

Dhiru Patel has over 25 years of process, mechanical and facilities engineering experience. He has designed industrial and municipal facilities including, landfill gas and power generation, water/wastewater treatment, petroleum refinery systems including acid gas treatment, pressure relief and flare systems, soil vapor extraction and treatment systems, odor control systems, cogeneration systems and hazardous waste site assessment, remediation and treatment. He has extensive experience with project management, feasibility studies, and detail design and engineering, construction support, operation and maintenance, project management, regulatory support and quality assurance. He has extensive knowledge of current environmental regulations (CERCLA, RCRA, DTSC, CIWMB, RWQCB, AQMD) pertaining to water, wastewater, solid waste, air quality and hazardous waste management and energy management. Listed below are representative projects:

REPRESENTATIVE PROJECT EXPERIENCE

Kaiser Permanente – Normandie Inactive Landfill Gas Migration Control - Project Engineer for a landfill gas migration control project for Kaiser Hospital in Harbor City, CA. The inactive landfill site was converted to a hospital parking lot. The project involved design of landfill gas collection system, extraction wells, piping, extraction blower, gas flare and associated piping and instrumentation, and permitting. Mr. Patel was involved in developing design plans and specifications. The project required special design features to hide industrial aspects of the project to blend in with the hospital facilities with extensive public presence.

McColl CERCLA Site – Remedial Investigation Feasibility Study, Landfill Permanent Cap Project - Project Engineer for design of a permanent engineered cap and landfill gas extraction, collection and treatment system for a former superfund landfill site in Fullerton, California. The engineered cap with gas migration control and air and groundwater monitoring was proposed by the PRPs as a more cost effective alternative to the EPA proposed remedial action for the site. The project duties included regulatory review, evaluation of treatment alternatives, cap design, gas migration control system, landfill gas and groundwater monitoring system and preparation of capital cost and O&M cost estimates. The cap design included extensive landscaping for the site that was to be developed as recreational park site. The design elements included features necessary for easy public acceptance.

Arco and Unocal Petroleum – Soil Vapor Extraction Systems - Project Director, Manager and Engineer for over 100 site assessment, remediation design, construction, operation and maintenance of hydrocarbon contaminated sites in Southern California. The design includes soil vapor and groundwater extraction wells, collection piping, extraction blowers, thermal and catalytic oxidizers, groundwater treatment systems using activated carbon and electrical and instrumentation systems. Developed algorithm to automatically calculate the amount of hydrocarbons removed using field instrument data and standardized design approach to rapidly clean up the sites in a most cost effective manner. Managed remediation operation and maintenance activities.

US Marine Corps Logistics Base Barstow, CA -Project Manager for \$8 million MIL-CON project for a 60 gpm Industrial Wastewater Treatment and Recycling Facility (IWTRF). The IWTRF project scope ranged from initial conceptual process designs to complete design and construction support for wastewater collection, treatment and reuse system. The facility included equalization tanks, oil-water separators, microfiltration, heavy metals removal, multimedia sand filter, air stripper, thermal oxidizer for air emis-

sions control, UV oxidation, GAC treatment, reverse osmosis system and building housing a complete process control laboratory, offices and control room. The RO concentrate is sent to concrete lined evaporation basins and no water needs to be discharged to the Base Owned Domestic Wastewater Treatment Works. Regulatory support included complex negotiations and acquisition of DTSC, RWQCB and APCD permits and preparation of PHA and NEPA/CEQA documentation. The project bids were below construction cost estimate and the facility was constructed well within the budget. The facility is in operation and provides drinking quality treated water for reuse. The project also included performance testing of the treatment system, operator training and preparation of O&M manuals.

Shell Oil Co., Wilmington Refinery. Project Manager, Groundwater Recovery and Treatment System. The project involved bench scale treatability studies and follow up design for the treatment of dissolved organics including MTBE from the contaminated groundwater below Shell's Wilmington, CA refinery. The treatment system included steam stripping/distillation system for separating soluble hydrocarbons from groundwater. The facility was designed to comply with the RWQCB Order for treatment of groundwater. The system complies with RWQCB, AQMD and LACSD regulations.

Plant No. 1 and No. 2, Orange County Sanitation District. Project mechanical engineer for design of fuel facilities for a 22 MW digester fuel fired lean burn IC engine based cogeneration systems (Construction Cost \$50 million): 7 megawatt system for 120 mgd Plant No. 1 in Fountain Valley and 15 megawatt system for 230 mgd Plant No. 2 in Huntington Beach. The fuel facility system included development of P&IDs, control schematics, gas compressor design, plant and instrumentation air compressor design and detailed mechanical design and specifications and construction support.

Shell Oil Co., Mormon Island Terminal, Remediation Pilot Study and Design. Project Manager, Groundwater Recovery and Treatment System. The project involved bench scale treatability studies and follow up design for the treatment of dissolved organics including MTBE from the contaminated groundwater below Shell's Mormon Island Petroleum Terminal located at Port of Los Angeles. The alternatives included biological treatment system (activated sludge and powdered activated carbon treatment or PACT system), UV Oxidation, Granular Activated Carbon (GAC) Adsorption System and Air Stripping with Gas Phase GAC. This project was one of the first of its kind in the nation to study the removal of MTBE, the principal contaminant in the shallow groundwater below the Port. The treatment system was designed and built to comply with the RWQCB and Port of Los Angeles Orders for discharge of the treated water into the ocean.

Registrations, Licenses, and Certifications

Professional (Chemical) Engineer, CA #CH4264 (1984)
Certified Permitting Professional, SCAQMD (1996)

Education/Training

MS, Chemical Engineering, University of Southern California, Los Angeles, CA (1988)
B.S. Chemical Engineering, Indian Institute of Technology, Bombay, India (1978)

SALVADOR J. CALDERON, PE

Managing Mechanical/HVAC Engineer

Mr. Calderon is a registered mechanical engineer with over 35 years of experience with various public works, institutional facilities, utilities, heating, ventilation and air conditioning (HVAC) and cogeneration, landfill and digester gas handling, and water & wastewater systems projects. His experience encompasses investigation, planning, design studies, preliminary design reports, final design, and construction management.

REPRESENTATIVE PROJECT EXPERIENCE

Gas Migration Control System Design, Kaiser Normandie Medical Center, Project Manager. Project manager for the design of gas migration control system for an inactive landfill for the Kaiser Normandie Medical Center, California. The site was developed into a hospital parking lot requiring design features acceptable for public traffic at the site. The design included extraction wells, blower, flare system, piping, controls and AQMD permitting.

Gas Migration Control System Design, Confidential Client, Project Manager. Project manager for the preliminary design of gas migration control system for a confidential client, San Diego, California.

Project Manager for the multi-task engineering services during the construction of the Cal Poly San Luis Obispo Upgrade Utilities Project. The project constructed one-half mile of concrete underground utilidor that contained 2-chilled water lines, 2-hot water lines and a potable water supply line. The project also included the installation of 3-hot water boilers, 2-water chillers, and cooling tower at the central plant.

Project manager for the construction of an extensive ship wastewater collection facility for the U.S. Navy in Guam; the construction of 20 miles of fuel and water pipelines for the U.S. Navy, Guam; and, project engineer for the construction of one mgd wastewater treatment plant for the U.S. Navy, Guam.

Project superintendent for the construction of tanker dock and deballasting facilities in Guam. Project engineer for construction of various projects which include air conditioning systems, fire fighting systems, plumbing systems, water distribution facilities, military housing facilities, compressed air systems, emergency power generation systems, satellite communications facilities, fuel truck loading/unloading facilities, shop equipment for ship repair facilities, ship repair facilities, ammunition storage facilities, fuel distribution pipelines and underground fuel storage tanks (80,000 BBLs capacity each) at the Clark U.S. Air Force Base and Subic U.S. Naval Base in the Philippines.

Construction Review, County Sanitation Districts of Los Angeles County, Project Engineer. Mr. Calderon was a mechanical engineer team member for the review of the project to construct the San Jose Creek Water Reclamation Plant, Stage III, for the County Sanitation Districts of Los Angeles County.

California Medical Center Intertie with LADWP, Project Manager. The project intertied the existing cogeneration facility with the Los Angeles Department of Water and Power electric supply grid. Included design of 400 LF of high voltage distribution bus ducts, engine synchronization, and power metering.

Installation of Engine Drives for Existing Pumps, City of San Diego, California--- Project Manager for Design. Mr. Calderon was project manager for the design of the engine replacement drives. The City of San Diego needed to protect its pumping station from excessive hydraulic surge in the event of power failure to the pumps. The solution

devised to minimize this possibility of the complete pump power failure was the replacement of two of the eight electric motor driven pumps with engine drives. The system included natural gas supply system, engine water heat exchangers using influent wastewater for cooling, noise abatement, backup diesel fuel, continuous emission monitoring system, engine control system, and special right angle drive with special clutching to accommodate pump reverse rotation.

Cogeneration Plants, Orange County Sanitation District. Assistant Project Manager for design and construction support services for two cogeneration systems (Construction Cost \$50 million): 7 megawatt system for 120 mgd Plant No. 1 in Fountain Valley and 15 megawatt system for 230 mgd Plant No. 2 in Huntington Beach. Design included clean-burn engines, emission controls, digester gas conditioning system, and gas management distribution systems.

Cogeneration Engine Start-Up/Operations, City of Eureka, California Project Engineer. Performed start-up, post-start-up operations, and troubleshooting for the cogeneration engines at the Elk River Treatment Plant in Eureka, California. Mr. Calderon also designed digester gas engine modifications to improve engine performance.

Cogeneration System Optimization, Encina Wastewater Authority, Carlsbad, California--Design Manager. Mr. Calderon was the design manager for the design to optimize the cogeneration facility in the wastewater treatment plant. The design includes modification of one engine-generator and two engine-blowers to lean burn combustion technology to meet the APCD regulations. The design also includes modifications to the fuel supply system by the addition of fuel filtration, refrigerated cooling and increase in natural gas supply pressures. Estimated cost of construction 1.2 million.

Engine Replacement Project, Aliso Water Management Agency, Laguna Niguel, California---Project Manager. Mr. Calderon is currently the project manager for the design of engine replacement of three 400 KW engine-generators operating as a PURPA qualified cogeneration system. The engine-generators have been in operation for over 15 years. The current South Coast Air Quality Management District Rule 1110.2 requires a more stringent emission limits. The engines are slated for replacement with clean burn technology or the Pre-stratified Control system. Due to the engine replacement the heat recovery system and the fuel system will also be modified to meet the new engine specifications. Estimated construction cost is \$1.4 million.

HVAC Master Plan, Los Angeles Times. Project Manager. Mr. Calderon was the project manager for the HVAC master plan for the Los Angeles Times facility in Times Mirror Square, Los Angeles, California. The facility consisted of a number of buildings separately constructed, interconnected, and remodeled many times. Each building had its own individual air-handling system. There were three central chiller plants, a central boiler plant, and a cogeneration plant. The goals of the master plan were to meet the needs for backup and to define a path for development of mechanical systems. The approach taken was accomplished through a series of steps that included one or more packaged projects ranging in cost from \$100,000 to \$250,000.

Registrations, Certifications, and Licenses

Registered Professional Engineer
CA # M019623 (1979) AZ # 28306 (1994)

Education/Training

B.S., Mechanical Engineering
University of Santo Thomas (1965), Magna Cum Laude

JOHN STEIN, PE

Senior Civil Engineer/Construction Management

Mr. Stein has over 13 years of project management, planning, engineering, and construction management experience with wastewater and water reclamation projects including treatment, pumping, and pipelines. He has recent experience with filtration including continuous backwash upflow filters, high-head pumping, and transmission pipeline projects. Mr. Stein also has extensive experience with pipeline alignment studies, treatment process design, cost estimating, permitting, hydraulic and surge analysis, and construction services.

REPRESENTATIVE PROJECT EXPERIENCE

North City Raw Sludge Pumping Station and Pipelines Project, City of San Diego.

Assistant Project Manager for design and construction support and start-up services for a 5 mgd raw sludge pumping station and 5 miles of pipelines for each of the following: 48-inch, 36-inch, and 12-inch reclaimed water, 20-inch centrate, 16-inch raw sludge and 10-inch landfill gas pipelines in a common right-of-way. Total construction cost was \$17 million.

Landfill Projects, Various Clients. Project Civil Engineer for landfill site preparation and liner & leachate collection system installation projects: Frank Bowerman Landfill, Orange County; San Marcos Landfill, San Diego County; and Azusa Landfill, Los Angeles County.

Reclamation Plant No. 10, Palm Desert, Coachella Valley Water District. Project Manager for design and construction of a \$10 million tertiary plant expansion project consisting of 5 mgd continuous-backwash upflow (“DynaSand”) filtration, 10 mgd chlorination, and 10 mgd high- and low-head effluent pumping stations, and 5 million gallon recycled water reservoir at the 18 mgd water reclamation plant. Also served as project engineer for \$4 million expansion of plant’s headworks capacity from 16 mgd to 30 mgd, which included mechanical bar screens, influent pumps, vortex grit chambers, 24-inch gravity sewer and 30-inch sewage force main.

Capacity Improvement Projects, Encina Water Pollution Control Facility, Encina Wastewater Authority, Carlsbad. Project Manager for preparation of master plans and construction documents (and construction management services) for multi-year plant rehabilitation and capacity improvement projects from 1999 to 2002 at the Authority’s 36-mgd secondary treatment plant. Typical projects included were advanced primary treatment (ferric chloride and polymer systems), installation of fine bubble diffuser to aeration basins (replacement of diffusers, controls, and air piping), replacement of sludge collectors, addition of odor control scrubbers, and digester gas management system upgrading for the cogeneration system.

Green Acres Project (GAP), Water Factory 22, Fountain Valley, Orange County Water District. Project Engineer for design, shop drawing review and construction administration services for flocculation basins, dual-media filters, a clearwell reservoir, effluent pump station, and yard piping.

Michelson Water Reclamation Plant (MWRP) Master Plan, Irvine Ranch Water District. As the Project Engineer, Mr. Stein’s responsibilities included generating a computer-based underground utility atlas; performing dissolved oxygen uptake testing; plant process evaluation; and developing piping and instrumentation diagrams for the 15 mgd MWRP.

Pathogen Removal Pilot Plant Study, Metropolitan Water District of Southern California. Responsible for operating a 6 gpm pilot plant to determine the removal credit by filtration for Giardia and Cryptosporidia cyst. The treatment train included chemical addition, rapid mix, flocculation and filter equipped with its own SCADA system which monitored turbidity, head loss, flow, pH, dissolved oxygen and controlled backwash.

Las Flores Lift Station (Renovation) and San Juan Creek Lift Station (New), Santa Margarita Water District. Project Manager for design renovation of a high-lift (2-stage pumps), 2,100 gpm Las Flores station with an odor control scrubber and an emergency generator. QA/QC engineer for design of a new 10,000 gpm capacity San Juan Creek Station supporting the Ladera Development.

Registrations, Licenses, and Certifications

Professional (Civil) Engineer; CA #C58253

Education/Training

B.S., Agricultural Engineering; Cal Poly State University, San Luis Obispo, 1988

CEZAR ROSU, PE

Senior Electrical Engineer

Cezar Rosu has over 15 years of electrical engineering experience with municipal landfill, water and wastewater treatment plants, pumping stations, cogeneration plants, refineries, industrial and commercial facilities. His expertise includes system analysis, conceptual design, detailed power, lighting systems, preparation of plans and specifications, and construction management of power distribution, medium and low voltage substations and motor control centers, lighting, and standby generators, emergency power systems, instrumentation and process control. He has extensive experience with power system analysis, HMI and SCADA process control.

REPRESENTATIVE PROJECT EXPERIENCE

Landfill gas to energy project, City of Glendale – Arizona. Electrical Engineer for design of the landfill gas extraction system and energy generation system from landfill gas. The system included two 2000 SCFM flare stations, four 1 MW gas turbine generators, step-up transformer, transmission line, switchgear to deliver the power to the local wastewater treatment plant. Other projects included electrical design for landfill gas collection and oxidation systems for Kiefferville Landfill, Austin Landfill and Forward Landfill.

Soil and Groundwater Bioremediation System – Unocal, Shell, Arco and Chevron. Project electrical engineer for design and construction support service for various sites including soil vapor extraction with off-gas treatment using thermal oxidation, combined with biosparging using subsurface air injection and groundwater extraction system.

Hydrogen Sulfide Removal, Nuevo Water Company. Project Electrical Engineer for the electrical and instrumentation design of a hydrogen sulfide removal system for the Nuevo Water Company, California. Work included the instrumentation design of providing power and interfacing with existing controls of the new booster pumps, air stripper blower, and chemical feed system.

Groundwater Replenishment System (GWR), Orange County Water District and Orange County Sanitation District - Fountain Valley. Electrical design engineer for microfiltration plants, RO break-tank and transfer pumping station, chlorination, air-gap facilities, and chemical handling systems for a large water-recycling project undertaken by the Orange County Water and Sanitation Districts. Total capacity of the system is 8.5 MGD.

Secondary Upgrade Plant number 2 - Orange County Sanitary District, Huntington Beach. Electrical design engineer for modifications to electrical and control system at plant No. 2, aeration basins and gas analyzers, sludge pumping and distribution, primary effluent pump station. Designed control strategy, SCADA network, communication links, electrical schematics, data concentrators and loop drawings, PLCs and redundancy backups. Reviewed primary effluent pumps station VFDs replacement.

Chevron USA - Bakersfield. Electrical engineer for the electrical distribution and transmission system for the oil extraction system. Completed system modeling using GPS information, load flow analysis, short circuit analysis, relay coordination and protection for various Chevron electrical distribution systems including over 300 transmission lines and transformers at 12kV.

City of San Diego, Point Loma - Wastewater Pumping Station. Project electrical engineer for design and construction support services for the distribution and control sys-

tem. The system includes backup generator, automatic transfer switch, leak detection system, and telemetry software to communicate data between pumps stations and district headquarters.

Industrial Wastewater Treatment and Recycling Facility Reclamation Plant, Barstow. Project electrical engineer for the design of the Barstow wastewater treatment plant per Navy's A-E Design Guide. The project included RCRA standard design of equalization tanks, oil-water separator, microfiltration system, heavy metals treatment system, air stripper, thermal oxidizer, UV oxidation, GAC adsorption system, RO system and above ground evaporation system.

Registrations, Licenses, and Certifications

Professional Engineer, CA #E14544 (1994)

Education/Training

M.S.E.E., Polytechnic Institute Bucharest (1985)

JAMES D. JETTON, P.E.

Senior Civil Engineer

Mr. Jetton has over 12 years of experience in site investigation, remediation, facilities engineering and construction management. His experience ranges from mechanical and technical design of systems for soil, groundwater and wastewater treatment and distribution.

REPRESENTATIVE PROJECT EXPERIENCE

SITE INVESTIGATIONS/REMIATIONS

Meadowview Community Center, Soil and Groundwater Remediation, City of Sacramento. Project Manager and System Operations Manager for a groundwater remediation project: soil and groundwater at the site was contaminated with gasoline and perchloroethylene (PCE) from a former service station and dry cleaning facilities at the site. As part of LEE & RO's studies, the gasoline and PCE plumes were modeled and the life cycle costs of different alternatives for treatment and disposal were estimated. Hot spot remediation was conducted in the source areas by soil vapor extraction and vapor-phase granular activated carbon (GAC) treatment. Groundwater extraction at up to five wells along the axis of the plume is being implemented, with the extracted groundwater from the nearest two wells pumped to a central treatment facility for liquid-phase GAC treatment and to individual liquid-phase GAC systems as needed for the three additional extraction wells.

Phase 1 Environmental Site Assessments, Various locations, CA. Conducted over twenty Phase I Environmental Site Assessments and worked as a field engineer on several soil remediation projects.

Groundwater Treatment and Extraction System, Alameda, CA. Field Engineer for a groundwater extraction and treatment system. Responsible for maintenance, quarterly monitoring, and eventual mothballing of the system. System included a one-quarter mile long extraction trench, an air stripping tower and granular activated carbon vessels.

CONSTRUCTION SUPPORT/QUALITY CONTROL

City of Patterson Wastewater Treatment Plant, Provided construction support for planning and design of 2 mgd, \$4.5 million, secondary wastewater treatment plant rehabilitation and expansion project. Managed groundwater monitoring program per RWQCB requirements.

Sacramento Regional Wastewater Treatment Plant Grit Systems. Project Engineer for the design studies and detail design of modifications to grit removal facilities. Study phase activities included the assistance with pilot plant studies, hydraulic modeling, and the development and analysis of alternatives for improving grit removal efficiencies. Design activities include modifying and rerouting of existing piping as well as additions of baffles within the grit tanks as for improved grit removal.

Recycled Water Facilities, Salt Lake City, Utah. Provided construction support for planning and design of a new regional wastewater treatment facility with ultimate capacity of 100 mgd in Central Salt Lake County, Utah.

Baoshan Iron and Steel Works, Shanghai, China. Project Engineer responsible for all mechanical design efforts for a 1,700 gpm wastewater treatment plant. Work included plant layout, piping, steel and concrete tank design, platform and foundation design. June

1998-March 2000.

Baoshan Iron and Steel Works. Associate Engineer responsible for all process flow diagrams, piping, instrumentation diagrams for hexavalent chrome reduction system (352 gpm) and all chemical systems, equipment bid evaluations and purchase orders, and preliminary and final design presentations for a wastewater treatment plant in Shanghai, China. December 1994-June 1996.

Baoshan Iron and Steel Works. Lead Project Engineer for a sludge dewatering facility (1,400 lb/hr of heavy grit sludge). Responsibilities included mechanical equipment design and selection, equipment bid evaluations, technical package preparation and presentation, and process flow calculations and diagrams. July 1996-June 1998

Registrations, Certifications, and Licenses

Professional Engineer, CA #C054237

Education/Training

M.S., Civil Engineering (Environmental), Oregon State University, March 1993

B.S., Civil Engineering (Environmental and Water Resource Management), Oregon State University, 1988



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3900 Kilroy Airport Way, Suite 100
Long Beach, CA 90806-6816

Subject: Proposal for MBE Subconsultant Services for California Integrated Waste Management Board Engineering Services for IWM05017 - Landfill & Disposal Site Remediation, Southern California and IWM05067 - Landfill & Disposal Site Remediation, Northern California P05-59

Dear Ms. Bison:

LEE & RO, Inc. will constitute a strong team partner for the proposal to provide site assessment, remedial engineering and construction management services required for the clean up of various solid waste sites under the Solid Waste Cleanup Program of the California Integrated Waste Management Board (CIWMB).

We have reviewed the Request for Qualifications (RFQ) from the CIWMB. Based on the needs identified by the CIWMB and the areas covered by SCS and the other team members, we have identified the best resources to complement the proposed team. Our team of will be led by Dhiru Patel, PE, an experienced chemical/environmental engineer with expertise in site assessment, remediation, process, mechanical and facilities design including landfill gas management and regulatory and permitting issues. He will be assisted by Mr. Sal Calderon, PE, a mechanical engineer with 35 years of site remediation facilities and construction management experience; Mr. John Stein, PE, a civil engineer with civil facilities and construction management expertise; Mr. James Jetton, PE, a civil engineer with 14 years of diversified site investigation, remedial design and construction management experience; and Mr. Cezar Rosu, PE, an electrical and instrumentation engineer with hands on design, operations and maintenance expertise in environmental assessment and remediation facilities including landfill gas systems.

Mr. Steve Ro, PE, our founding Principal will ensure SCS receives the support needed to deliver the highest quality project services to the SCS team and the CIWMB. Mr. Don Lee, PE, our other founding Principal and an experienced civil engineer with expertise in plans and specifications, construction management, operations and maintenance and control systems will provide independent QA/QC support.

LEE & RO is looking forward to working with SCS to make a winning presentation to the CIWMB on this project.

Sincerely,

LEE & RO, Inc.


Dhiru Patel, PE
Project Manager

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DEPARTMENT OF TRANSPORTATION
Business Enterprise Program

PO BOX 942874 - MS 79
SACRAMENTO, CA 94274-0001
(916) 227-9599

(916) 324-1700

CALTRANS

Certification Number: CT-003205
Certifying Agency: CALTRANS
Expiration Date: 02-01-2005
Contact Person: MYONG H. RO

ASIAN-PACIFIC
MALE
CORPORATION

(626) 912-3391

--- * CERTIFIED PROGRAMS ---
DBE SMBE

Attention: MYONG H. RO
LEE & RO, INC.
MAILING-P.O.BOX 93070
CITY OF INDUSTRY, CA 917153070



CERTIFICATION MANAGER, BUSINESS ENTERPRISE PROGRAM

-----Post in Public View-----

CERTIFICATION MUST BE RENEWED 120 DAYS PRIOR TO EXPIRATION DATE.---

It is your responsibility to:

- Apply for Recertification on a Timely Basis.
- Review this notification for accuracy and notify Caltrans in writing of any necessary changes.

-----Preferred WORK LOCATIONS-----

SW STATE WIDE

-----Preferred WORK CATEGORIES and BUSINESS Types-----

C8700 CONSULTANT	S	C8705 DESIGN	S
C8707 FEASIBILITY STUDIES	S	C8710 ENGINEERING	S
C8720 CIVIL ENGINEERING	S	C8722 ENVIRONMENTAL ENGINEER	S
C8770 CONSTRUCTION MANAGEMENT	S	I8734 LABORATORY TESTING AND AN	S

- * Only certified DBE's may be utilized to meet Federally funded contract goals.
- Only certified SMBE or SWBE's may be utilized to meet State funded contract goals.
- Only certified CFMBE or CFWBE's may be utilized to meet Century Freeway contract goals.

Re-certification is pending. Sent renewal package,
Caltrans has extensive backlog of packages to review.

RECEIVED
JAN 28 2002
JOB # RO, INC.
CITY OF INDUSTRY

February 17, 2005

To Whom It May Concern:

RE: LEE & RO, Inc.
CALTRANS Certification Number CT-003205

LEE & RO, Inc. has been certified as an MBE with the California Department of Transportation (CALTRANS) for many years. The most recent certificate document is attached and shows an expiration date of 02-01-2005. Please note that all required re-certification documents were sent to the California Unified Certification Program (CUCP) in December 2004 to ensure continued MBE certification with CALTRANS.

In conversation with Mr. Brown at CUCP on February 8, 2005, he assured us that the LEE & RO re-certification was in process and that the CUCP analyst should be finished within the next 3 to 4 weeks and a new certificate mailed to LEE & RO. Mr. Brown assured us that LEE & RO is MBE certified to bid on all projects and that our company information is in the state of California's certification database.

Anyone can search the database to confirm the certification for LEE & RO, Inc. The database can be accessed via the Internet, at the following URL:

<http://www.dot.ca.gov/hq/bep>

Click on the link for "Find a Certified Firm"; perform a Query; enter LEE & RO, Inc. under the Company Name field. The certification information for LEE & RO will appear on the screen. This information can be printed.

For your use and review, a print-out of the LEE & RO certification is attached for your convenience. As soon as LEE & RO receives the official certificate document – once the CUCP has completed the paperwork – we will certainly forward a copy to you if required.

Please contact LEE & RO, Inc. should you have any questions or require additional information.

Thank you,

LEE & RO, Inc. Management
Attachments



Appendix E-6

TWINING LABORATORIES, INC.

- **Qualifications and Project Experience**
- **Disabled Veteran's Business Enterprise Certification**
- **Resumes**



PROCUREMENT DIVISION

Office of Small Business Certification and Resources

1531 I Street, Second Floor • Sacramento, California 95814-2016 • (916) 323-5478

DVBE APP 20011026

October 25, 2001

REF# 0016472
THE TWINING LABORATORIES INC
P O BOX 1472
FRESNO CA 93716

Dear Business Person:

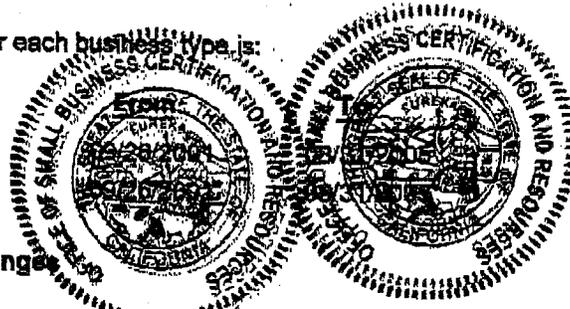
Congratulations on your certified disabled veteran business enterprise (DVBE) status with the State of California. Your certification entitles you to benefits under the state's DVBE Participation Program within state contracting, including the three percent DVBE participation goal for overall state contract dollars.

Certification period

Your certification period for each business type is:

Industry

CONSTRUCTION
SERVICE



Reporting Business Changes

You must keep the Office of Small Business Certification and Resources (OSBCR) informed of your firm's current business status and information at all times. The enclosed "Certification Information Change Form" enables you to report to us certain business changes as they occur. The Change Form must be signed by an owner or officer and may be faxed or mailed. You may use the form to report the following changes:

- Business name
- Mailing address
- Principal office address
- Contact information
- Owner's/officer's home address
- Add or delete Standard Industrial Classification (SIC) codes
- Service area(s) [where your firm is able to do business]
- Add Construction business type
- Change contractor's license classification codes
- Request to terminate your certification

If you wish to add the Service, Non-Manufacturer, or Manufacturer business type(s) to your certification, please contact our office at the above phone number or address.

Other changes that require the OSBCR to re-evaluate your eligibility based on a new structure, function, and/or new business relationships must be reported by completing and submitting a new certification application. You may download the application from our website at www.dgs.ca.gov/osbcr, or call our office at 916.323.5478. Instances that require a new application include the following:

- Certification expiration or revocation
- A change in ownership
- A business structure change from your current ownership type, to a sole proprietorship, partnership, corporation, limited liability company, limited liability partnership, or joint venture
- Adding small business certification to your existing status

Proof of Eligibility

Maintain this original certification letter for future business needs. To demonstrate your firm's DVBE eligibility, include a copy of this letter in your state contract bid submittals.

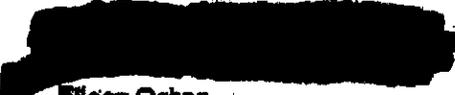
Prior to contract award, agencies will assure the vendor is in compliance with Public Contract Code, Section 10410 et seq. addressing conflict of interest for state officers, state employees or former state employees.

Certification Renewal

A renewal application will be mailed to you prior to the expiration of your DVBE certification. If you do not receive an application, please call us so that you may timely renew your certification.

If you have any questions, please contact me at 916.322.3521, e-mail eileen.ochos@dgs.ca.gov, or fax 916.442.7855. The Procurement Division oversees many programs to further state contracting participation. For more information regarding these programs, visit our website at www.dgs.ca.gov/osbor, or visit the Procurement Division's website at www.dgs.ca.gov/pd.

Sincerely,


Eileen Ochoa
Certification Officer
Office of Small Business Certification and Resources

**Standard Industrial Classification (SIC) Code(s)
Certification Approval Attachment**

You selected the following Standard Industrial Classification (SIC) codes and/or contractor's license classifications to describe your firm's business:

*Construction firms are classified by their California contractor's license classification(s).

<u>Industry</u>	<u>4-Digit SIC Code*</u>	<u>SIC Code Description</u>
CONSTRUCTION	C-57	Well Drilling (Water)
SERVICE	8711	Engineering services
	8734	Testing laboratories

INTRODUCTION

OVERVIEW

The Twining Laboratories, Inc. is a multi-discipline consulting firm specializing in geotechnical engineering, environmental services, construction inspection and materials testing, analytical chemistry services, and drilling services. Twining has a staff of approximately 100 geologists, chemists, engineers, drillers, technicians and support personnel. We provide services from a network of offices in Fresno, Visalia, Bakersfield, Modesto, Monterey, and Sacramento, California; with our corporate offices located at 2527 Fresno Street, Fresno, California.

The qualifications of the firm can be judged, in part by our history, our technical capabilities, and our commitment to quality. The firm's capabilities are demonstrated by the size and complexity of the projects completed and the clients served.

HISTORY AND BACKGROUND

In 1898, The Twining Laboratories, Inc. (Twining) was founded by Dr. Frederick E. Twining in Fresno, California. Initially, the firm provided chemistry analyses from a two-story laboratory in downtown Fresno, with emphasis on quality and customer service. The Twining Laboratories has continued its emphasis on quality and customer service and has expanded its technical capabilities. In the early 1940s, Twining expanded its services to include construction inspection and materials testing. In the early 1960s, the firm employed civil engineers to provide geotechnical (soils) engineering services. The expertise of the firm in analytical chemistry and geotechnical engineering provided the foundation for providing environmental services in the early 1980s. By separating the drilling department from the geotechnical engineering division in January of 1993, Twining formed drilling services as its newest operational division.

We have continually expanded our capabilities and services to meet client needs and the various regulatory agency's requirements. In response to growth and client requests, we began opening offices/laboratories in other areas: 1963-Modesto, 1973-Visalia, 1984-Bakersfield, 1997-Monterey, and 2001-Sacramento.

DISABLED VETERAN BUSINESS ENTERPRISE

In June of 1997, Twining was certified as a Disabled Veteran Business Enterprise (DVBE) by the State of California Department of General Services, Office of Small Business Certification and Resources. The letter established Twining's eligibility in the State's DVBE Participation Program.

INTRODUCTION

ORGANIZATIONAL STRUCTURE

The Twining Laboratories, Inc., is a locally owned and operated organization that serves clients with projects statewide. Each of our five offices are self-contained with respect to professional staff and support services offering:

- 1) **Geotechnical Engineering**
- 2) **Environmental Services**
- 3) **Construction Inspection and Materials Testing**
- 4) **Analytical Chemistry**
- 5) **Drilling services**

The five operational divisions consist of a vice president, departmental supervisors, technical staff, and support personnel. Three support divisions consisting of finance and accounting, marketing, and administration provide support for the overall firm.

COMMITMENT TO CUSTOMER SERVICE

We pledge the unfailing delivery of excellent, prompt, and cost-effective services that satisfy project requirements and scheduling. The Twining Laboratories, Inc. is justifiably proud of the many clients we serve including federal, state and local governmental agencies, financial institutions, architects, engineers, developers, contractors, countless private individuals, and numerous industries. We welcome the opportunity to explore different areas where we can provide consulting and testing services to meet your specific needs.

ENVIRONMENTAL AND GEOLOGICAL SERVICES

The Twining Laboratories, Inc. provides a wide range of geological and hydro geological services throughout California, including:

- Phase I and II Assessments, and Environmental Transaction Screens
- Soil and Ground Water Investigations
- Underground Storage Tank Investigations and Design
- Remedial Action
- Water Resources
- Landfill and Solid Waste Evaluations

PROFESSIONAL AND TECHNICAL STAFF

Our professional expertise includes State of California Certified Engineering Geologists, Registered Geologists, Registered Civil and Geotechnical Engineers, and Registered Environmental Assessors. Project Managers are assigned to each client's project to provide a single source of communication. These individuals consult with our clients and regulatory agencies to define project needs and to develop cost-effective, workable solutions to environmental problems.

We utilize in-house Drilling Services Division to conduct field investigations i.e., soil sampling and installing ground water monitoring wells, and an environmental project geologist or engineer is on-site during field investigations as site conditions dictate. In addition, we utilize our Analytical Chemistry Division to maintain strict chain-of-custody procedures for sample transportation and quality control/assurance. These inter-company relationships increase Twining's ability to provide faster mobilization for projects and eliminates the cost+plus charges that other environmental firms pass on to their clients. We also maintain a respected working relationship with regulatory agencies, thus assisting us in developing programs which satisfy their requirements and reduce project delays.

Our technical reports are reviewed for quality control, quality assurance, clarity, and consistency. Our services are very technical in nature, yet we strive to provide information that is readable and easy to understand. In summary, we provide a varied range of environmental services and our goal is to offer innovative solutions, cost-effective solutions to problems. We strive to provide the very best in client service.

ENVIRONMENTAL AND GEOLOGICAL SERVICES

PHASE I AND II ASSESSMENTS, AND ENVIRONMENTAL TRANSACTION SCREENS

Twining has conducted more than 1,000 Phase I and II assessments since 1990 for individuals, developers, lending institutions, retail owners, governmental agency, and schools. Twining's environmental assessors inquire into the past and current activities on site, review available aerial photographs, conduct a site reconnaissance visit, review available governmental agency files, conduct extensive historical reviews, and consider materials stored or used on-site which may be subject to environmental regulations. If the client desires additional information, a Phase II assessment is conducted. Samples are collected from specific potential areas of concern.

GROUNDWATER EVALUATIONS AND MONITORING

Groundwater samples are collected for quarterly monitoring and reporting to regulatory agencies. Wells are purged a minimum of three-casing volumes before collecting a sample to provide a representative sample of the water. Wells are sampled and analyzed typically according to Groundwater monitoring guidelines at Solid Waste Disposal Facilities (U.S. EPA 50/SW-611), Twining's Standard Operating Procedures for Well Development and Sampling, and in accordance with Regional Water Quality Control Waste Discharge Guidelines. Examples of groundwater monitoring projects include the City of Reedley Wastewater Treatment Plant, Snowden Enterprises, national park facilities, and retail developments.

ENVIRONMENTAL AND GEOLOGICAL SERVICES

UNDERGROUND STORAGE TANKS: ASSESSMENTS, REMEDIATION, AND NEW INSTALLATION DESIGN

Twining has conducted more than 1,000 underground tank related projects since 1980. Assessment projects include preparing work plans for drilling/sampling of soil borings, and installing groundwater monitoring wells to define the lateral and vertical extent of soil and groundwater contamination. Strict adherence to Standard Operating Procedures provides quality assurance and quality control of data collected.

Remediation services have been provided by Twining for clients on properties throughout central California. Remediation services include preparation of remedial action plans conducting feasibility studies and conducting remediation using various remedial technologies depending on site location, contaminant and contaminated media. Twining's soil remediation experience includes excavation and recycling, on-site aeration, bioremediation, and vapor extraction. Groundwater experience includes determination of aquifer characteristics in sedimentary and hard rock environments, and design installation and operation of remediation systems using carbon absorption and air stripping technologies.

LANDFILL AND SOLID WASTE INVESTIGATIONS

Twining has designed and installed groundwater monitoring systems and methane gas monitoring probes, calculated waste volumes, conducted quarterly groundwater monitoring, and conducted Solid Waste Assessment Test Questionnaires (SWAQ) at solid waste facilities in Central California. Projects also include Detection Monitoring in accordance with California Code of Regulations (CCR) Title 23, Chapter 15, Article 5 (Chapter 15), and 40 CFR Parts 257 and 258 (Subtitle D). Twining sites have included active, inactive, and closed landfills, as well as burn dumps found during residential construction projects:

- Mojave-Rosamond Sanitary Landfill, Kern County
- Tehachapi Sanitary Landfill, Kern County
- Ridgecrest Sanitary Landfill, Kern County
- Former burn dump, Fresno County (confidential client)
- Fink Road Landfill, Stanislaus County
- Austin Road Landfill, San Joaquin County
- French Camp Landfill, San Joaquin County
- Jensen Avenue Landfill, Fresno County
- Fairmead Landfill, Madera County
- Pinedale Landfill, Fresno County

ANALYTICAL CHEMISTRY

SERVICES OVERVIEW

The Twining Laboratories, Inc. (Twining) is a full-service analytical testing laboratory located at 2527 Fresno Street in Fresno, California. During our 102-years in business we have gained a reputation for superior service by providing reliable, confidential, unbiased, and cost-effective services to clients worldwide.

Analyses are typically requested for compliance under California Code of Regulations, Titles 22 and 23, the U.S. Environmental Protection Agency (EPA) Clean Water Act; the Porter-Cologne Act, the Regional Water Quality Control Board Leaking Underground Fuel Tank (LUFT) guidelines, and Resource Conservation Recovery Act (RCRA). Organic, inorganic, or microbiological testing is conducted on a variety of matrices:

- | | |
|-------------------------------------|---------------|
| ■ Drinking Water | ■ Groundwater |
| ■ Wastewater | ■ Ceramics |
| ■ Environmental and Hazardous Waste | ■ Soil/Sludge |

ACCREDITATIONS

TWINING is certified by the State of California, Department of Health Services, Environmental Laboratory Accreditation Program (ELAP) under Certificate Number 1371 to provide the testing listed above. A copy of our ELAP certification letter is provided in Appendix D of the package.

QUALITY ASSURANCE & QUALITY CONTROL

TWINING maintains a rigorous quality assurance and quality control (QA/QC) program, and observes strict chain-of-custody, sample transportation, and quality control procedures. Detailed quality assurance manuals are available upon request. Careful attention to QA/QC is given to:

- Organization and Responsibility
- Sampling Procedures
- Calibration Procedures and Frequency
- Analytical Procedures and Validation
- Data Reduction and Reporting
- Internal Quality Control Checks
- Performance and System Audits
- Preventative Maintenance
- Assessment of Precision and Accuracy
- Corrective Action

SAMPLING SERVICES

STAFFING

The laboratory is staffed with 30 chemists and analysts degrees in chemistry, microbiology, agronomy, industrial hygiene, soil chemistry, or geology. In addition, our Client Service representative is available at 800-268-7021 for project management, price quotations, or to answer questions you may have.

ANALYSES METHODS

- EPA:** SW846 - Test Methods for Evaluating Solid Waste
- EPA:** Methods for Chemical Analysis of Water and Wastes 600/4-79-020
- EPA:** Methods for the Determination of Organic Compounds in Drinking Water
600/4-88/039
- EPA:** Methods for Organic Chemical Analysis of Municipal and Industrial
Wastewater
- APHA:** Standard Methods for the Examination of Water and Wastewater
- AOAC:** Official Methods of Analysis of the Association of Analytical Chemists
- ASTM:** American Society for Testing and Materials
- DOT:** Department of Transportation
- CFA:** California Fertilizer Association, Solid Testing Procedures

SAMPLING SERVICES

SERVICES OVERVIEW

The Twining Laboratories, Inc. operates two CME 75 drill rigs equipped for geotechnical or environmental project needs. TWINING can drill and install monitoring wells for groundwater, landfill gas systems. TWINING also installs, operates and maintains (O&M) soil vapor extraction systems for hydrocarbon remediation programs. Services are provided under the direction and responsibility of the engaging Client. Our clients mark and select drilling locations, sampling depths, and disposition of rinsate and/or drilling muds.

CAPABILITIES

- **Drilling Equipment**
Hollow Stem Auger
Mud Rotary
Rock Coring
- **Soil Sampling**
Standard Penetration (Split Spoon) Sampling
Continuous Sampling
California Modified Sampling
- **Monitoring Well Installation**
Groundwater
Soil Vapor
- **Steam Cleaning**
Self Contained
Portable
- **Down Hole Nuclear Moisture Density Testing**
Deep Compaction Testing

Auger Size	Depth
6-1/8 inch outside diameter (OD)	100 feet
7-1/8 inch OD	150 feet
10 inch OD	150 feet
3-1/4 inch inside diameter (ID)	100 feet
4-1/4 inch ID	150 feet
6-5/8 inch ID	150 feet

SAMPLING SERVICES

LICENSES

Twining operates under State of California Well Drillers (C-57) Contractors license, Number 506159.

STAFF

Our sampling crew includes an experienced lead driller and assistant for each project. Crew members are 40-hour OSHA Health and Safety Trained (29 CFR 1919.120) and annually complete 8-hour refresher courses applicable for environmental projects.

SCHEDULING

Sampling projects are scheduled on a first-selected, first-served basis. However, to meet customer service goals, we provide flexibility. We look forward to discussing your project needs and requirements and invite you to contact us at 800-268-7021.

Harry D. Moore
President

PROFESSIONAL EXPERIENCE

The Twining Laboratories, Inc. - 1978 to Present

Mr. Moore has more than 22 years experience in civil, environmental, and geotechnical engineering, and construction inspection and materials testing. He has extensive knowledge of the engineering and hydraulic properties of soils and rocks in the State of California and provides technical oversight on projects involving foundation recommendations, construction inspection and testing, and engineering of remedial action alternatives.

As Manager of the Construction Inspection Materials Testing Division, he is responsible for the technical overview of projects, supervision, contract and budget management, and client relations. He also has performed numerous special inspections of concrete and masonry projects as well as several prestressed and post-tensioned concrete structures. His work has included many failure investigations involving concrete, masonry, and asphalt problems. He also developed and performed specialized testing on a wide variety of products and materials.

As President of The Twining Laboratories, Inc., he is responsible for directing the corporate team through quality assurance and quality control review, leadership development, client maintenance, and regulatory compliance work with State and local regulators.

REGISTRATION/CERTIFICATION

Registered Civil Engineer, No. 35147, California
Registered Geotechnical Engineer, No. 2069, California
Contractors License, C-57, Well Drilling (Water), California
Registered Civil Engineer, No. 34330, Arizona
Registered Civil Engineer, No. 61629, Oregon

EDUCATION

California State University, Fresno, 1979
Bachelor of Science, Civil Engineering/Specialty: Geotechnical Engineering
California State University, Fresno
Graduate studies in Environmental and Geotechnical Engineering

Harry D. Moore
President

PROFESSIONAL SOCIETIES AND COMMITTEES

American Institute of Architects
American Society of Civil Engineers (Past President)
American Public Works Association
California Society of Professional Engineers (Past President)
California Geotechnical Engineering Association
Construction Inspectors Association
Construction Specifications Institute
National Society of Professional Engineers
International Conference of Building Officials

REPRESENTATIVE PROJECTS

- State of California, Department of Water Resources
Senior reviewer of contract documents for groundwater monitoring wells at the Kern Water Bank Project.
- Diamond International, Exeter, California
Principal Engineer for design of a Class II surface impoundment for facility. Provided quality assurance and quality control review of design documents, and regulatory liaison interaction.
- Pacific Gas & Electric, Central California
Senior Quality Assurance and Quality Control Reviewer for engineering design of underground tank installation and removal documents.
- Jensen Avenue Landfill, Fresno
Principal Engineer and Quality Control reviewer for permeability testing of final cover materials. Testing requirements were for compliance with Title 23 of the California Code of Regulations.
- VA Medical Center, Fresno
Senior inspector for construction materials testing of addition and expansion.
- WalMart Stores, Los Banos, Alameda California and Fallon Nevada
Principal engineer for geotechnical investigation.

Harry D. Moore
President

REPRESENTATIVE PROJECTS (continued)

Pacific Gas & Electric Company, Helms Project

Description: PG&E planned a 140-acre site development consisting of 14 cabins, a trailer court, school house, recreation facility, and equipment storage facility to support their Helms Power Plant.

Twining's Involvement: Mr. Moore was the Project Geotechnical Engineering that conducted a geotechnical evaluation in accordance with Section II-H Improvements Standards. The project included the following:

- Evaluating engineering and physical properties for design of foundations, pavements, and related earthwork features.
- Developing recommendations for foundation types, allowable bearing pressures, earth pressures, settlement parameters, pavement structural sections, and site preparation procedures.
- Defining subsurface soil conditions and absorption characteristics of the soil to develop compatible sewage disposal systems.
- Conducting a feasibility study to develop suitable locations for leach systems.
- Determining general geologic hazards of the site
- Conducting a hydrogeological evaluation in accordance with Section II-H, Geotechnical Reports.

The II-H activities involved observing well construction and development, logging of borings, installing 3 monitoring points, conducting and compiling pump test data, and reducing pump test data. Twining also provided continuous monitoring during pump testing and computer modeling of the dewatering system.

Saint Agnes Hospital, East Wing Addition

Description: A \$15 million expansion to the existing Saint Agnes Hospital. The project consisted of a four story, ductile moment resisting steel frame with hardrock concrete composite decks, 50 foot long drilled pier footing, pier caps and grade beams, and precast concrete panels.

Twining's Involvement: Mr. Moore was the Principal-in-Charge overseeing Twining's services. The firm provided final geotechnical engineering design parameters and recommendations for use in the project design and preparation of construction specifications for foundations and pavements. Complete OSHPD special inspections and material testing including continuous inspection of pier drilling, soil compaction testing,

CHRISTOPHER SKELTON, RG

Title Environmental and Geological Services Division Manager

Expertise Environmental & Hydrogeologic Assessments
Engineering Geology
Natural Attenuation Assessments
Bioremediation
Groundwater Modeling

Academic

Background B.S. Geology, California State University, Fresno, 1995

Registration California Registered Geologist Number 7414

Experience Mr. Skelton is a Geologist with approximately 6 years of professional experience in environmental consulting and geotechnical lab testing. His experience includes field exploration and sampling which typically includes drilling, monitoring well installation, preparing boring logs and field reports and the collection of soil, vapor, and groundwater samples. Administrative duties include preparing proposals and technical reports, providing technical calculations, contaminant fate and transport modeling for natural attenuation projects and reviews of laboratory and field data.

Management experience includes managing Phase I site assessments and Phase II soil and groundwater remediation projects, including feasibility studies, risk assessment and corrective action. As Division Manager, Mr. Skelton manages approximately 10 employees and is responsible for several major projects. Recruited and trained staff personnel to perform all field services and report preparation. Mr. Skelton has performed numerous natural attenuation studies of former LUST sites which included contamination fate and transportation modeling and bioremediation feasibility studies. Specific experience includes:

- Direct and conduct subsurface investigations and ground-water monitoring events at former underground storage tank sites, bulk petroleum storage sites, landfills, and oil refinery sites.
- Tasks performed during subsurface investigations include writing proposals and cost estimates for clients; writing comprehensive work plans for approval by lead regulatory agencies; field direct hollow-stem auger drilling program based on collected field data; soil sample collection from excavation equipment and hand auger equipment at underground fuel storage tank

CHRISTOPHER SKELTON, 2

abandonment sites; prepare tank abandonment report for approval by the lead regulatory agency.

- Performed contaminant fate and transport modeling and bioremediation feasibility using BIOSCREEN modeling software. Groundwater modeling using GMS software.
- Groundwater monitoring experience includes: gauge, and purge dedicated and non-dedicated monitoring wells at multiple sites and sample for contaminants including petroleum hydrocarbons and other volatile organics, pesticides and chlorinated solvents, inorganics and metals; and writing comprehensive Phase II investigation reports and quarterly ground-water monitoring reports.
- Conducted and managed Phase I Environmental Site Assessments of industrial, agricultural, commercial, and residential properties in the San Joaquin Valley.

Professional Experience

The Twining Laboratories, CA 2001 to present
Dames & Moore, Fresno, CA, 1997 to 2001
BSK & Associates, Fresno, CA, 1995 to 1997
Sergeant Infantry U.S. Army

Professional History

Geological and Environmental experience includes site reconnaissance, agency file review, physiographic/hydro geologic data review and proposal/report preparation for Phase I environmental site assessments. Phase I site assessments and geotechnical investigations included soil logging, trench logging and soil and water sampling of heavy metals and petroleum hydrocarbons. Conducted Hydro-geologic investigations for groundwater contamination, remediation and aquifer analyses. Projects have included groundwater monitoring and sampling at UST, landfill and waste water sites, and sampling of remediated soils and water. Laboratory experience includes geotechnical soil testing for flexible-wall and rigid-wall permeabilities, consolidation, direct shear, atterberg limits, hydrometer/sieve analyses, unconsolidated compressive strength and moisture/density.

**Project
Experience**

Bayer Corporation, Fresno County, California

On-going pesticide prospective groundwater monitoring study conducted on a grape vineyard. This study was requested by the USEPA to assess the potential leaching of the pesticide and its degradates into groundwater. The study is conducted in compliance with stringent USEPA Good Laboratory Practices (GLP). Project responsibilities include the management of monthly groundwater, soil, and soil-pore water sampling, collecting data recorded by the on-site data logger and weather station, irrigation monitoring and control, supplies, equipment and site instrument calibration and maintenance, data review and prepare quarterly reports.

Vendo, Pinedale, California

Groundwater investigation and remediation project located in Pinedale, California. This project includes the operation and sampling of a soil vapor extraction and groundwater extraction system. On-site and off-site monitoring wells and monitored and sampled quarterly for analyses regarding halogenated hydrocarbons. Primary responsibilities include the management of staff personal and providing technical calculations and groundwater modeling of site conditions.

Memory Chapel, El Dorado County, California

Project involved a groundwater investigation at a former UST site, quarterly groundwater monitoring, and an evaluation of the biodegradation potential for petroleum hydrocarbons in groundwater. Data evaluation and modeling predicted that the site was suitable for natural attenuation. The Memory Chapel site qualified for "No Further Action" Status.

J.C. Penney, San Jose, California

Groundwater investigation project at a former UST site. This project included a detailed evaluation of the biodegradation potential for petroleum hydrocarbons in groundwater as an alternative remediation measure to complete the project. Data evaluation and modeling predicted that the site was suitable for natural attenuation. The natural attenuation option was selected by the client and lead agency. The J.C. Penney, San Jose site has received closure.

American Avenue Landfill, Kerman, California

Soils investigation regarding the placement of a clay liner for the expansion of the landfill. This project included the mapping of the excavation within the landfill, locating a clay source and providing geotechnical data to determine effectiveness of clay liner. A suitable source for clay was located and the excavating was observed to ensure that the excavated clay did not contain coarser material from the clay and sand contact. The clay was analyzed for permeability and porosity. A double ring infiltrometer test was conducted over several weeks.

Clovis Landfill, Clovis, California

Environmental investigation at the Clovis landfill. This project included quarterly groundwater monitoring of site monitoring wells and surface water samples upstream and downstream of Little Dry Creek, and soil vapor monitoring of site soil vapor wells. Several clusters of vapor wells were installed through the landfill. An additional investigation was conducted at the landfill to determine options regarding the reuse of landfill soils and the recycling and recompacting of landfill materials. This included the drilling and logging of landfill materials.

Heinz Bakery Products, Bakersfield, California

Phase I site assessment for the Heinz Bakery Products facility in Bakersfield, California. The project included facility documentation, VISTA database search, regulatory agency contact, site reconnaissance, and a review of environmental compliance documents available on site.

Stella Cheese, Tulare, California

Phase I site assessment for the Stella Cheese facility in Tulare, California. The project included extensive review of aerial photographs, VISTA database search, regulatory agency contact, site reconnaissance, technical illustration, and preparation of the final report.

Qualifications

- Occupational Safety and Health Administration
- 40-Hour Health and Safety Training
- Current 8-Hour Refresher
- Good Laboratory Practices (GLP) Training
- Numerous Natural Attenuation Seminars
- National Ground Water Association (NGWA) Member

Keith Mayes

**Project Geologist
Environmental and Geological Services Division**

PROFESSIONAL EXPERIENCE

The Twining Laboratories, Inc. - 1997 to Present

Mr. Mayes has more than five years experience conducting and supervising field work for environmental and ground water projects. As Project Geologist he is responsible for conducting assessments, remedial investigations, sampling of soils, groundwater, and air, health and safety plans, compliance with strict chain-of-custody documentation, reporting field activities, formulating corrective action plans and supervising remediation efforts. He has extensive experience in conducting Underground Storage Tank (UST) removal investigations and remedial actions in Fresno, Tulare, Madera, Kings, Merced, Sacramento, Contra Costa, Glenn, Alameda, and Stanislaus Counties. He has been responsible for planning and management of several soil vapor extraction remediation projects.

Mr. Mayes also has experience in groundwater percolation and water banking projects assessing and evaluating sites for their ability to provide below ground storage of groundwater for later extraction and use. The projects include extensive drilling programs to assess physical properties of site soils and their ability to percolate and store water, groundwater assessment including aquifer testing and analysis, and design, construction, and pilot testing of percolation ponds.

EDUCATION

California State University, Fresno, 1996
Bachelor of Science, Geology

Continuing Education:

Hazardous Waste Site Operator (29 CFR 1920.120), 40 hours
Hazardous Waste Site Supervisor (29 CFR 1920.120), 8 hours

**Keith Mayes
Project Geologist
Environmental and Geological Services Division**

REPRESENTATIVE PROJECTS

- **Cawelo Water District, Kern County** - Project geologist for assessment and evaluation of a proposed water banking project site including extensive soil logging and physical testing, groundwater assessment, aquifer testing, and design, construction, and pilot testing of a one-acre test pond over a three month period, monitoring infiltration characteristics of surface and near-surface soil.
- **Pinedale Landfill, Fresno County** - Project geologist for landfill gas assessment and routine monitoring utilizing several gas monitoring wells completed at several depths from 15 feet to 90 feet below site grade.
- **Dias Property, Fresno County** - subsurface assessment, installation of groundwater monitoring wells. Design, installation, operation, and evaluation of soil vapor extraction/air sparging pilot test and current SVE remediation system.
- **Mini-mart, Oakhurst, California** - soil and groundwater assessment for leaking underground storage tank site in the Sierra Nevada foothills. Installation, operation, and evaluation of soil vapor extraction/air sparging pilot test. Currently managing soil vapor extraction remedial activities at the site.
- **Retail facility, Bakersfield, California** - Installation, operation, and evaluation of soil vapor extraction pilot test. Currently managing soil vapor extraction remedial activities at the site.
- **Retail Service Station, Kingsburg California** - Soil and groundwater assessment of leaking underground service station site in Central California. Installation, operation, and evaluation of soil vapor extraction pilot test.
- **Mini-mart, Auberry California** - Soil and groundwater assessment for leaking underground storage tank site in foothills of Fresno County.

In addition, Mr. Mayes has worked on numerous soil and groundwater assessments at leaking underground storage tank sites, and tank removal projects.



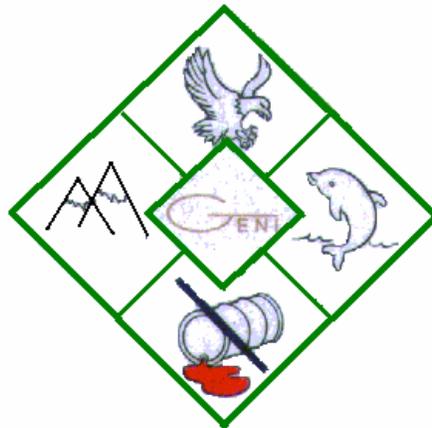
Appendix E-7

GLOBAL ENVIRONMENTAL NETWORK, INC.

- **Qualifications and Resumes**
- **Disabled Veteran's Business Enterprise Certification**

Global Environmental Network, Inc.

Environmental, Health, Training and Safety Consulting



Phone: 714-479-1199
GENI@SafetyGENI.com

SDVBE SBE HUBZone

Fax: 714-479-0809
www.SafetyGENI.com

106 West 4th Street 🌐 Santa Ana 🌐 California 92701

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Introduction

to

**Global Environmental
Network, Inc.**



GLOBAL ENVIRONMENTAL NETWORK, INC.

ENVIRONMENTAL, SAFETY, AND CONSTRUCTION ENGINEERING SERVICES

A Service Disabled Veteran Owned Business

www.SafetyGENI.com

Introduction to Global Environmental Network, Inc.

Global Environmental Network, Inc. (GENI®) is multi-disciplinary environmental, health and safety consulting organization GENI offers safety, health and environmental management, training, administration and consulting products and services that meet EPA, OSHA, and Cal/OSHA regulatory requirements as well as your organization's specific needs.

We encourage you to consider **GENI®** as a primary resource for your environmental and occupational health and safety needs. We provide a wide variety of superior quality safety and training services, and as a California Certified **Small Business Enterprise** and **Disabled Veteran-Owned Business Enterprise**, we can help you fulfill the participation requirements of those programs. Details about our multi-disciplinary environmental, health and safety consulting organization are on our website at www.SafetyGENI.com, or call us and we will fax any information you may need.

Our training classes include **SafetyGENI™** manuals and other appropriate handout materials for all students. Your specific policies and procedures can be included in the class material to make the training more realistic and more directly applicable to your situation. We include "hands-on" workshops and practice sessions when appropriate. We are committed to providing training that genuinely improves the ability of employees to perform their assigned tasks safely – and that stays with them.

We believe that training is like tape – it's value lies in how well it sticks!

Our environmental, health and safety consulting project management is operated through a centralized management and communication system to coordinate activities among the clients, agencies, contractors and technical personnel that make up a project team. This includes the use of a centralized web-based accounting system and cost control measures to track project budgets and time utilization 24 hours a day 7 days a week anywhere in the world connected to the internet.

Our goal is to provide the most effective and efficient environmental and occupational safety services possible, which we believe, will save our clients both time and money. Please visit our website WWW.SafetyGeni.com for more details about any and all of our services and programs. Thank you for considering us, and please let us know whenever we may be of service.



Industrial Hygiene Program



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Industrial Hygiene Program

Global Environmental Network, Inc. (GENI®) offers a wide range of industrial hygiene services to help save our client's time, trouble, and money. Our industrial hygiene professionals understand the complexities of occupational safety hazards. They also understand the need to develop cost-effective programs to minimize risks and injuries in the workplace. Using our knowledge of regulatory requirements, GENI will work closely with you as a partner to evaluate your needs and implement cost-effective and timely solutions. Whether it is for developing customized training program, evaluating indoor air quality, exposure to respirable hazards in the construction field or developing cost-effective engineering controls choose Global Environmental Network, Inc. for creative, responsive and practical industrial hygiene solutions.

Qualifications and Credentials

- Certified Industrial Hygienist
- Registered Environmental Assessor
- CA Registered Engineering Geologist
- Degreed Health and Safety Professionals
- Experience in working with Cal/OSHA, Cal-EPA, AQMD & AHERA
- Experienced in Turn-Key Project Management

Available Services

- Sick building syndrome diagnosis and remediation or engineering controls
- Chemical and physical hazard monitoring and assessment
- Indoor and outdoor air quality investigations
- Health and Safety Plans and audits
- Hazardous materials management plans
- Custom-designed training courses
- Health and plans and monitoring for Naturally Occurring Asbestos
- Mold investigation and remediation reports
- Health-based risk assessments
- Noise studies



Recent Industrial Hygiene Projects



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Recent Industrial Hygiene Projects

Global Environmental Network, Inc. (GENI®) has provided recent turn-key management services in the following industrial hygiene projects:

Compost Removal & Transportation Plan

This project consisted of developing a Health and Safety Plan, Transportation Plan, and the collection and analyzing of field samples for varying levels of metals, Volatile Organic Compounds and Total Recoverable Petroleum. Major elements of the plan included Removal and Disposal activities, Site security, Site access and the Transportation plan that included a Spill contingency, Containment, Cleanup and Decontamination plans.

Air Monitoring at a Rock Quarry in Southern California

This project consisted of collecting air samples to evaluate the exposure to respirable dust for two workers during normal work operations at locations within the quarry where dust levels are typically high relative to other locations. Two SKC Model PCRX-44 sampling pumps were placed on each employee in order to collect samples for both total dust and respirable dust. The samples were analyzed at an AIHA lab in accordance with approved methods for gravimetric determination of average dust levels. A report describing the work, findings and recommendations was provided to the customer providing the analytical results for air monitoring.

Air Monitoring for Naturally Occurring Asbestos

This project consisted of collecting air samples to evaluate the exposure to airborne asbestos for workers during excavation of small pits for hydraulic boring equipment. The project site was located near Quincy, California. The sampling pumps were worn by the grade checker, backhoe operator and a laborer. Air samples were collected with SKC Model 224-PCXR4 Universal Sampling Pumps. Standard 37mm MCE filter cassettes with a pore size of 0.8 micrometers were attached at the collar, in the breathing zone of each worker. The samples were analyzed in accordance with NIOSH Method 7400. A report describing the work, findings and recommendations was provided to the customer providing the analytical results for air monitoring.

Air Monitoring for Soil Contaminated with Hydrocarbons

This project consisted of developing a Site Health and Safety Plan (H&SP) for the protection of our customer, its employees and their subcontractors from health hazards related to handling soil contaminated with hydrocarbons during construction activities. The HSP was created specifically to comply with the requirements in Title 8 of the California Code of Regulations pertaining to exposures to airborne hazards in construction work. General air monitoring for potential employee exposures to hazardous levels of VOC in compliance with the H&SP was performed with a PID manufactured by Mine Safety Appliances Co. of Pittsburg, PA. The MSA unit was calibrated to 100 ppm Isobutylene per the manufacture's recommendations and environmental samples were taken at approximately 3" from newly exposed soils. No significant atmospheric hazards were detected at any point during the day using the PID units. Thus, no air samples were collected for laboratory analysis.



Key Safety Personnel



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Key Safety Personnel

The following pages consist of information on our Key Safety Personnel:

Nancy Carraway,

Certified Industrial Hygienist # 4197

Michael Tiffany,

Certified Industrial Hygienist # 5056

Registered Geologist # 6750

Registered Environmental Assessor # 1064

Nickolas Voegtly

Certified Safety Professional

Bruce Lokkesmoe,

Environmental Health and Safety Specialist

John Brown

Lead & Asbestos Safety Specialist



NANCY G. CARRAWAY

CERTIFIED INDUSTRIAL HYGIENIST

Southern California

wrk (714) 479-1199
fax (714) 479-0809

Summary of Qualifications

Ms. Carraway has a special interest in worker safety and in providing for a healthful work place. She has extensive background in the asbestos abatement industry, from project design, air monitoring and project surveillance to the analysis of bulk and air samples by light and electron microscope. Her expertise extends to air, water, and soil sampling, interpretation of the laboratory analyses, and development of mitigation guidelines. She regularly conducts noise studies, provides certification for the removal of underground storage tanks, and conducts property audits for ownership transfers (Phase I Environmental Site Assessments). In addition, Ms. Carraway performs indoor air quality studies and mold investigations and consults frequently on Site Safety Plans. She also teaches awareness seminars on hazardous materials, safe work practices, and mold identification and effective remediation approaches.

Education

BA Chemistry, University of California, Irvine
BS Biology, University of California, Irvine

Certifications

Certified Industrial Hygienist, #4197, since 1987
Registered Environmental Assessor, #07165, since 1997

Professional Experience

Medical and Molecular Biological Research at:
California Institute of Technology (1972-1976)
Children's Hospital (1976-1979)
University of Southern California (1979-1980)
City of Hope (1980-1985)
Research and analytical chemist (1980-1985)
Director, asbestos analytical laboratory (1985-1993)
Independent Consultant (1990-present)

Relevant Publications

Coauthor, Visual Inspections in the Asbestos Workplace, #E1368 Standard Practice
Asbestos Abatement, Volume V, The Role of the Laboratory in Abatement Work

Professional Associations

American Academy of Industrial Hygiene
American Industrial Hygiene Association
American Chemical Society



Michael R. Tiffany

RG, CIH, REA

Southern California

wrk (714) 479-1199

fax (714) 479-0809

EDUCATION B.S., Geology, 1979, University of California, Los Angeles.
Graduate course work in geology, 1980-1983, California State University, LA.
Numerous short courses in environmental assessment and industrial hygiene.

CERTIFICATION Registered Geologist No. 6750, State of California
Certified Industrial Hygienist No. 5056, American Board of Industrial Hygiene
Registered Environmental Assessor No. 1064, State of California

EXPERIENCE 13 years in environmental assessment (Phase I & Phase II).
20 years in design & management of environmental remediation projects.
22 years in industrial hygiene.
25 years in environmental sampling and analysis.
25 years in asbestos inspection, analysis, and hazard assessment.
20 years in petrographic analysis of concrete and aggregate.
Principal geologist for environmental site assessment and remediation projects.
Design, management, supervision, and monitoring of environmental remediation projects.
Closure of leaking underground tanks and other contaminated sites.
Comprehensive environmental assessment, project design, and project management for facility decommissioning, demolition, and renovation.
Industrial hygiene investigation and hazard assessment.
Indoor air quality investigation.
Principal consultant in asbestos inspection, hazard assessment, abatement project design, and project management under AHERA and the 1980 EPA Asbestos-in-Schools program. California Certified Asbestos Consultant No. 62 (lapsed).
Analysis of environmental, geological, and industrial samples, using optical microscopy, X-ray diffraction, X-ray fluorescence, and electron microscopy.

EMPLOYMENT President, 2003-present.
Analytical Consulting Group, Inc., Ventura, California

Project Geologist & Industrial Hygienist, 1992-2003.
California Environmental Geologists and Engineers, Inc., Westlake Village, Calif.

Vice President & Technical Director, 1988-1992.
CAMCO Group, Inc., Fontana, California

President & Laboratory Director, 1985-1988.
Applied Petrography, Inc., Santa Fe Springs, California

Consulting Petrographer, 1985-1986.
Osborne Laboratories, Inc., Santa Fe Springs, California

Senior Analyst & Industrial Hygienist, 1980-1985
EMS Laboratories, Inc., Hawthorne, California

PROFESSIONAL SOCIETIES American Academy of Industrial Hygiene
American Industrial Hygiene Association
American Conference of Governmental Industrial Hygienists (Affiliate)
American Society of Safety Engineers

NICKOLAS E. VOEGTLY
Board Certified Safety Professional

Northern California

wrk (714) 479-1199
fax (714) 479-0809

SUMMARY

Certified Safety Professional with significant experience in occupational health, safety, and environmental disciplines. Demonstrated ability to implement beneficial programs that meet business requirements through needs assessment, plan development, and consensus building, leading to proper start-up and training required for success. Skilled research for technical and regulatory questions. Strong OSHA knowledge.

PROFESSIONAL EXPERIENCE

MANAGEMENT / TECHNICAL SKILLS

- Successful consulting company since 1999.
- Managed chemical laboratory group
- Manage 70 construction general liability accounts and worker compensation accounts for insurance company.
- Proficient in hydrologic reconnaissance, geologic mapping and well drilling.
- Corrosion monitoring and mitigation on 260 geothermal steam wells, geothermal steam transmission piping, steam condensate injection wells and injection piping.
- Software knowledge: databases, Word, Excel, PowerPoint, MS Project.

OCCUPATIONAL HEALTH

- Performed industrial hygiene monitoring for gases, particulate, fibers and noise.
- Asbestos Program administrator for six miles of geothermal piping, office building and miscellaneous facilities, 100 awareness level employees and 15 workers.
- Administered training database for 200 employees.

SAFETY

- Training Programs development for safety and environmental compliance.
- Site Safety Officer for major demolition project.
- Develop Safety Programs ranging from Arsenic and Hydrogen Sulfide Work Practices to Chain Saw Use and Lockout Procedures.
- Safety & Loss Control Audits for geothermal, construction, manufacturing, transportation, & healthcare industries.
- Department of Transportation Coordinator assuring safe, compliant shipping for 10 years.

ENVIRONMENT

- Wrote and administered Spill Prevention, Control and Countermeasure Plan (SPCC).
- Maintained compliance with Air Pollution Control District and Water Quality Control Board regulations.
- Designed and performed sampling for environmental compliance, steam chemistry, corrosion, asbestos management, site remediation and industrial hygiene applications.
- Storm Water Pollution Prevention Plans

EMERGENCY RESPONSE

- Safety Officer/ Area Supervisor consulting services in Bolivian oil spill.

EMERGENCY RESPONSE continued

- Emergency Plan development, spill and fire response during demolition activities.
- As The Geysers Emergency Coordinator developed and administered emergency response plans related to hazardous materials, fire, emergency preparedness and evacuation, earthquake readiness and emergency equipment.
- Trained 100 awareness level and 40 operational level responders.
- Led team development of overseas emergency preparedness and response programs.
- As Safety Officer maximized worker safety during Philippine Geothermal Incorporated/ERST response to Typhoon Rosing, which caused extensive damage in the Tiwi Geothermal Field.
- Unocal corporate Emergency Response Strike Team (ERST) for response to oil or hazmat incidents at any Unocal facility, worldwide.

PROFESSIONAL EXPERIENCE

NICK VOEGTLY SAFETY & LOSS CONTROL
President

1999-present

Clients: Blue Water & Associates, Inc; Calpine Corporation, ECS Risk Control; ERST/O'Briens; Golder Construction Services; Jackson Equipment; Lake County Fair, Patmont Motor Werks; Plant Reclamation.

UNOCAL GEOTHERMAL, The Geysers, CA
Senior Production Technician
Supervisor, Chemical Laboratory Group
Production Technician
Drilling Foreman

1979 - 1999
1984 - 1999
1981 - 1989
1980 - 1981
1979 - 1980

FLINT ENGINEERING, Rawlins, WY
Roughneck

1978

U. S. GEOLOGICAL SURVEY, Water Resources Division, Menlo Park, CA
Geologist

1973 - 1978

EDUCATION

B.S., Geology, University of Oregon; minor in English at Robert D. Clark Honors College.
Graduate Studies Petroleum Engineering, Stanford University

CERTIFICATES OF TRAINING

- 2001 Certified Safety Professional, Board of Certified Safety Professionals
- 2000 Professional Member, American Society of Safety Engineers
- 1989–2004 AHERA Certification Asbestos Contractor/Supervisor, Abatement Project Design, University of CA, Berkeley
- 1994-2004 AHERA Building Inspection & Management Planning for Asbestos
- 1993-2000 Department of Transportation regulations for transportation
- 1991-2003 Hazardous Material Technician
- 1996 Industrial Fire Fighting, Texas A & M University
- 1995 Oil Spill Control School, Texas A & M University
- 1993 Unocal Incident Investigation
- 1991 Train the Trainer: Developing a Program, Association of Bay Area Governments
- 1990 International Loss Control Leadership Program, ILCI
- 1989 Unocal Hazard and Operability Study (HAZOP) Training
- 1988 Unocal Science and Technology Corrosion Seminar, 3 days
- 1987 Introduction to Supervision, Yuba College, 3 Units
- 1985 Unocal Supervisory Training
- 1984 Ambient Air Particulate Sampling, 5 days, CA Air Pollution Association Conference
- 1981 Hazardous Material Response, 10 days, Colorado Training Institute



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Bruce Lokkesmoe

EHS/Construction Services

Bruce Lokkesmoe has been active in the safety profession for over 25 years. During that time he has worked for both distributors and manufacturers of technical safety products. He is currently the Environmental Health & Safety Specialist and primary instructor for GENI[®]. His duties include developing, updating, and editing training material for a wide variety of Occupational Safety and Environmental Compliance courses. He also has prepared Site Specific Health & Safety Plans and performed Work Area Monitoring services involving special risks such as potential exposures to airborne hazards of asbestos, lead, or hydrocarbons.

Bruce holds a Bachelor's Degree in Business Administration from Augsburg College in Minneapolis, Minnesota. He received certification in Principles of Respiratory Protection from the SEDA Institute in Chicago, Illinois, in 1978. He has participated in numerous technical and specialized training programs sponsored by manufacturers of technical safety products and professional safety & health associations. He has developed a thorough understanding of California's Safety and Environmental regulations.

Bruce has been an instructor for GENI[®] for the past ten years, teaching the above subjects and others. He has been the primary instructor for the past five years.

As Technical Products Manager for Bennett-Bowen Company in Rancho Dominguez, California from 1992-1997, Bruce developed and conducted training programs in Occupational Safety areas including:

- 🌐 Confined Space Entry Program for Permit Spaces
- 🌐 Respiratory Protection Training & Fit Testing
- 🌐 SCBA and Airline Respirator Operation & Maintenance
- 🌐 Principles of Atmospheric Monitoring
- 🌐 Maintenance and Calibration of Atmospheric Monitors
- 🌐 Fall Protection Program development and implementation
- 🌐 Lockout/Tagout Program development and implementation



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In the environmental area, Bruce was instrumental in developing the GENI[®] 24-Hour SWPPP Workshop to meet Caltrans requirements regarding training of personnel on the requirements for a Storm Water Pollution Prevention Program (SWPPP). He has trained more than 1,000 people over the last several years. In the process he has become very familiar with California's Stormwater Program requirements, especially those that are unique to Caltrans, and has developed a good working relationship with many of their Resident Engineers and Construction Storm Water Coordinators. He was invited and participated in a Caltrans' statewide Stormwater Coordinator meeting where he exchanged ideas and information with about 20 of the District Coordinators on issues relating to the ongoing development and implementation of contractor SWPPPs all over the state.

Bruce is active in several professional organizations in our area, and has given presentations on NPDES Stormwater Program and Occupational Health & Safety topics at conferences and meetings of these groups, including the Associated General Contractors of California (AGC); the Los Angeles/Orange County Chapter of the Maintenance Superintendents Association (MSA); the American Public Works Association (APWA); and the Public Agency Safety Managers Association (PASMA).

He is currently involved in developing Water Quality Management Plans (WQMPs) for commercial and residential developers who must meet increasingly stringent restrictions regarding impacts to the hydrology of an area caused by their projects. He is also developing several practical application courses for developers, contractors, and municipal personnel who are required to implement, inspect, and maintain the programs and practices required under the current State Water Board regulations.

John E. Brown

Lead & Asbestos Safety Specialist

Southern California

wrk (714) 479-1199
fax (714) 479-0809

SUMMARY

Mr. Brown has been involved with hazardous materials and safety training programs at several levels for more than 30 years. He has coordinated and directed both regional and national environmental programs. His experience is extensive in both the public and private sectors.

In addition to his work at GENI™, John currently volunteers with the American Red Cross and teaches construction safety courses at the OSHA Training Institute in San Diego. He is a certified instructor for the Red Cross CPR/First Aid programs, and is certified to teach the OSHA Construction Outreach Program 10- and 30-hour courses.

John is a State of California Accredited Instructor for lead and asbestos certification training, and he conducts courses for GENI™ clients in many other hazardous material and occupational health and safety disciplines.

Specialties:

🌐 **ASBESTOS (Initial & Refresher)**

Awareness
Worker
Contractor / Supervisor
Building Inspector
Management Planner
Project Designer
Operations & Maintenance

🌐 **AMERICAN RED CROSS**

CPR
AED
Injury Control

🌐 **OSHA OUTREACH**

Construction Industry 10 & 30 hour
General Industry 10 & 30 hour

🌐 **LEAD (Initial & Continuing Education)**

Awareness
Worker
Supervisor
Project Monitor

🌐 **Accident Investigation**

🌐 **Hazardous Materials**

DOT HazMat
Emergency Response

Additional Programs

- **Training**
- **Consulting**



Schedule of GENI[®] Safety Courses & Consulting

REGULATORY TRAINING

- 🌐 Basic Cal-OSHA Regulations
- 🌐 Basic Search and Rescue
- 🌐 Confined Space Entry (**standard or Train the Trainer**)
- 🌐 Ergonomics
- 🌐 Hazard Recognition
- 🌐 Fundamentals of Cal-OSHA
- 🌐 Respirator Protection Program Implementation
- 🌐 NPDES Phase II Permit Compliance



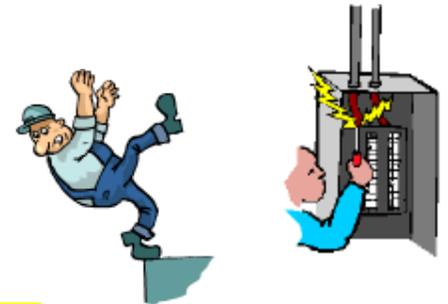
INDUSTRIAL SAFETY COURSES

- 🌐 Confined Space Entry for Permit Entry Spaces
- 🌐 Fire Safety Instruction
- 🌐 Hazard Communication
- 🌐 HAZWOPER General Site Worker (**CSTI or Cal OSHA**)
- 🌐 HAZWOPER Emergency Response (**CSTI or Cal OSHA**)
- 🌐 Transportation of Hazardous Materials
- 🌐 Lockout Blockout Tagout (**2, 4, & 8 hour levels**)
- 🌐 Respirator Training and Fit Testing (**QLFT & QNFT**)
- 🌐 Household Hazardous Waste (**HAZWOPER with special emphasis in HHW**)



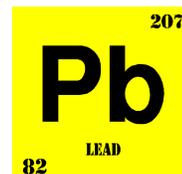
CONSTRUCTION SAFETY COURSES

- 🌐 Stormwater Pollution Prevention (**4 to 24 hours**)
- 🌐 Fall Protection Safety (**Awareness to Competent Person Level**)
- 🌐 Scaffold Safety
- 🌐 Traffic Control Coning and Flagging in Work Zones
- 🌐 Trench Safety Competent Person Awareness
- 🌐 OSHA Construction Outreach Courses (**10 hour and 30 hour**)
- 🌐 Heavy Equipment Operator Evaluation & Training (**New**)



SUBSTANCE-SPECIFIC SAFETY COURSES

- 🌐 Asbestos Training
- 🌐 Lead Training
- 🌐 Chlorine Emergency Response



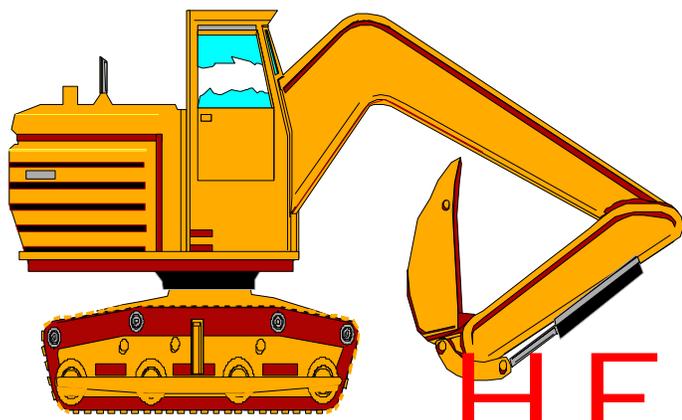
HOMELAND SECURITY (NEW)

- 🌐 4 Hr. Emergency Response to Terrorism (**general awareness**)
- 🌐 8 Hr. Emergency Response to Terrorism (**full dress-out**)
- 🌐 Decon Training for Weapons of Mass Destruction (**full dress-out**)
- 🌐 Transportation Security



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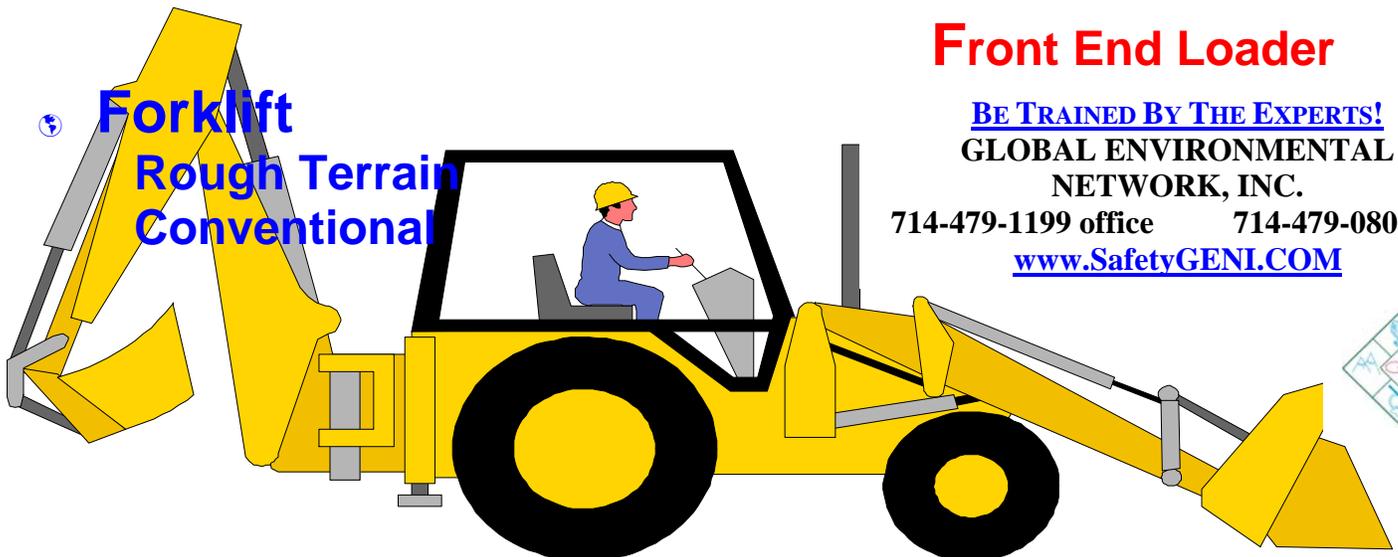


HEAVY

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- **Aerial Manlifts**
- **Backhoe**
- **Basic Equipment Safety**
- **Basic Rigging**
- **Bulldozer**
- **Cranes**
Tower / Mobile / Overhead
- **Gradall**
- **Grader**
- **Oiler Training**
- **OPERATOR EVALUATIONS**
- **Rubber Tire Tractor**
- **Scraper**
- **Track/Rubber Tractors**
- **Front End Loader**

- **Forklift**
Rough Terrain
Conventional



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NETWORK, INC.**

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BIDDER STAFF RESOURCE FORM

Name: Nancy G. Carraway, CIH

Required Qualification Job Title(s): Certified Industrial Hygienist

Professional Registration, License or Certification:

Certified Industrial Hygienist, Comprehensive Practice, American Board of Industrial Hygiene,
Certificate No. 4197, Exp 6-1-2007 (First issued 1987)
Registered Environmental Assessor, State of California, No. 07165 (Issued 1997)

Other Pertinent Education or Training:

BA Chemistry, University of California, Irvine, 1972
BS Biology, University of California, Irvine, 1972

Relevant Work Experience:

Employer	Job Title	Dates	Supervisor
MicroAnalytical Services, Inc.	President & CIH	1987-Present	Self

1 Scope of Responsibilities; (see note below)

Qualification Requirement	Qualifying Experience
1. Writing health and safety plans and insuring that personnel are in compliance	Prepared, reviewed, and certified over 100 HSPs for hazardous materials in construction projects in the last 2-3 years alone.
2. Must be certified	Certificate No. 4197, Comprehensive Practice
3. Knowledge in hazardous substances/ materials site remedial and removal 4. Coordinating with other contractors 5. Application of health and safety practices to field practices	CDOT Remediation project – 1996 – El Centro, CA -Engaged as Site Safety Officer for the project -Trained and supervised contractor personnel -Performed IH surveys for hazardous materials Libby Glass Plant Demolition – 2005 – Industry, CA -Engaged as SSO/CIH during demolition work -Supervised contractor personnel -Enforced Libby Company IIPP, CSWPs POLB/Ocean Blvd – 2005 – Long Beach, CA -Prepared special Site Safety Plan for HC issues -Supervised safety monitoring technicians during extensive work involving unknown HC in soils UST Repair/removal Projects -Provided CIH services / safety monitoring for multiple clients during repair or removal of underground storage tanks.
	Duties at El Centro and Libby included supervision of contractors hired by the property owner for the demolition or remediation work.
6. Experience in management of hazardous substances/materials site health and safety 7. Experience in applying health and safety practices to site cleanups.	Projects referenced above, plus Asbestos Removal Clearances, Mold Surveys, Indoor Air Quality Studies, and other types of work area monitoring during construction, demolition, etc. since 1987. Has worked actively and continuously as a CIH in comprehensive practice since 1987, including many projects similar to those listed above.

1 Provide sufficient detailed description of the work experience and general knowledge to document that the individual meets the qualifications outlined in the Staff Description Section within the IFB.

2 General Knowledge: (see note below)

1. Over just the past 2-3 years, Nancy has written numerous (<100) Health & Safety Plans for a wide variety of projects and clients; dealing with various hazardous materials, including Asbestos, Cadmium, Chromium, Cobalt, Diesel Fuel, Gasoline, Lead, Methane, Petroleum (natural and refined), PCBs, VOCs, SVOCs, and others.
2. She has maintained her standing as a CIH in Comprehensive Practice continuously since 1987, and has vigorously pursued continuing education throughout her career, including, among others:
 - a. The McKrone Course, 1984
 - b. Analytical Electron Microscopy, 1984, MIT
 - c. NIOSH 582 Course, 1986
 - d. Environmental Sampling, 1989, Georgia Tech
 - e. Initial 40H HAZWOPER certification 1997 and 2001
 - f. Earth Sciences/Technology of Hazardous Materials, UC Irvine, 1999
 - g. Fundamentals of Earth Science, Cerritos Coll, 2005
3. She has also furthered her education by teaching, following the principle that one of the best ways to learn something is to teach it. In recent years, Nancy has conducted training for clients and workers on aspects of removal, transportation, and disposal of hazardous materials, including:
 - a. Bloodborne Pathogens per §5193
 - b. Hazard Communication per §5194
 - c. Respiratory Protection Practices per §5140-§5155
 - d. Confined Space Permit Entry programs per §5156-58
 - e. HAZWOPER under §5192 (24 to 40-hour courses and refreshers)
 - f. Asbestos under §1529 and §5208 (awareness level and O&M level)
 - g. Industrial Hygiene Sampling Methods & Practices

Previous Client References:

Project Name	Address	Client	Contact	Phone
Underground Storage Tank (UST) Repair/Removal	Various locations in Southern California	Nieto & Sons Trucking, Inc., Brea, CA	Steve Nieto	714-990-6855
UST Repair/Removal	Various locations in Southern California	Adams Services, Gardena, CA	Ann Scott	310-523-4430
POLB/Ocean BI – SSP for Hydrocarbons	Port of Long Beach, CA	Ortiz Enterprises, Irvine, CA	Carl Alvin	949-753-1414

2 The Bidder Staff Resource Form should contain sufficient information to show that the individual meets the qualifications. Specifically in the Relevant Work Experience section, provide a detailed description of how the individual meets the requirement outlined in the Staff Description in the IFB. If the position requires general knowledge, a description of how that individual meets that requirement must be provided on the form. Do not assume that just listing projects that this individual worked on fully demonstrate these requirements nor assume that it is DTSC's responsibility to make the connection of what fulfills each requirement.

BIDDER STAFF RESOURCE FORM

Name: Michael R. Tiffany, RG, CIH

Required Qualification Job Title(s): Certified Industrial Hygienist

Professional Registration, License or Certification:

Certified Industrial Hygienist, American Board of Industrial Hygiene, Cert. No. CP 5056
Registered Geologist, State of California No.6750, exp 11/30/05
Registered Environmental Assessor, State of California No. 1064, exp 6/30/06

Other Pertinent Education or Training:

BS Geology, UCLA, 1975

Relevant Work Experience:

Employer	Job Title	Dates	Supervisor
CAMCO Group, Inc.	Vice President & Technical Director	2/88 – 6/92	Owner
California Environmental	Project Geologist, Certified Industrial Hygienist	7/92 – 7/00	Charles I. Buckley, RG, CEG, RHG`
Analytical Consulting Group, Inc.	President & Technical Director	7/00 – present	Owner

1 Scope of Responsibilities; (see note below)

Qualification Requirement	Qualifying Experience
1. Writing health and safety plans and insuring that personnel are in compliance	Preparation and review of work plans and health & safety plans for >100 projects over past 10 years Design & oversight of remedial actions
2. Must be certified	CIH No. CP 5056
3. Knowledge in hazardous substances/ materials site remedial and removal 4. Coordinating with other contractors 5. Application of health and safety practices to field practices	Design & oversight of facility decommissioning, building demolition, and site clearing Sampling and analysis of air, soil, soil gas, surface water, wastewater, and groundwater SCAQMD Rule 1166 VOC soil emission monitoring Worker exposure monitoring and assessment Environmental exposure monitoring and assessment Contaminated soil monitoring and segregation Site assessment (PEA, RI/FS) and building inspections
6. Experience in management of hazardous substances/materials site health and safety 7. Experience in applying health and safety practices to site cleanups.	Over 20 years experience in multiple phases of environmental and safety oversight on demolition, remediation, and clean-up projects. See #2 below.

1 Provide sufficient detailed description of the work experience and general knowledge to document that the individual meets the qualifications outlined in the Staff Description Section within the IFB.

2 General Knowledge: (see note below)

Michael Tiffany has been active in occupational safety and environmental consulting work at several levels for more than 20 years. He has maintained his high level certifications through regular participation in educational seminars and conferences. His experience includes the following areas and activities:

- 🌐 13 years in environmental assessment (Phase I & Phase II).
- 🌐 20 years in design & management of environmental remediation projects.
- 🌐 22 years in industrial hygiene.
- 🌐 25 years in environmental sampling and analysis.
- 🌐 25 years in asbestos inspection, analysis, and hazard assessment.
- 🌐 20 years in petrographic analysis of concrete and aggregate.

- 🌐 Principal geologist for environmental site assessment and remediation projects.
- 🌐 Design, management, supervision, and monitoring of environmental remediation projects.
- 🌐 Closure of leaking underground tanks and other contaminated sites.
- 🌐 Comprehensive environmental assessment, project design, and project management for facility decommissioning, demolition, and renovation.
- 🌐 Industrial hygiene investigation and hazard assessment.
- 🌐 Indoor air quality investigation.
- 🌐 Principal consultant in asbestos inspection, hazard assessment, abatement project design, and project management under AHERA and the 1980 EPA Asbestos-in-Schools program
- 🌐 Analysis of environmental, geological, and industrial samples, using optical microscopy, X-ray diffraction, X-ray fluorescence, and electron microscopy

Client for Previous Employer References :

Project Name	Address	Client	Contact	Phone
Nortek	Firestone Blvd., Downey	Nortek, Inc.	Charlie Buckley, California Environmental	(805)445-7117
West Hollywood Gateway	7000 Santa Monica Blvd., W. Hollywood	J.H. Snyder	Charlie Buckley, California Environmental	(805)445-7117
Water Garden	Colorado/Cloverfield, Santa Monica	J.H. Snyder	Charlie Buckley, California Environmental	(805)445-7117

2 The Bidder Staff Resource Form should contain sufficient information to show that the individual meets the qualifications. Specifically in the Relevant Work Experience section, provide a detailed description of how the individual meets the requirement outlined in the Staff Description in the IFB. If the position requires general knowledge, a description of how that individual meets that requirement must be provided on the form. Do not assume that just listing projects that this individual worked on fully demonstrate these requirements nor assume that it is DTSC's responsibility to make the connection of what fulfills each requirement.



GLOBAL ENVIRONMENTAL NETWORK, INC.

ENVIRONMENTAL, SAFETY & CONSTRUCTION ENGINEERING SERVICES

Box 8068, Fountain Valley, CA. 92728-8068

www.SafetyGeni.com

Phone: 714-479-1199

email: GENI@SafetyGeni.com

Fax: 714-479-0809

SAFETY COURSES OFFERED BY SafetyGENI™

Crane Training
CCO Written Exams
CCO Practical Exams

Traffic Control Coning &
Flagging Awareness

Safety Orientation for
Construction

Scaffold Safety Awareness

Fall Protection Awareness

Trench Safety Competent
Person Awareness

Trench Rescue

Confined Space

Confined Space Rescue

Urban Search & Rescue

Respirator Training &
Fit Testing

CPR & First Aid

Crane Operator Awareness

Forklift Training Awareness

Aerial Lift Awareness

Hearing Conservation
Training

DOT HM 126F/181
Awareness

Emergency Response
Awareness / Refresher
Operational
Technician
Specialist

HAZWOPER
Awareness / Refresher
Supervisor
Waste Site Worker

Household Hazardous Waste

Asbestos Training

Lead Training

24 Hr SWPPP Training

DVBE / SBE No. 24765
January 3, 2006

PROJECT DESCRIPTION

ENGINEERING SERVICES FOR LANDFILL & DISPOSAL SITE REMEDIATION
CALIFORNIA INTEGRATED WASTE MANAGEMENT PROJECT NO. IWM05018

GENI BID No. 051229-01

LETTER OF INTENT

SCS ENGINEERS
3900 Kilroy Airport Way, Suite 100
Long Beach, CA 90806-6816
Phone: (562) 426-9544
Fax: (562) 427-0805

Estimated DVBE Participation: TO BE DETERMINED AT TIME OF AWARD

Global Environmental Network, Inc. thanks you for the opportunity to provide Personnel: Biologist, CIH, CEG, Written NPDES / SWPP Plans, Written Lead Compliance Plans and Monitoring Services, Traffic Control Products / Services, Safety Equipment, Construction Safety Courses or related Occupational Health and Environmental Services and Site Security Consulting for the above-referenced project.

This letter of intent is to help your firm be a responsive bidder on this project. Should **Engineering/Remediation Resources Group, Inc.** be awarded the contract, please notify our firm immediately, so that when the state representative calls us, we are able to verify that we are a bidder with you. Global Environmental Network, Inc. will be at your service to provide your service needs as required.

Respectfully Submitted,

Michael W. Horner, CHMM
Vice President
714-479-1199
DVBE No. 24765



PROCUREMENT DIVISION

Office of Small Business and DVBE Certification

707 Third Street, 1st Floor, Room 400 * PO Box 989052

West Sacramento, California 95798-9052 * (800) 559-5529

DVBE APP 20040830

August 30, 2004

REF# 0024765
GLOBAL ENVIRONMENTAL NETWORK INC
P O BOX 8068
FOUNTAIN VALLEY CA 92728- 8068

Dear Business Person:

Congratulations on your certified disabled veteran business enterprise (DVBE) status with the State of California. Your certification entitles you to benefits under the state's DVBE Participation Program within state contracting, including the three percent DVBE participation goal for overall state contract dollars.

Certification period 08/11/2004 04/30/2006

Your certification period for each business type is:

Industry

NON-MANUFACTURE
SERVICE

From

08/11/2004
08/11/2004

To

04/30/2006
04/30/2006



Annual Submission Requirements

All DVBEs must submit to the Office of Small Business and DVBE Certification (OSDC) each postcertification tax year, a complete copy of your business' federal income tax return, including extensions, within 90 days of the tax return's filing due date. If your business is a partnership, each partner must also submit a complete copy of his or her individual tax return. Additionally, if you are a DVBE that is not a sole proprietorship and your firm rents equipment to the state, you must also include in your submittal a complete copy of the personal federal income tax returns for each of your disabled veteran owners, including extensions, and within 90 days of the individual's tax return filing due date. Failure to comply will result in the suspension of your DVBE status and possible decertification, and it shall prohibit your business from participating in any state contract until all requirements are met.

Maintained Your Online Certified Firm Profile

A secure access feature on our website enables you to maintain certain company profile information, including customizable keywords to best describe your business specialties with. Details about the Certified Firm Profile and your secure logon information are available on the final page of this letter. Please keep your logon information page in a secure place and DO NOT share it with anyone or include it with any of your bid documents or submittals.

Reporting Business Changes

You must notify OSDC of all business changes or your certification status will be subject to revocation. The enclosed "Certification Information Change" form identifies specific items that may be reported using the change form and it identifies other changes that require a new certification application submittal.

Proof of Eligibility



Appendix G

Evidence of Professional Registrations (PE and RG)





STATE BOARD OF REGISTRATION
FOR PROFESSIONAL ENGINEERS



THIS IS TO CERTIFY THAT PURSUANT
TO THE PROVISIONS OF CHAPTER 7, DIVISION 3 OF THE BUSINESS AND PROFESSIONS CODE

MICHAEL LYNN LEONARD

IS DULY REGISTERED AS A
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

IN THE STATE OF CALIFORNIA, AND IS ENTITLED TO ALL THE RIGHTS AND
PRIVILEGES CONFERRED IN SAID CODE



WITNESS OUR HAND AND SEAL

CERTIFICATE **No. 31181**

THIS 9TH DAY OF JANUARY 1980

STATE BOARD OF REGISTRATION
FOR PROFESSIONAL ENGINEERS



SECRETARY



PRESIDENT

THIS CERTIFICATE IS THE PROPERTY OF THE STATE OF CALIFORNIA AND IN THE EVENT OF ITS SUSPENSION, REVOCATION OR
INVALIDATION FOR ANY REASON IT MUST UPON DEMAND BE RETURNED TO THE STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS



CALIFORNIA
Board for Professional
Engineers & Land Surveyors
2985 Capitol Oaks Drive, Suite 400
Sacramento, CA 95834-2986
(916) 263-2222



CIVIL ENGINEER

LICENSE NO
C 31181

EXPIRATION
9/30/2006

MICHAEL LYNN LEONARD



**Board for Professional Engineers
& Land Surveyors**

2535 CAPITOL OAKS DRIVE SUITE 300
SACRAMENTO, CA 95833-2926
916 263-2222



CIVIL ENGINEER

CERTIFICATE NO.
C 25390

EXPIRATION
12/31/07

AMBROSE ANTON MC CREADY
201 OAK CANYON WY
FOLSOM CA 95630



PPRC 01/31/99

RECEIPT NO
00077641

FOR
LENARD'S
PERSONNEL FILE

	Board for Professional Engineers & Land Surveyors 2535 CAPITOL OAKS DRIVE, SUITE 300 SACRAMENTO, CA 95833-2926 916 263-2222	
	CIVIL ENGINEER	
CERTIFICATE NO. C 30637		EXPIRATION 03/31/06
LENARD DAVID LONG 788 PEACHWILLOW DR BRENTWOOD CA 94513		
Signature PPRC 01/31/99		RECEIPT NO. 09300019

	Board for Professional Engineers & Land Surveyors 2535 CAPITOL OAKS DRIVE, SUITE 300 SACRAMENTO, CA 95833-2926 916 263-2222	
	GEOTECHNICAL ENGINEER	
CERTIFICATE NO. GE 537		EXPIRATION 03/31/06
LENARD DAVID LONG 788 PEACHWILLOW DR BRENTWOOD CA 94513		
Signature PPRGE 01/31/99		QUALIFIER NO. C 00030637 RECEIPT NO. 09300018

Remove your new pocket license from the receipt portion and carry it with you at all times.

Board for Geologists and Geophysicists
2535 Capitol Oaks Drive, Suite 300A
Sacramento, CA 95833
916 263-2113

08/18/04
08/18/04

CUT ON
DOTTED LINE

Board for Geologists and Geophysicists
2535 Capitol Oaks Drive, Suite 300A
Sacramento, CA 95833
916 263-2113



I M P O R T A N T

CUT ON
DOTTED LINE

1. Please include your license no. on any correspondence to this office.
2. Notify the Board of any name or address change in writing.
3. Report any loss immediately in writing to the Board.
4. Please sign and carry the pocket license with you.
KENNETH HENRY LISTER

REGISTERED GEOLOGIST

LICENSE NO. 4338 EXPIRATION 09/30/06

KENNETH HENRY LISTER
1021 AMELIA DRIVE
LONG BEACH CA 90807

Signature
PGGGEO 12/31/00

RECEIPT NO.
22600013

LICENSE NO.	EXPIRATION DATE	RECEIPT NO.
4338	09/30/06	22600013

This is your RECEIPT. Please save for your records.

Remove your new pocket license from the receipt portion and carry it with you at all times.

Board for Geologists and Geophysicists
2535 Capitol Oaks Drive, Suite 300A
Sacramento, CA 95833
916 263-2113

08/18/04
08/18/04

CUT ON
DOTTED LINE

Board for Geologists and Geophysicists
2535 Capitol Oaks Drive, Suite 300A
Sacramento, CA 95833
916 263-2113



I M P O R T A N T

CUT ON
DOTTED LINE

1. Please include your license no. on any correspondence to this office.
2. Notify the Board of any name or address change in writing.
3. Report any loss immediately in writing to the Board.
4. Please sign and carry the pocket license with you.
KENNETH HENRY LISTER

CERTIFIED ENGINEERING GEOLOGIST

LICENSE NO. EG 1581 EXPIRATION 09/30/06

KENNETH HENRY LISTER
1021 AMELIA DRIVE
LONG BEACH CA 90807

Signature
PGGEG 12/31/00

RECEIPT NO.
22600012

LICENSE NO.	EXPIRATION DATE	RECEIPT NO.
EG 1581	09/30/06	22600012

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Remove your new pocket license from the receipt portion and carry it with you at all times.

Board for Geologists and Geophysicists
2535 Capitol Oaks Drive, Suite 300A
Sacramento, CA 95833
916 263-2113

08/18/04
08/18/04

CUT ON
DOTTED LINE

Board for Geologists and Geophysicists
2535 Capitol Oaks Drive, Suite 300A
Sacramento, CA 95833
916 263-2113



I M P O R T A N T

CUT ON
DOTTED LINE

1. Please include your license no. on any correspondence to this office.
2. Notify the Board of any name or address change in writing.
3. Report any loss immediately in writing to the Board.
4. Please sign and carry the pocket license with you.
KENNETH HENRY LISTER

CERTIFIED HYDROGEOLOGIST

LICENSE NO. HG 79 EXPIRATION 09/30/06

KENNETH HENRY LISTER
1021 AMELIA DRIVE
LONG BEACH CA 90807

Signature
PGGHG 12/31/00

RECEIPT NO.
22600014

LICENSE NO.	EXPIRATION DATE	RECEIPT NO.
HG 79	09/30/06	22600014

This is your RECEIPT. Please save for your records.



CALIFORNIA
Board for Professional
Engineers & Land Surveyors
2500 Capitol Oaks Drive, Suite 300
Sacramento, CA 95833-2926
(916) 263-2222



CIVIL ENGINEER

LICENSE NO.
C 42598

EXPIRATION
3/31/2006

JOSEPH JAY MILLER



STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS



This Is To Certify That Pursuant
To The Provisions of Chapter 7, Division 3 of The Business and Professions Code

Kirk Hein

IS DULY REGISTERED AS A

PROFESSIONAL ENGINEER

IN

CIVIL ENGINEERING

In The State of California, and Is Entitled To All The Rights and
Privileges Conferred In Said Code

WITNESS OUR HAND AND SEAL

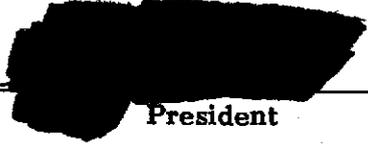
Certificate No C 50903

This 16th day of July, 1993, at Sacramento, California.

STATE BOARD OF REGISTRATION
FOR PROFESSIONAL ENGINEERS
AND LAND SURVEYORS

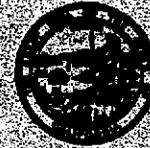



Executive Officer


President



STATE BOARD OF REGISTRATION
FOR PROFESSIONAL ENGINEERS



THIS IS TO CERTIFY THAT PURSUANT
TO THE PROVISIONS OF CHAPTER 7, DIVISION 9 OF THE BUSINESS AND PROFESSIONS CODE

MARK BRUCE BEIZER

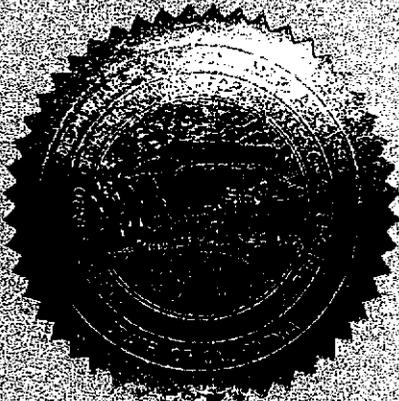
IS DULY REGISTERED AS A

PROFESSIONAL ENGINEER

IN

CIVIL ENGINEERING

IN THE STATE OF CALIFORNIA, AND IS ENTITLED TO ALL THE RIGHTS AND
PRIVILEGES CONFERRED IN SAID CODE



WITNESS OUR HAND AND SEAL

CERTIFICATE No 22879

THIS 5TH DAY OF OCTOBER, 1973

STATE BOARD OF REGISTRATION
FOR PROFESSIONAL ENGINEERS

[Redacted Signature] SECRETARY

[Redacted Signature] PRESIDENT

THIS CERTIFICATE IS THE PROPERTY OF THE STATE OF CALIFORNIA AND IN THE EVENT OF ITS SUSPENSION, REVOCATION OR
INVALIDATION FOR ANY REASON IT MUST UPON DEMAND BE RETURNED TO THE STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS