Owens
Financial
Group, Inc.

STIP 3305

ENVIRONMENTAL
PROTECTION
95 OCT 30 PM 2:55

October 27, 1995 CERTIFIED MAIL

Ms. Susan L. Hugo
Senior Hazardous Materials Specialist
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Re: 3623 Adeline Street; Emeryville, CA

Dear Ms. Hugo:

In connection with your letter of September 27, 1995, I am enclosing the Work Plan proposal from Kleinfelder, Inc. dated October 25, 1995. I am also confirming that the Tank Removal Report from SEMCO dated October 9, 1995 has previously been submitted to you. Please coordinate your activities with Mr. Curtis Payton at Kleinfelder. His number is 484-1700, Ext 208.

Please contact me if you require anything further.

Sincerely,

Scott P. Barde
Vice President, Special Assets

cc: Mr. Curtis Payton, Kleinfelder, Inc.

2221 Olympic Blvd.
P.O. Box 2308
Walnut Creek, Ca 94595
(510) 935-3840
Fax (510) 935-1486

KLEINFELDER
An employee owned company

October 25, 1995
File: 10-YP5-486

Mr. Scott P. Barde
Vice President
Owens Financial Group, Inc.
2221 Olympic Boulevard
Walnut Creek, CA 94596

SUBJECT: Revised Proposal for Subsurface Investigation
For Former 2,500-gallon Underground Storage Tank
3623 Adeline Street
Emeryville, California

Dear Mr. Barde:

Kleinfelder, Inc. (Kleinfelder), is pleased to present this proposal to Owens Financial Group, Inc. (Owens), herein referred to as Client, to conduct a subsurface investigation within the structure located at 3623 Adeline Street in Emeryville, California (Plate 1). This proposal is based on the site walk conducted with Mr. Barde of your office on October 5, 1995, and on the information received by fax dated September 29, 1995 and received during the meeting on October 5, 1995. This information includes the letter, dated September 27, 1995, written by Ms. Susan Hugo of the Alameda County Department of Environmental Health (ACDEH) and a Preliminary Environmental Site Assessment dated July 29, 1994 prepared by Converse Environmental West (CEW).

It is our understanding that this proposed subsurface investigation will be conducted to assess whether the subsurface soils and groundwater in the inferred downgradient direction with respect to the former tank have been affected by the apparent release of fuel oil-related hydrocarbons cited by Ms. Hugo. The report for this project will also include recommendations for remedial actions and/or further remedial investigation if necessary.

Kleinfelder is committed to providing quality service to its clients, commensurate with their wants, needs and desired level of risk. If a portion of this proposal does not meet the needs of Owens, or if those needs have changed, Kleinfelder will consider appropriate modifications, subject to the standards of care to which we adhere as professionals. Modifications such as changes in scope, methodology, scheduling, and contract terms may result in changes to the risks assumed by Owens, as well as adjustments to our fees.

BENEFITS OF USING KLEINFELDER

Kleinfelder offers our clients unique advantages in the environmental market. We have been in business for over thirty years, twenty of which have been in the environmental sector. During this tenure, we have established long term relationships with our clients and the regulatory agencies in almost every Bay Area community. This fact provides a sense of stability and comfort for our clients, who know that we will be here tomorrow to service their needs and be accountable for our actions and decisions. The regulatory agencies trust our expertise because Kleinfelder has worked with them time and again. Eighty percent of our work comes from existing clients. This support tells us that our services are greatly appreciated and our fees are acceptable. It also highlights another important fact: new clients are difficult to obtain. With this knowledge in mind, we work very hard to achieve the level of service needed by our clients. Another advantage in using Kleinfelder is the breadth and depth of our experience. With over 750 employees in all areas of the environmental, geotechnical and materials testing fields, we can provide the experienced professionals to answer your questions and find creative solutions to your problems.

Environmental projects present special technical, political, and regulatory challenges. A project may start in one direction but, due to unknown circumstances or conditions, it may change course. Kleinfelder's support structure allows us to use all our available resources without additional costs or burden to our clients. Legal issues are also common to environmental projects; that is why we carry and maintain for the life of each project the insurance coverages described in the sample insurance certificate presented in Appendix A. The cost of this insurance is not charged as an added premium to your project, but is a condition of service we provide to our clients. To date, Klienfelder has not been required to use the insurance because the technical approaches to our projects have been carefully planned and supported by our experience and knowledge.

KLEINFELDER PROJECT TEAM

The success of a project is based upon the individuals assigned to it. Kleinfelder is distinguished by the number and diversity of professionals it has available to address your needs.

The data collection phase of this project will be geared toward site closure; focusing on both regulatory requirements and obtaining sufficient data to successfully implement a strategy for a risk based closure.

Overview of Project Team

Kleinfelder has selected a solution oriented project team to provide effective management of the project and quality technical results. The team will be dedicated to you for the entire duration of the project. This group will provide consistency, continuity and the cost effectiveness required

for your project. Complete team resumes are presented in Appendix B. The following individuals will be key to the implementation of your successful project.

Curtis Payton, R.G., R.E.A. Years of Experience: 7
Project Manager

Mr. Payton has over seven years of experience in environmental engineering, including tank excavations, hydrogeologic and hazardous waste studies, investigations and corrective action projects. He is a Registered Geologist (#5608) and a Registered Environmental Assessor (#1930) in the State of California. Mr. Payton has been engaged in underground tank excavation activities and post-excavation remedial investigations and remedial actions at several sites in Alameda County. He has personal experience with Ms. Susan Hugo and Ms. Jennifer Eberle of ACDEH in obtaining a case closure for a national paper company site located in Oakland. Mr. Payton also has worked with Mr. Scott Barde on a variety of projects since 1989.

Kristen Scheller Years of Experience: 7
UST Services

Ms. Scheller has over seven years of experience in environmental and geological engineering services. She has conducted hydrogeologic surveys, underground storage tank investigations and remedial investigations throughout the Bay Area. She recently participated in a remedial investigation/feasibility study for a leaking underground storage tank in Santa Rosa, California. Ms. Scheller's role for this project will be as Kleinfelder's on-site professional during well installation. She will document all field activities and collect the necessary soil and groundwater samples.

Paul A. Baginski, P.E. Years of Experience: 11
Quality Assurance/Quality Control

Mr. Baginski has over eleven years of experience in environmental engineering and is the Regional Environmental Manager for Kleinfelder. He has conducted numerous remedial investigation/feasibility study programs and has been responsible for engineering designs for a variety of remedial systems for inorganic, organic, and petroleum hydrocarbon contaminated sites. As Kleinfelder's senior officer, Mr. Baginski will provide quality assurance/quality control services for this project. Mr. Baginski has the authority to dedicate corporate resources, as necessary, to complete this project on schedule and within budget.

Joyce S. Tsuji, Ph.D., DABT Years of Experience: 15
Toxicology/Risk Assessment

Dr. Tsuji is the Program Manager for Kleinfelder's risk assessment and toxicology program. She is a board certified toxicologist with experience as a senior scientist and technical director, who is responsible for managing and directing toxicological evaluations and risk assessments of chemical contamination, regulatory compliance, quality assurance and program development.

Dr. Tsuji is a recognized toxicological expert throughout the United States and in Australia. She has been retained as an expert witness for numerous private and government clients throughout the United States. Dr. Tsuji's immediate role for this project will be quality assurance for chemical data collected, with the goal of obtaining information to support a risk-based closure for your site. Dr. Tsuji's future role will be management and, if feasible, implementation of a risk assessment for the site and submittal of a risk-based case closure request.

SCOPE OF WORK

The following scope of work was developed based on the information provided to Mr. Curtis Payton of Kleinfelder by Owens on September 29, 1995 and October 5, 1995. Kleinfelder proposes to provide the labor and material to conduct the following tasks.

Task 1 - Work Plan, Permitting, Coordination, and Health & Safety Plan

Prior to commencement of field work, Kleinfelder will acquire appropriate boring permits from ACDEH. Kleinfelder will provide Owens with copies of all correspondences and permit applications. For your convenience, this proposal has been prepared in a format that can be accepted by ACDEH as a workplan. Once this proposal has been approved by your office, it can be forwarded to ACDEH for review and approval (please detach Table 1, Kleinfelder's proposed cost, before sending this proposal). Our proposal is based on the assumption that ACDEH will not have substantial comments or revisions to which Kleinfelder would need to prepare a response.

The proposed location of the soil boring will be surveyed using applicable geophysical methods to a depth of approximately eight feet below ground surface. The survey will be conducted to locate subsurface utility lines and structures which may be present beneath the surface, and to help minimize the possibility of damaging subsurface structures. In addition, Kleinfelder will notify Underground Service Alert (USA) at least two days in advance of field work, of our intent to perform exploration. USA subscribers will be given the option to meet in the field with our representative prior to commencement of exploration work.

Kleinfelder will prepare a Health and Safety Plan, as specified by OSHA, to address worker health and safety, and contingency plans for emergencies which may arise, and to provide guidelines for personal protective equipment and safety procedures to be used during field operations by Kleinfelder staff. A copy of the Health and Safety Plan will be kept onsite during field activities.

Task 2a - Field Operations - Well Installation

Upon acquisition of the appropriate permits and work plan approvals, Kleinfelder will install one monitoring well at a location within 10 feet of the tank excavation in the inferred downgradient direction with respect to the former tank. The proposed location of the monitoring well is based on information, provided by Ms. Susan Hugo, pertaining to the groundwater gradient data presented to the ACDEH by consultants for Shell and for the former City of Paris facility. The two facilities (Plate 1) are located at 3420 San Pablo Avenue (Shell) and 3516 Adeline Street (City of Paris). The location of the well is based primarily on the groundwater data for the Shell

site from quarters 1 and 2, 1995 since the consultant for Shell has recently revised the method of interpretation of the groundwater elevations at the Shell service station. The data for the City of Paris facility has not been used because of the relatively "tight" spacing of the wells (all within a 20 foot radius). Based on the data presented by the consultant for Shell, the inferred (sic) groundwater flow direction has been toward the southwest at Shell service station during quarters 1 and 2, 1995. The proposed monitoring well location is shown on the map prepared by Semco, which is presented in Appendix C.

This single well will be used as the basis for requesting case closure if the soil and groundwater analytical results indicate no petroleum hydrocarbons in the soil and groundwater samples above the laboratory method detection limit. The request would be based on the argument of limited vertical and lateral migration of contaminants in the soil and groundwater and that the well location has been accepted by the ACDEH as representative of the downgradient direction.

The boring for the well will be advanced to a depth of approximately 15 feet below ground surface (ft bgs) and converted to a groundwater monitoring well. The depth of the boring is based depth-to-water data collected at the City of Paris facility in February 1995, which indicates a depth to water of 7.62 to 10.92 feet. The well will be constructed of 2-inch Schedule 40 polyvinyl chloride (PVC) casing in accordance with Kleinfelder's Field Protocol, which is presented in Appendix D.

Due to the presence of the concrete flooring in the building, a concrete cutting contractor will be required to cut a hole of sufficient size in order to install the proposed boring. The core diameter is anticipated to be 12 inches.

The boring for the proposed monitoring well will be drilled using a truck-mounted drill rig equipped with 8-inch outside diameter hollow stem augers. The boreholes will be logged and sampled by a representative of Kleinfelder at 5-foot depth intervals from the ground surface to the bottom of the borehole. Exploration and sample collection will be conducted in accordance with Kleinfelder's Field Protocol (Appendix D). Drill cuttings and waste generated during drilling will be placed in Department of Transportation (DOT)-approved 55-gallon drums for later disposal under appropriate documentation, signed (if necessary) by Owens, listing Owens' U.S. EPA ID number (if necessary).

During drilling and sampling, ambient air monitoring and soil sample screening will be conducted for volatile hydrocarbons using a photoionization detector (PID). These readings will be recorded on the boring logs.

Task 2b - Field Operations - Well Development and Sampling

At least 24 hours after completion of the well, Kleinfelder will develop the monitoring well using surging and bailing techniques as described in Kleinfelder's Field Protocol (Appendix D).

At least 24 hours after development of the well, Kleinfelder will collect a groundwater sample from the monitoring well.

In addition, Kleinfelder will collect three additional groundwater samples from this well on a quarterly basis for a total of four samples over the course of one year.

Task 3 - Chemical Analyses

Soil samples will be collected at approximately 5-foot depth intervals during advancement of the borehole (an estimated total of two samples). The groundwater sample will be collected in accordance with Kleinfelder's Field Protocol (Appendix D). The soil and groundwater samples will be submitted to a laboratory certified by the State of California for the requested analyses. A total of two soil samples and one groundwater sample will be submitted for chemical analyses based on the observations made in the field. In addition, three subsequent groundwater samples will be submitted for analysis on a quarterly basis.

Analyses will be performed on the soil and groundwater samples as follows:

- Total petroleum hydrocarbons quantified as diesel and motor oil (TPH-d/mo; EPA method 8015/5030 - modified); and
- Benzene, toluene, ethylbenzene and total xylenes (BTEX; EPA method 8020).

These analyses are based on the Tri-Regional Board Staff Recommendation for Preliminary Evaluation and Investigation of Underground Tank Sites, Table 2 - Recommended Minimum Verification Analyses for Fuel/Heating Oil Tanks.

Note: Kleinfelder has negotiated with the laboratory a normal turnaround time of six working days with no surcharge. Therefore, the indicated cost is based on a six working day turnaround time.

Task 4 - Report Preparation

A letter report will be prepared summarizing our investigation, field sampling activities and laboratory data and results. The report will present the boring log and construction schematic for the monitoring well. The report also will contain site mitigation or remedial investigation recommendations where appropriate. Copies of laboratory reports and chain-of-custody records will be included in the report. Two copies of the draft report will be submitted to Owens for review and comment within one week of the receipt of laboratory results. Upon receipt of Owens' comments, the draft report will be finalized, and two copies of the final report will be submitted to Owens one week after receipt of Owens' comments. In addition, three subsequent letter reports will be prepared which summarize the results of quarterly groundwater monitoring.

TIME AND FEE SCHEDULE

The scope of services indicated in this proposal and the terms and conditions on the attached Engineering Services Agreement are the basis for developing the fees proposed herein. The estimated costs presented on Table 1 are on a not-to-exceed basis, provided that 1) all of the assumtions in this proposal are valid; and 2) unit quantities in Table 1 are not exceeded. Kleinfelder proposes to provide the necessary labor and materials in accordance with the cost estimate shown for each task. If there is a need for any change in the scope of services or schedule described in this proposal, please call us immediately. Changes may require revision of the proposed fee, in accordance with our current Fee Schedule (attached) after a 10 percent labor discount. In addition, the outside services markup will be reduced from 20 percent to 10 percent.

Acceptance of this proposal will indicate that Owens has reviewed the scope of work and determined that it does not need or want more services than are being proposed at this time. Any exceptions should be noted and may result in a change in fees.

We anticipate proceeding with the preparation of the field work upon receipt of your authorization to begin. Our anticipated schedule is as follows:

TASK OR DELIVERABLE	ANTICIPATED CUMULATIVE CHRONOLOGY
Permitting and communication with ACDEH	3 working days
Drill Rig Scheduling	3 working days - concurrent with above schedule
Drilling completion	1 working day
Well Development	1 working day
Well Sampling	1 working day
Laboratory analyses presented draft	6 working days
Laboratory report received	2 working days
Report Preparation	3 working days
Internal Review	1 working day
Report Delivery	1 working day
TOTAL SCHEDULE (for Quarter 4, 1995)	**19 working days**

AUTHORIZATION

If the contents of this proposal are acceptable to you, please indicate your acceptance and approval by signing and returning both copies of the attached Engineering Services Agreement to Kleinfelder. Upon receipt of your authorization, Kleinfelder will execute both copies of the agreement and return one to you.

LIMITATIONS

This proposal will remain in effect for 30 days from the date written. After 30 days of the date written, Kleinfelder reserves the right to revise the scope of work, cost estimate, and estimated schedule, or to declare the proposal to be null and void, unless authorization to proceed has been given by Owens.

Disclosures, Remedial or Mitigative Action

Except as provided in this proposal, the responsibility for making any disclosures or reports to any third party and for taking a corrective, remedial or mitigative action shall be solely that of Owens.

Scope of Work

The proposed scope of work herein is not intended to be all inclusive, to identify all potential concern, or to eliminate the possibility of having some degree of environmental problems. It should be noted that within the scope of current technology no level of assessment can ascertain that the property is completely free of chemicals or toxic substances. Therefore, Kleinfelder cannot offer the certification of a "clean" property.

It is possible that variations in soil or groundwater conditions, or unpermitted, undocumented or concealed improvements to the property could exist beyond points explored during the course of the project. Also, changes in the conditions found on the property could occur at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors.

During the course of the performance of Kleinfelder's services, hazardous materials may be discovered. Kleinfelder will assume no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

Nothing contained in this proposal should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. Owens will be solely responsible for notifying all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. Owens will be responsible for all arrangements to lawfully store, treat, recycle, dispose of, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

This proposal may be used only by Owens and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time.

The proposed services will be conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in northern California. No other representations, expressed or implied, and no warranty or guarantee are included in this proposal.

CONDITIONS

All terms and conditions indicated in this proposal will be considered by both parties to be in effect from the date approval is given for work to begin through completion of the project. If there is a need for any change in the scope of services, schedule or project conditions described herein, please call us, we will communicate to you the cost of such changes.

Standard Project Conditions

- One 8-inch diameter borehole will be drilled through the pavement. Efforts will be made to minimize damage to the pavement, but some damage and settlement may occur. Repairs of the sample location beyond surfacing the well location with concrete flush with the existing surface are not within the scope of our proposal. Repair services at the borehole location, if required, will be provided for additional cost on a time and materials basis.

- Work is to be performed under non-hazardous field conditions (Level D, requiring protective eyewear, footwear and headgear), during normal business hours;

- All analytical services will be performed by a California State-certified laboratory on a normal turnaround basis (approximately six working days);

- Cost estimate does not include attendance at any meetings with Owens and or regulatory agencies;

- Cost estimate does not included specific tasks beyond those proposed, which may be required by the local Fire Department, Department of Building and Safety, or other governmental agencies;

- Cost estimate does not include delays in the field, other than delays caused by Kleinfelder, including "right-of-entry" for Kleinfelder, and its subcontractors in order to complete the work proposed herein;

- Cost estimate does not include unanticipated conditions that may be present that would require additional study, assessment or remediation;

- Cost estimate is based on drilling depth of 15 feet below ground surface, additional depth will result in added costs;

- Waste generated during drilling will be placed in a DOT approved hazardous waste container until a proper disposal method can be established following receipt of the laboratory analytical results. The cost estimate does not include disposal of drill cuttings or any other waste (hazardous or otherwise) generated as a result of the field activities;

- Costs do not include weekend rates;

- Drilling estimates are based on average drilling conditions for a truck-mounted drilling rig. Should drilling conditions dictate a change in drilling method, Owens will be notified, and the cost for drilling will be modified; and

Owens should be aware that penetrating the site's surface is inherently risky. It is impossible to determine with certainty the precise location of all structures which may be buried in the ground. Kleinfelder's fee is not adequate to compensate for both the performance of the services and the assumption of risk of damage to such structures. Disruption of utilities or damage to underground structures will be the responsibility of Owens. Services rendered by Kleinfelder to repair them will be billed at cost.

If any of the above issues arise and result in either an expansion of work scope, a schedule delay, or a fee increase, Kleinfelder will notify Owens to determine the steps to be taken. As part of our standard operating procedures, Kleinfelder will regularly keep Owens abreast of the project progress.

We appreciate the opportunity to submit this proposal and look forward to continuing our working relationship with you on this project. If you have any questions or require additional information pertaining to this proposal, please feel free to contact us.

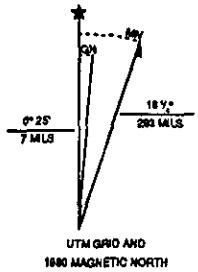
Sincerely,

KLEINFELDER, INC.

Curtis Payton, R.G., R.E.A.
Project Geologist

Paul Baginski, P.E.
Regional Environmental Manager

PLATE



0 1/2 1 Mile

0 1000 2000 3000 4000 5000 Feet

BASE MAP SOURCE:
U.S. Geological Survey, Oakland-West Quadrangle, 7.5-Minute Series (Topographic), California Series, 1959, Photo-revised 1980.

KLEINFELDER

PROJECT NUMBER 10-YP5-486

SITE LOCATION MAP

OWENS FINANCIAL GROUP
3623 ADELINE STREET
OKALAND, CALIFORNIA

PLATE 1

APPENDIX A
Sample Certificate of Insurance

ACORD CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY): 10/19/95

PRODUCER

DEALEY, RENTON & ASSOCIATES
65 Jack London Square
P.O. Box 12675
Oakland, CA 94604-2675
510-465-3090

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

KLEINFELDER, INC. 02
2121 N. California Boulevard
Suite 570
Walnut Creek, CA 94596
1001

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	Zurich Insurance Company
COMPANY LETTER B	Insurance Co. of The West
COMPANY LETTER C	Ins. Co. of Pennsylvania
COMPANY LETTER D	Fremont Compensation Ins. Co.
COMPANY LETTER E	

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS MADE [X] OCCUR. [ ] OWNER'S & CONTRACTOR'S PROT. [X] $100,000 SIR	EOC8078083	1/06/94	2/01/97	GENERAL AGGREGATE PRODUCTS-COMP/OP AGG. PERSONAL & ADV. INJURY EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXPENSE (Any one person)	$ 1000000 $ 1000000 $ 1000000 $ 1000000 $ 250000 $
B	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS [X] HIRED AUTOS [X] NON-OWNED AUTOS [ ] GARAGE LIABILITY	CWC055652800	2/01/95	2/01/96	COMBINED SINGLE LIMIT BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE	$ 1000000 $ $ $
C	EXCESS LIABILITY [X] UMBRELLA FORM [ ] OTHER THAN UMBRELLA FORM	4795-8332	2/01/95	2/01/96	EACH OCCURRENCE AGGREGATE	$ 4000000 $ 4000000
D	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY	WN95568872-03	9/01/95	9/01/96	[X] STATUTORY LIMITS EACH ACCIDENT DISEASE-POLICY LIMIT DISEASE-EACH EMPLOYEE	 $ 1000000 $ 1000000 $ 1000000
A	OTHER Professional Liab. Claims Made	EOC8078083	1/06/94	2/01/97	$500,000 each claim $1,000,000 aggreg. $100,000 SIR	

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

******SAMPLE CERTIFICATE******

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

DEALEY, RENTON & ASSOCIATES 1288080000

BY

APPENDIX B
Resumes of Project Team

CURTIS PAYTON, R.G.
Project Manager

Summary of Experience

Mr. Payton has over seven years of experience with environmental studies. He develops, implements, and manages hydrogeologic and hazardous waste related evaluations and is responsible for implementing environmental investigations and corrective action. As a project geologist, he formulates and supervises site testing strategies to characterize geologic and hydrologic conditions which influence contaminant transport and distribution. He is responsible for development of technical scoping documents, management of project schedules, supervision of field operations personnel, and preparation of technical reports. He also serves as regulatory liaison, maintaining client contact throughout environmental assessment projects and during review of site cleanup evaluations.

Education

BS Earth Sciences, University of California at Santa Cruz, California, 1986

Registration

Registered Geologist, 5608, California 1992
Registered Environmental Assessor, 1930, California, 1990

Project Experience

Associate Member - Association of Engineering Geologists
Associate Member - American Geophysical Union

Select Project Experience

A representative selection of Mr. Payton's project experience is included below.

UNDERGROUND STORAGE TANKS

Site Closures, North Coast and San Francisco Bay Water Quality Control Board Regions, California. (i) Prepared site closure requests for underground fuel leak cases for a major banking institution, for a freight company, and for a major paper manufacturing and distribution company. All three requests have resulted in approval by the Regional Water Quality Control Board for case closure. (ii) Managed implementation of an in place closure plan in the City of San Francisco for two underground diesel tanks in a sub-basement of a downtown San Francisco Bank. Plan included evacuation of the tanks and confined-space entry to clean and inspect the tanks in place.

Management of California State Funded Sites. Managed remedial investigation work and monitoring for three clients eligible for compensation through the State Underground Storage Tank Cleanup Fund. Management included completion of the Cleanup Fund Application for one client and convincing the State and LOP that another client was in compliance with requirements.

REMEDIAL INVESTIGATIONS

Phase II Investigation, San Francisco, California. Performed field investigation involving drilling in City of San Francisco rights-of-way. Work included coordination and acquisition of permits from four separate City of San Francisco agencies. Field work included borehole logging, photography, sample collection, and communication with the City of San Francisco. Data collected in the field was used for environmental and geotechnical report preparation. Prepared environmental report for two separate sites, including interpretation of chemical analyses for hydrocarbons, lead, volatile organics, and formaldehyde.

Forensic Investigation, Pittsburg, California. Performed field investigation involving trench excavation crossing an oil pipeline to assess the source of contaminants in a road cut at a multiple pipe crossing. Field work included trench logging, photography, videography, sample collection, and health and safety management. Internal work included management of data generated by the laboratory describing the likely ages and sources of contamination, report preparation, and verbal presentation before municipality client and legal council.

Soil and Groundwater Remedial Investigation, San Francisco, California. Installed 3 monitoring wells and simultaneously supervised installation of three others in San Francisco right-of-way with overhead electric bus lines. Well installation was completed within two days using three drilling rigs to meet client requirement to limit field work to two days.

Soil and Groundwater Remedial Investigation, Salinas, California. Installed five 70-foot monitoring wells (4-inch) and one recovery well (6-inch) in five days utilizing two drilling rigs simultaneously to meet client needs for investigation deadline. Collected data on local private and municipal water well use of the area. Performed 24-hour pump test at 30 gallons per minute and coordinated disposal of purged water including manifesting. Prepared municipal sewer discharge permit and well installation report.

Geotechnical and Environmental Management of a Hospital, Redding, California. Completed a geotechnical investigation for a national medical services corporation planning to install a Phase 3 addition to an existing hospital. Prepared a work plan for groundwater monitoring and remedial investigation at the same site for assessment of fuel hydrocarbons in the soil and groundwater as a result of an unauthorized diesel

tank release. Implemented work plan and subsequent monitoring. Remedial investigation plan and eventual remediation strategy are pending.

SITE ASSESSMENTS

Environmental Site Assessment, Oakland, California. Identified an area of a potential release of industrial grease from building plans during a Phase I Environmental Site Assessment. Additional investigation resulted in remediation of approximately 500 cubic yards of soil contaminated with grease and low levels of PCBs. Managed confirmation sampling and reporting for remediation effort. Prepared proposal for additional remedial investigation to characterize extent of contamination of groundwater.

Environmental Site Assessment, Napa, California. Identified an area of previously unknown underground storage tanks and a grease rack at a retail mall from historical maps. Conducted field investigation for same site to gather data on soil and groundwater quality.

Multiple Environmental Site Assessments. Completed 15 environmental site assessments within a 30-day period for a major banking institution to meet client needs for investigation deadline.

Aerial Photo Interpretation, Lake Tahoe, California. Used aerial photo interpretation during a Phase I Environmental Site Assessment to identify and precisely locate bulk fuel storage and train engine repair facilities during a Phase II environmental site assessment.

HYDROGEOLOGY AND REMEDIATION

Regional Groundwater Flow Research, Richmond California. Prepared a "Groundwater Vector Map" for the City of Richmond showing directions of groundwater flow and gradient indicated by directional arrows and relative length, respectively. Work involved review and distillation of data from over 100 underground storage tank sites.

Bioremediation of Diesel Contaminated Soil, Vacaville, California. Prepared work plan for bioremediation of 2,000 cubic yards of diesel contaminated soil. Managed bioremediation effort through soil placement, application of bacteria and confirmation sampling. Preparation of case closure documentation for review and eventual approval by Central Valley Regional Water Quality Control Board and Solano County LUFT enforcement program.

Remediation System, Fremont, California. Managed design and construction of combined groundwater and vapor extraction system for a retail gasoline station.

Managed operation and maintenance of system during start-up and long term operation. Acted as liaison between client and representative of Alameda County Water District and the City of Fremont Fire Department and Building Department.

Demolition of Carnation Farm, Sunnyvale, California. Performed geotechnical investigation for demolition of a 30-acre carnation farm and construction of three large (six-story) office structures. Performed environmental site assessment for the site that included 20 green houses with asbestos-insulated radiator piping, and pesticide-contaminated water drip lines. Provided oversight and supplemental material sampling during the removal of asbestos- and pesticide-containing materials before demolition. Coordinated activities with subcontractors and regulatory agencies for disposal of pesticide-contaminated water drip lines. Provided monthly status reports on compaction of fill during construction of office structures.

KRISTEN H. SCHELLER
Staff Geologist

Summary of Experience

Ms. Scheller is a geologist with more than seven years of experience in environmental and geotechnical applications. Her environmental project experience includes hydrogeologic surveys, underground storage tank investigations, and historical research. Ms. Scheller's experience has included project management, preparation of workplans, technical report writing, permit acquisition, sample collection, drilling supervision and data management. Her geotechnical experience includes field observation of earthwork to ensure compliance with specifications and drilling supervision. She has conducted environmental remedial investigations at service stations, industrial sites, and commercial buildings. She is responsible for activities related to site investigations which include project scheduling and management, budget preparation, field operations, drafting, and technical report writing. Under direction of senior staff she supervises and coordinates field drilling and sampling activities.

Education

BS Geology, Sonoma State University, Rohnert Park, California 1988

Certification

40 Hour OSHA Health and Safety Training
Use of Nuclear Density Gauge

Professional Affiliations

Association for Women Geoscientists

Select Project Experience

A representative selection of Ms. Scheller's project experience is included below.

Groundwater Sampling, Various Locations, Northern California. Performed groundwater quality sampling activities on a quarterly basis at several leaking underground storage tank sites in Napa, Sonoma, Marin, Alameda, and Solano Counties in California.

RI/FS, Underground Storage Tank, Santa Rosa, California. Staff geologist responsible for completing supplemental remedial investigation of a leaking underground storage tank in Santa Rosa, California. Work included subsurface assessment of hydrogeologic conditions and groundwater quality as directed by Sonoma County Public Health Department personnel.

Remedial Investigation, Industrial Site, Santa Rosa, California. Staff geologist responsible for remedial investigation at a historical industrial site in Santa Rosa, California. Coordinated and supervised field staff during soil and groundwater surveys and exploratory trenching to evaluate the extent and type of chemical contamination.

KRISTEN H. SCHELLER
Staff Geologist

RI/FS, Underground Storage Tank, Rohnert Park, California. Assistant staff geologist responsible for field tasks associated with a remedial investigation at an underground storage tank site in Rohnert Park, California. Drilled four groundwater monitoring wells and sampled soil and groundwater to establish the horizontal and vertical extent of hydrocarbons beneath the site.

Underground Storage Tank Management Data Base Program, Monterey, California. Staff geologist for an underground storage tank database compilation at a military facility in Monterey, California. Researched historical files and as-built plans to identify and survey underground storage tanks for a database.

Site Assessment and Work Plan, Industrial Sites, Santa Rosa, California. Conducted site reconnaissance and developed workplan for several industrial sites in Santa Rosa with leaking underground storage tanks. Workplans were accepted by Sonoma County Public Health Department of the North Coast Regional Water Quality Control Board.

Site Remediation, Napa, California. Staff geologist overseeing excavation and division of 5,000 yd^3 of clean and contaminated soil in Napa per the requirements of the Napa County Public Heath Department.

PAUL A. BAGINSKI, P.E.
Senior Environmental Engineer

Summary of Experience

Eleven years of diversified engineering and management experience. Six years environmental hazardous and petroleum wastes facilities design including RCRA/CERCLA compliance and permitting. Five years highway, municipal, civil and land use design and planning. Remedial investigation (RI) and feasibility study (CMS/FS) planning, management, and reporting for RCRA and CERCLA facilities. Design and oversight of construction of hazardous waste collection and treatment facilities, AST and UST removals and installation, structural elements, groundwater pump and treat systems, and civil for DOD, DOE, EPA, refining and industrial clients. Project manager for hazardous and petroleum waste sites, and civil design projects. Environmental Bay Area Manager for geological and engineering studies.

Education

BA Environmental Studies, Rollins College, 1984.
BS Civil Engineering, University of Colorado at Denver, 1992

Certifications

OSHA and Hazardous Waste Health and Safety Training
Wetlands Delineation and Regulation Course, Rutgers State College, New Jersey
Site Health and Safety Coordinator, Level B Supervisor
ENSYS Immunoassay Field Testing Kit Certification
Liquid Storage Tank Technology Course, University of Wisconsin, Madison

Registrations

Professional Engineer, Colorado 28305
Professional Engineer, Utah 276326
Professional Engineer, Arizona 2920
Professional Engineer, Wyoming 6754
Professional Engineer, Nebraska E-8005

Select Project Experience

A representative selection of Mr. Baginski's project experience is included below.

Hazardous Waste

RCRA/CERCLA, RI/FS and Design

- **Design and Construction Oversight, Rocky Mountain Arsenal, Commerce City, CO, Project Engineer.** Designed and managed the Construction of South Plants Decontamination Area for Substantial Compliance with RCRA Requirements. Design included wastewater collection system, solids separation clarifier, fine particle filtration, wastewater storage system, and all ancillary access and utility services to the area. All facilities are in double containment with leak detection. This project involved 8 employees and 2 subcontractors. The task was completed for $425,000.

- **Superfund Investigation, Midvale Slag Site, UDEQ, Project Engineer/Project Manager.** Project engineer for investigation into remedial alternatives for metals contaminated site. Evaluated remedial alternatives and prepared report using risk-based approach. Coordinated remedial alternatives with future land uses that included new DOT highway traversing property, proposed industrial park, and existing residential trailer park. Prepared review comments on DOT Highway design project to assist in hazardous waste efforts during the construction phase.

- **Design of Waste Stabilization Process, Rocky Mountain Arsenal, Commerce City, CO, Project Engineer.** Designed and performed waste stabilization treatability study for immobilizing free liquids in drummed waste soils. From treatability results, designed and constructed drum handling and stabilization process to examine, test, and solidify free liquids in hazardous waste. The facility included drum handling tracks and lifts, a hood ventilated area for inspection, testing facilities, heated drum staging area, drum dumping and mixing equipment, a repackaging area, and waste water handling facility. This task was completed for $15,000 and involved 8 personnel.

- **Design of Waste Handling Area, Rocky Mountain Arsenal, Commerce City, CO, Project Engineer.** Designed and managed the construction of the hazardous waste handling area. Prepared operations manual and standard operation procedures (SOPs) for inspecting, preparing for storage, and inventorying drums, including waste characterization and agent screening protocols. Twelve warehouses with wet storage areas, computerized inventory, and drum processing area were constructed and maintained in compliance with RCRA standards. This task was completed for $1.5 million and involved 45 personnel and 8 subcontractors.

- **Design of Sanitary Sewer Closure, Rocky Mountain Arsenal, Commerce City, CO, Project Engineer.** Designed the construction of sanitary sewer closure plan for the South Plants Area. Project included the screening of manholes for agent and chemical contamination, mapping the sewer system, and designing for closure of the sewer. The sewer was closed to prevent contaminated groundwater from being transported along the sewer to outlying areas. Designed force main sewer and pumping station to divert sanitary flows to an alternate sewer line. These two tasks were completed for a combined $1.3 million and involved 15 personnel and four subcontractors that included a sheet pile driver, concrete supplier, general contractor for the force main, and a surveyor.

- **Design of Leachate Collection System, Rocky Mountain Arsenal, Commerce City, CO, Project Engineer.** Designed and oversaw the construction of hazardous waste pile leachate collection system and support facilities. Design included double contained piping with thermal expansion devices, leak detection, and cold weather provisions from handling high salt and pesticide fluid. Personnel access and non-potable water systems were designed and installed to facilitate management of the waste facility. This project involved 22 personnel and was completed for $450,000. Prepared and presented technical paper on design and installation at a ADPA conference in Washington D.C.

- **RCRA Facility Investigation/Corrective Measures Study, LSC Project, Colorado, Hewlett-Packard, Project Engineer/Project Manager.** The project encompasses evaluating existing groundwater remediation systems, conducting an RFI/CMS, designing additional groundwater remediation systems, and implementing the most appropriate

remediation alternatives. Groundwater quality and soils have been impacted by releases from buried solvent tanks that were used during the 1970s and contained residues of lacquers, strippers, paints, chlorinated solvents, and other unspecified organic liquids. Determined extent of DNAPL contaminant plume and are currently designing two groundwater pump and treat systems. Conducted alternative treatment technology evaluations to determine most cost effective and feasible methods. Conducted pilot test on existing system to fine tune the remedial effort. Tasks budgeted for $500,000 of engineering design and will involve 16 personnel.

- **Design for Tank Demolition, Rocky Mountain Arsenal, Commerce City, CO, Project Engineer/Task Manager.** Designed plans and specifications for demolition of 48 hazardous aboveground storage tanks. The project involves the characterization of 48 tanks that were used for military agent and pesticide production. Following the inspection, decontamination, and waste disposal, the tanks will be demolished and salvaged. This task will involve 30 personnel and a demolition subcontractor. Estimated cost is $500,000.

- **Preparation of Operation & Maintenance Manuals, Colorado, U.S. Department of Army, Rocky Mountain Arsenal, Project Engineer.** Assisted in the preparation of three operation and maintenance manuals for the North and Northwest Boundaries Collection and Treatment System and the Rocky Mountain Arsenal Sewage Treatment Plant. Operation and Maintenance manuals prepared in accordance with EPA guidance documents. Project cost $40,000 and involved 6 personnel.

- **Project Engineer for Locomotive Washing Station, Concord Naval Weapons Station, Project Manager.** This project involved the investigation and design of a waste water collection system for a train car maintenance facility. Infiltration controls were designed and constructed. A degreasing pad and wash screens were designed to collect greasy wash water and to minimize the amount of waste water emanating from the pad. A sand and oil separator were designed as a pre-treatment system to eliminate the heavy metals and large grease load to the treatment plant. A wash water recycling system was designed and installed to clean and recirculate the wash water. This task included 5 personnel. The project constructed cost was $350,000.

Feasibility Study, Union Pacific/Baxter Tie Treating Superfund Site, Project Engineer. Mr. Baginski prepared the Feasibility Study task for the Union Pacific/Baxter Tie Treating Superfund site where the site soils and groundwater were severely impacted with creosote and pentachlorophenol. The team focused on groundwater contamination technologies and the feasibility of implementing the enhanced oil recovery techniques of steam, hot water, and surfactant flooding of the alluvium to recover creosote and pentachlorophenol from the base of the unconsolidated alluvial aquifer. Soil remedial techniques included low temperature thermal desorption, landfill disposal, asphalt batching, and in-situ volatilization.

- **Senior Project Engineer for Union Pacific Fueling Facility, Green River, WY.** This project involved collecting and treating stormwater runoff and diesel spills from locomotive refueling station. The design included pumping station, storage vessels, oil/water separators, and waste and burners. Additional scope of work included design of restroom and office facilities. Design was fast tracked to allow UP to meet construction and regulation schedules. Mr. Baginski provided technical guidance and design review.

UST and AST Assessments and Remediation

Mr. Baginski has functioned as site manager/project manager for UST and AST assessments, closure, and remediation programs. The assessments have involved emergency response action, design of groundwater quality monitoring systems, design of non-aqueous phase liquid (NAPL) sampling procedures, and determination of groundwater and NAPL migration flow patterns. The remediation practices have included soil removal and disposal, NAPL recovery systems, groundwater treatment systems, soil gas venting of the vadose zone, and interception/recovery systems consisting of trench drains, slurry wall trenches, and recovery well arrays. The project management experience has included contract negotiations, proposal preparation, design and implementation of the scope of work, personnel management, report preparation, and client and regulatory agency correspondence.

- **Design of Groundwater Remediation system, Tri-mart Site, UDEQ- DERR, St. George, Utah, Project Engineer**. Mr. Baginski was lead design engineer for UDEQ groundwater remediation system design. The design included well array collection system, air stripper, oil/water separator, pneumatic controls and pumps, storage building, permit preparation, and field investigation. Design plans and specifications were prepared to allow UDEQ-DERR to contract construction of remedial system. Mr. Baginski managed 8 staff to complete various phases.

- **Environmental Investigation and Remediation, Regional Transportation District, Denver, Colorado, Project Engineer**. Implemented site characterization investigation to determine the extent of a contaminant plume; initiated immediate free product recovery from large-diameter wells utilizing dual phase pumping; prepared corrective action plan; designed and installed an 8 recovery well array system for free product removal to prevent of off-site migration; and proposed adapting the free product recovery system for groundwater remediation, and active and passive soil remediation options.

- **Remedial Design, Jefferson County, Project Engineer/Manager**. Designed and inspected the installation of 700-foot-long interceptor trench and treatment system for remediation of former UST tank farm site. Provided design plans and specifications, cost estimates, reviewed submittals, prepared Operations and Maintenance Manual, and provided training on operations. Treatment system included low-profile air stripper, oil/water separator, combustible gas detection, and granular activated carbon. Treatment system contained in underground concrete vault. Specific engineering controls were used in the design to meet confined space entry requirements and eliminate the potential of an explosive atmosphere. Cost of project was $300,000 and involved 16 staff.

- **Design of Bio-Sparging System, City and County of Denver, Stapleton International Airport, Denver, CO, Project Engineer.** Performed screening and evaluation of treatment alternatives for soil and groundwater remediation at a site that falls under the 1994 Voluntary Cleanup Act. The chosen processes include a bio-sparging system for remediation of VOC-contaminated soil and groundwater; drum excavation; PCB-contaminated soil excavation; and capping of lead-contaminated soil. Developing specifications and plans for system installation. Developing evaluation parameters and procedures for monitoring progress and effectiveness of the sparging operation. Preparing system operations and maintenance protocols.

- **D Concourse Jet Fuel Plume, City and County of Denver, Stapleton International Airport, Denver, CO, Project Engineer**. This site consists of a extensive plume of jet

fuel floating as a free-phase on the water table. Several contractors had previously installed interceptor systems in an attempt to remediate the plume. The following services were performed related to the D Concourse Plume: Designed and installed a groundwater depression/free-product recovery system for a well which was added to an existing well array. Investigated an existing product recovery trench to determine cause of system failure. Will soon begin the design of an overall remediation approach for the site.

- **Design and Installation of Product Recovery Well, Stapleton International Airport, Denver, Colorado, Project Engineer.** Designed and installed a groundwater depression, free-product recovery system for a 2-foot diameter well and 100 foot long interceptor trench which was added to an existing well array. The system included a groundwater pump and associated pipe, fittings, and hose which tied in to an existing manifold, a product skimmer and suction pump, a product storage tank with secondary containment, and a pump control system to automate the groundwater pump operation and maintain a predetermined cone of depression. Procured an electrical subcontractor and supervised work to coordinate with the rest of the project.

- **Environmental Engineering, Confidential Client, Project Engineer/Project Manager.** Developed Spill Prevention, Control, and Countermeasures (SPCC) Plans for three large facilities that included 40 USTs and ASTs. Project included preparation of plans, site inspections, and development of recommendations to bring facilities into compliance. Follow-on work included site-specific civil/mechanical and remedial designs. Also removed USTs, characterized site, and prepared alternative analysis for 4,000 cubic yards of petroleum-contaminated soils. TCLP analysis prepared waste soils for disposal. Cost of project was $200,000 and involved 30 personnel.

- **Project Management, ITRI, Project Engineer.** Designed plans and specification for a 50,000-gallon diesel fuel storage facility. Delegated task assignment, schedule project, tracked budget and coordinated final deliverables. Design included reinforced concrete, piping and instrumentation, structural steel, asphalt/concrete roadway and grading plan. Design required integration of existing facilities for multi-energy source supply. Managed staff of 5 engineers.

- **Project Engineer, Groundwater Recovery System, Confidential Client.** Investigated and designed the system to extract and remediate benzene at a pipeline spill site. Five recovery wells, water separation device, product storage and pumping system, and site access work were included in the design. The entire project was air driven due to the highly flammable nature of the materials. Construction plans, specifications, and cost estimating services were provided. Mr. Baginski installed the system he designed. This project involved 8 personnel and was completed for $26,000.

- **Storage Tank Closures and Environmental Assessments, Williamsport, PA, Frito-Lay, Project Engineer.** Oversaw the removal of underground and aboveground storage tank removal, site characterization investigation, investigation for soil and groundwater cleanup, and remediation activities. Prepared all reports, notifications, and correspondence with the state regulatory agencies. Coordinated bid meetings through different sites around the United States for facilities upgrades.

- **Project Engineer, Soil Vapor Extraction System, Confidential Client.** The project involved designing and installing 3 soil vapor extraction wells and a portable blower unit for a former UST site. BTEX compounds had contaminated the top 15 feet of soil. Ground pack wells were designed and installed to extract vapors from the soil.

- **Project Engineer, SPCC Plans, Eagle County, CO.** Mr. Baginski inspected and prepared an SPCC plan for the Eagle County Road and Bridge facility. The site contained a vehicle fueling facility and waste oil tanks. Recommendations for facility upgrades to meet SPCC requirements were made.

Civil and Municipal Design/Construction Oversight

Mr. Baginski has prepared numerous design plans and specification for construction projects. His designs focused on cost/benefit analysis, constructibility, and meeting the clients specific requirements. Mr. Baginski has prepared plans for ACOE, EPA, DOD (Air Force, Navy and Army). DOT, County Governments, Local Governments, and Industry. He has designed structures in reinforced concrete, wood, plastics, and steel to meet local building codes and accepted engineering standards. Mr. Baginski has performed hydraulic, structural, earthwork, cost estimating, pavement design, surveying, and geotechnical calculations in support of his designs. In addition, he has performed quality assurance and construction inspections of his and others designs.

- **Landfill Design, Chaffee County, Colorado, Project Engineer**. Lead engineer to coordinate design of Subtitle D landfill and closure of existing landfill according to Colorado's new solid waste regulations. Prepared design specification and permits for landfill. Liaison between Colorado Department of Health and Chaffee County to facilitate permit application. Developed groundwater monitoring program and design specifications for installation of groundwater monitor wells. Prepared landfill engineering report containing geologic, hydrogeologic, geotechnical, seismic, and site-specific criteria. Closure and post closure reports were prepared for existing and new landfills. Designed sand trap and grease waste treatment and recycling facilities.

- **Landfill Design, Grand County, Utah, Project Manager/Engineer**. Mr. Baginski was the project manager and engineer for the design of a new Solid Title "D" Landfill, closure of 3 existing landfills, design of 3 transfer station and preparation of permit application. He also assisted the County determination of private versus public ownership of the transfer station and facility siting requirements.

- **Landfill Design, Davis County, Utah, Project Engineer.** Mr. Baginski served as project engineer to design the stormwater run-off leachate collection systems. He used the HELP model to provide water balance calculation for the action and closed periods of the landfills. Mr. Baginski also assisted in the preparation of permit application. The work included closure of an existing landfill, design of new landfill, and 5 acre composting facility.

- **Landfill Design, Lake County, Colorado, Project Engineer.** Served as Project Engineer to design Subtitle "D" landfill and closure of existing landfill according to Colorado's new solid waste regulations. Prepared engineering reports containing siting criteria, geologic, hydrogeologic, geotechnical, seismic, and site-specific design criteria. Prepared closure and post closure reports for existing and new landfills. Developed groundwater monitoring program and design specifications for installation of groundwater monitor wells.

- **Landfill Design, Waco, TX, Technical Engineer**. Served as technical advisor for landfill design, closure, and master plan preparation. Performed HELP leachate modeling,

base contour design, leachate collection and removal design, and penetration and anchor details. Worked with contractor to develop specification and implementation documents.

- **Independent Engineering Analysis, Idaho, Confidential Client, Project Engineer**. Review design plans and contract documents for new solid waste landfill (subtitle "D"). Review included drainage, grading, liner design, structural, pavement design, foundation design, permits, cost estimates, detention basin design, and earthwork calculations for compliance with the State of Idaho and Subtitle "D" solid waste regulations. The review was made to determine constructibility and economic feasiblity of the design to permit bonding.

- **Municipal Design and Master Plan Development, Various Locations, Multiple Clients, Project Engineer**. Multidiciplinary tasks included managing environmental and engineering surveys, designing municipal civil engineering projects, and developing project master plans and cost estimates. Projects included the design of highways, sanitary and storm systems, athletic fields, stormwater detention facilities, commercial and industrial site plan, and residential subdivisions. Also involved preparation and compliance with various Department of Environmental Protection (DEP) and EPA permits.

- **Highway Design, Various Clients, Design Engineer**. Designed and constructed new roadways and retrofitted existing roads to meet DOT standards. Designs included earthwork calculations, stormwater design, lighting plans, pavement design, and horizontal and vertical geometrics. Construction plans and specifications were generated to meet DOT requirements.

- **Stormwater Design, Various Clients, Design Engineer.** Designed and constructed stormwater detention facilities for various land uses. Designed structural flood control devices based on anticipated rainfall events, soils, and other parameters. Presented proposal to public and governing body. Utilized HEC-1, rational, SCS, and other programs and methods to accomplish tasks. He also prepared NPDES permits including inspection, monitoring, and management plans.

- **Stormwater Management, Various Clients, Design Engineer.** Developed master plans for various township for stormwater and flood plain management. Conducted hydraulic studies of existing and proposed developments to incorporate into a long-term land use plan. Evaluated NPDES permits, regulations, and funding sources necessary to complete management plans. Prepared and conducted presentation to public about the stormwater floodplain management master plans. Best managements practices were identified in the Plans.

- **Construction Management, Various Clients, Project Engineer.** Oversaw construction of large highway, stormwater, and land development projects. Coordinated scheduling, prepared contract documents, prepared change orders, and reviewed vouchers for payments. Liaison between governmental bodies and contractors.

- **Geotechnical Engineering, Hewlett Packard, Project Engineer.** Lead engineer for geotechnical investigation of remediation alternatives. Established testing parameter to evaluate final remedial design. Performed modeling study of slope stability analysis for deep recovery trench. Designed recovery trench, piping and treatment system liaison between geotechnical field personnel, project manager and quality assurance personnel.

- **Development and Preparation of Land-Use Reports and Maps, Various Locations, Multiple Clients, Project Engineer.** These reports and maps combined a multidisciplinary investigation into the physical and natural features of a parcel in order to develop a land-use strategies. The land-use plans enabled governing bodies to select the best use alternative for development of their towns.

- **Surveying, Various Clients, Survey Party Chief.** Conducted surveys and coordinated projects for various surveys including road and bridge alignment, flood plain delineation, hydraulic studies and construction layout. Also performed topographic and control surveys.

- **Municipal Engineer, Various Clients, Design Engineer.** Designed plans and specification for numerous municipal engineering projects, reviewed site and subdivision plans according to township standards; attended municipal meetings as design engineer, and inspected project construction. Prepared NPDES permits for townships and solid waste districts.

- **Septic Wastewater Management Project, Project Manager.** Responsibilities entailed defining project scope; developing new conceptual methodology; implementation of the program; revising methodology based on public comment and user feedback; and preparing wastewater management plants to direct short and long term goals.

Numerous Wetlands Delineations, Residential, Commercial, and Industrial Properties. Performed wetland delineation including site surveys, soil investigations, vegetation analysis, hydrologic probe, well development, and report preparation, as well as obtaining permits from the DEP, Fish and Wildlife Service, and ACOE.

- **Engineer Department Manager.** Department manager for engineering concept and design group. Responsible for scheduling, work assignments and career management for five engineers and CADD technicians. Provided engineering design review and quality assurance management for all design work. Established design standards and specification for engineering department including environmental remediation projects. Developed engineering library of technical documents and manufacturers literature. Conducted inhouse design and information seminars on various systems including air sparging, vapor extraction, air stripping, structural and civil design. Managed operating budget for Department.

- **Project Manager, Marketing.** Mr. Baginski has developed new and existing business with federal, state, and local governments, industry and private clients. He has prepared numerous proposals and work plans for DOD, DOE, EPA, DOT, local governments and industry. He has developed a marketing strategy for internal technical committees for ASCE and SAME.

Publications

Baginski, P.A. 1992. "Design and Operation of a Leachate Collection System". Presented to the Advanced Defense Preparedness Association, Washington, D.C., February 1992.

JOYCE S. TSUJI, PhD, DABT
Associate Toxicologist/Program Manager

Summary of Experience
Dr. Tsuji is Kleinfelder's Program Manager of risk assessment and toxicology. She is a board-certified toxicologist with over seven years experience as a senior scientist and technical director in environmental consulting with responsibilities including direction of toxicological evaluations and risk assessments of chemical contamination, risk communication to regulators and the public, corporate quality assurance, and program development. She also has ten years experience in independent and collaborative research, and has instructed courses in environmental physiology, toxicology, and risk assessment at the university level. Dr. Tsuji is recognized as a technical expert throughout in the U.S. and in Australia.

Education
PhD University of Washington (Environmental Physiology), Seattle, Washington, 1986

BS Stanford University (Graduated first in Biological Sciences with honors and distinction; Phi Beta Kappa), Stanford, California, 1980

Postgraduate Studies
Mid-America Toxicology Course, Missouri (General Toxicology)
University of Washington (Pesticide Medicine)
Hatfield Marine Sciences Center, Oregon (Aquatic Toxicology)
Organization for Tropical Studies, Costa Rica (Tropical Ecology)

Professional Affiliations
Pacific Northwest Association of Toxicologists
Society of Environmental Toxicology and Chemistry
American Society for Testing and Materials

Registration
Diplomate of the American Board of Toxicology (DABT), 1992

Grants and Awards
National Science Foundation Dissertation Improvement Grant
National Science Foundation Graduate Fellowship
Theodore Roosevelt Memorial Fund, The American Museum of Natural History
Gaige Fund Award, American Society of Ichthyologists and Herpetologists
Grant in Aid of Herpetology, Society for the Study of Amphibians and Reptiles
Graduate School Fellowship, University of Washington
Sigma Xi Award
Scholarships from the State of California and Stanford University
Phi Beta Kappa, Stanford University (awarded junior year)
Fox Fund Award for the Outstanding Graduate in Biology at Stanford University
Best Presentation Awards in Comparative Physiology and Biochemistry and Ecology, American Society of Zoologists

Select Project Experience

A representative selection of Dr. Tsuji's project experience is included below.

Court-Appointed Expert on Health Risk Issues. Appointed as an expert to advise a U.S. district court on health risk issues related to lead, arsenic, and other potential inorganic and organic chemicals for an 11-square mile area of the city of Dallas, Texas. The study area included a former secondary lead smelter, several battery and metals reclamation facilities, numerous other industries, a large public housing project, single and multi-family private residents, and schools. The fate of present and future renovation and development of the area greatly depended on the outcome of this expert opinion on health risks.

Health Risk Assessment of Mercury in Soil, Oregon. Retained by a county in Oregon to direct a health risk assessment of elemental mercury and cinnabar ore in soil at the site of a former home refining operation. The RI/FS was conducted under the state voluntary cleanup program and involved close coordination with state toxicologists. The risk assessment evaluated direct exposures to soil as well as mercury vapor emissions and potential impacts on groundwater and migration to nearby rivers. This study justified health-based cleanup levels resulting in limited hot-spot removal.

RI/FS Risk Assessment, Copper Smelter Site. Directed RI/FS risk assessment projects for a copper smelter in Tacoma, Washington, including offsite residential areas and consideration of effects to off-shore aquatic life due to over eight metals in groundwater, surface water, and sediments in the adjacent bay. Activities also included negotiation of health issues with the EPA and risk communication to the public. Participated in a technical work group with EPA, the state, and NOAA to design and implement toxicity testing and assessment of sediment contamination. A few organic chemicals such as PAHs, PCB, and anilines were also a concern at the site.

Senior Review, Assessment of Contaminated Marine Sediments. Provided senior review for a remedial investigation and ecological and health risk assessment of marine sediments in an urban harbor in Southern California. Project efforts included sampling of sediment chemistry, and biota as well as implementation of aquatic and sediment bioassays. The primary chemicals of concern were polycyclic aromatic hydrocarbons from petroleum solvents, metals, PCBs, and persistent pesticides.

Select Project Experience (continued)

Toxicology Evaluations of Chemical Releases. Retained by the U.S. Department of Justice as a toxicology expert to help assess cases involving enforcement actions by the U.S. EPA for two sites with potential public exposures, one with chromium in groundwater, the other with hydrogen sulfide emissions.

Independent Expert Evaluation of Formalin Toxicity. Selected by a major cancer research facility and the local fire department to help settle a dispute regarding the acute inhalation toxicity of formalin and its classification according to the Uniform Fire Code. Resolved the conflicting conclusions provided by experts for each of the parties.

Technical Expert for a Neighborhood Group. Retained as a toxicology expert for property owners and tenants potentially affected by a groundwater plume of heating oil from a utility site. Provided technical comments on site investigation plans and assisted the citizens in understanding the state RI/FS process.

Toxicology and Risk Assessment Support for a Wood Treatment Site, Montana. Provided risk assessment input from the start of a remedial investigation of a pole yard and wood products facility in Montana. Helped design sampling to collect the necessary data for a risk assessment, and provided technical input on the need for interim remedial actions. The primary concern was pentachlorophenol released to soil and groundwater from former dip tanks for wood treatment. Groundwater releases threaten a sole source aquifer.

Risk Assessment, Former Boat Repair and Cannery Site. Conducted a preliminary evaluation of health and environmental effects of a former Pacific Northwest shipbuilding and cannery site that is being redeveloped into a resort. Issues of primary concern include petroleum hydrocarbon contamination in soil and the aquatic toxicity of tributyltin in marine sediments and in groundwater that discharges to the surface water in the harbor. Toxicity of tributyltin in sediments was evaluated using mussels and oysters as sensitive indicator species. Polycyclic aromatic hydrocarbons and lead were also elevated in subsurface soils and in groundwater. Potential human exposures include children playing on the beach and people eating seafood collected at the site.

Select Project Experience (continued)

Risk Communication on Lead in Drinking Water of Public Schools. Provided toxicological expertise and risk communication for a school district dealing with the issue of lead in drinking water of schools. Assessed the sampling data, recommended further testing and controls, and discussed the nature of the risks and solutions with school officials. Contributed to press releases and communication to parents.

Toxicological Evaluation of Cleaning Agents. Evaluated the toxicology of cleaning and sanitizing agents for a Fortune 500 consumer product company negotiating backflow device requirements with health authorities. Communicated the nature of the toxicity of the ingredients and compared exposure during a backflow event to other dietary or cosmetic exposures to these chemicals.

Technical Expert for Review of State Hazardous Air Pollutant Rules. Reviewed and provided comments related to toxicology and risk assessment for the proposed hazardous air pollutant rules in the State of Arizona. Participated in public hearings and communicated the latest scientific information to the Arizona Association of Industries (AAI), public interest groups, and the Arizona Department of Environmental Quality (ADEQ). Commended by both ADEQ and AAI for scientific contributions to the process and facilitation of consensus.

RCRA Risk Assessment for a Wood Treatment Facility. Conducted an evaluation of human health and ecological risks for a wood-treating facility bordering wetlands, a wildlife refuge, and a major tributary of the Columbia River. Primary issues of concern were transport of copper, chromium, arsenic, pentachlorophenol, and polycyclic aromatic hydrocarbons, to the wetlands via contaminated groundwater. Soil sampling revealed these chemicals as well as petroleum hydrocarbons and dioxins. The potential toxicity of sediment samples was also assessed.

Expert for U.S. EPA on a Wood Treatment Site. Served as an expert for the U.S. EPA in evaluating effects to human health and aquatic organisms due to organic chemicals (pentachlorophenol, creosote, PAHs) and metals (e.g., copper, chromium, arsenic) in soil, groundwater, marine sediments, and surface water from a Pacific Northwest wood-treating facility. Dioxins and furans were also present in soil as a result of a retort fire.

Select Project Experience (continued)

Evaluation of Waste Disposal and Storage in a Watershed. Retained as an environmental toxicology expert by Whatcom County in a legal action filed by the county to cease storage of hazardous and solid waste on a property located within a primary watershed. Evaluated the potential chemical hazards at the property that might threaten the watershed.

Inhalation Toxicology of Semi-Conductor Plant Emissions. Assessed and communicated the nature of health risks associated with chemicals emitted by semi-conductor industries. Chemicals emitted were primarily acute toxicants such as acids or bases rather than chemicals with potential long-term cumulative effects.

Senior Toxicologist, Risk Evaluation, Coeur d'Alene, Idaho. Retained as the senior toxicologist for a risk evaluation of mine tailings in Coeur d'Alene River and Lake. Provided technical input and risk communication regarding the likelihood of adverse effects associated with exposure to metals in surface water, fish, beach sediments resulting from over a century of tailings buildup from upstream mining. Communicated possible health concerns at a press conference.

Health Risk Assessments of Lead Smelters. Conducted health risk assessments of lead smelter sites in Montana, Utah, and Washington. Reviewed the health risks of smelters in Kansas City and Texas. The Montana site is an active facility and a federal Superfund site, whereas the other sites are the former locations of smelters or milling activities. The Utah site is a Superfund accelerated cleanup model (SACM) site, and the Washington site is a state-listed waste site. Evaluated biomonitoring data on residents and environmental sampling. Assessed impacts due to air, water, soil, and dust using the U.S. EPA uptake/biokinetic lead model. Chemicals of concern included lead, arsenic, and cadmium.

Project Manager, Risk Assessment of a Reservoir in Montana. Served as project manager under a contract with the U.S. EPA for conducting a risk assessment of a reservoir in Montana contaminated by upstream mining and smelting activities. The site covers hundreds of acres involving potential impacts to aquatic life, the wetlands, bird life, and local drinking water wells. The risk assessment involved coordination among various agencies (U.S. EPA, the state, U.S. Fish and Wildlife, state Fish and Game), the public, and the Principal Responsible Party (PRP).

Select Project Experience (continued)

Review of the Scoring of Arsenic. Reviewed the scoring of arsenic by the Canadian Government's Substance Selection Committee which implemented the Ontario Ministry of the Environment Scoring System for Assessing Environmental Contaminants. Provided technical comments on the environmental fate and persistence, aquatic toxicity, and carcinogenicity of different arsenic forms.

Health Risk Assessment, Pesticide Warehouse Fire. Evaluated health risks associated with residential exposure to pesticides and herbicide releases as a result of a fire at a nearby grain silo and a warehouse containing over 100 agricultural chemicals. Emergency response action levels were developed to guide remediation of residential soil contaminated by surface runoff of water used in fighting the fire.

Assessment of Inhalation Risks at a Geothermal Plant. Provided senior review of a health evaluation of workers exposed to air levels of hydrogen sulfide, mercaptans, and other sulfur compounds at a geothermal energy plant. Issues of concern also included potential toxic interactions among these compounds.

Expert Witness for a Lumber Yard and Wood Treatment Site. Retained as an expert witness in support of litigation regarding the potential health effects and cleanup levels at an industrial site in Northern California involving various activities including lumber storage, wood treatment, wood products manufacturing, and railroad engine construction.

Toxicological Assessment of Carpet Glue. Researched the toxicology of the more than 22 ingredients in carpet glue for a glue manufacturer who was sued along with the carpet manufacturer, carpet installers, and landlord of a retail space in which tenants claimed multiple chemical sensitivity and other long-term health effects from short-term exposure to a newly installed carpet. Few of the alleged health effects were supported by the available toxicological literature.

Health Effects of Odors from a Wastewater Treatment Plant. As an expert for a city, evaluated the potential health effects associated with odorous chemicals (primarily hydrogen sulfide and mercaptans) associated with emissions from a wastewater treatment plant. A critical issue was the distinction between odor levels that are a public nuisance, possibly resulting in subjective effects in some individuals, but not the cause of clinically-defined adverse health effects.

Impact Analysis of Landfills. Directed and peer reviewed assessments of health and environmental impacts of chemicals in groundwater as a part of landfill closures and corrective actions at multiple landfill sites in California, Montana, Washington and

Select Project Experience (continued)

Arizona. The evaluations included potential impacts to drinking water wells and irrigation water, soil vapor exposure, and migration of volatile organic chemicals in groundwater to surface water bodies with exposure to aquatic organisms and fishermen. Detailed analysis of the human toxicology of these chemicals was also conducted to assess the limitaitons of the regulatory criteria which are largly based on animal data.

Toxicology Evaluation of PCBs and PAHs. Assessed the relative hazards posed by PCBs compared to PAHs at a coal gasification and metal recycling site. The study supported a de minimis settlement by the utility companies that had contributed transformers with residual PCB oil.

Risk Assessment, Mine Tailings. Assessed the toxicity of mine tailings to cattle, and food chain transfer of metals in tailings to humans consuming beef or beef liver. This study was a part of a project investigating the use of cattle to revegetate and stabilize mine tailings slopes.

Assessed Effects of PCBs on Upland Soil and River Sediment. Assessed the adverse effects of PCBs and priority pollutants in uplands soils and river sediments on the environment (including aquatic organisms and associated terrestrial wildlife) and to public health at an industrial site that was to be redeveloped into a museum. Designed a tissue residue study of local fish and used the results to derive more realistic bioaccumulation rates for PCBs in sediment.

Risk Assessment, Petroleum Contamination from Fuel Storage. Directed a risk assessment of petroleum-related contamination of soil and groundwater at a state Superfund site in Washington. Risks were considered for commercial use of the site as well as for potential exposure to nearby users of private wells. The assessment included a detailed toxicity evaluation of volatile and semivolatile chemicals in gasoline and diesel fuel mixtures. Site-specific cleanup action levels were recommended depending on various engineering controls.

Toxicology Expert on Acid Mine Drainage. Retained as an expert on the toxicology and health risk of metals associated with contamination of private wells by acid mine drainage in Arizona. Worked with county and state health officials to assess and communicate potential health effects indicated by well water sampling.

Health Risk Assessment, Queensland, Australia. Directed a health risk assessment in Queensland, Australia involving a residential area built over the site of by previous mining and industrial and municipal disposal activities. The most visible concern

Select Project Experience (continued)

was the appearance of acid oil sludge at the surface of yards built over mining pits filled with refinery wastes. This high-profile site was known as Australia's Love Canal. Chemicals of concern included lead, PAHs, PCBs, cyanide, chlorinated benzenes in groundwater, surface water, soil, and air.

Expert on Lead Contamination, Victoria, Australia. As an expert for the Environmental Protection Authority of Victoria, conducted a focused risk assessment of lead contamination from a past battery recycling plant in Melbourne, Australia. Residential development had already commenced at the site without prior remediation. Played an instrumental role in justifying that health protective actions were necessary.

Assessed Bioavailability, Adverse Health Effect, Goldmine Site, Alaska. Assessed the bioavailability and adverse health effects of arsenic-containing ore and mercury contamination of an old goldmining site in Alaska that was turned into a children's playground. Negotiated site-specific approach for setting cleanup levels with the Alaska Department of Environmental Conservation. This study set a precedent for allowing higher cleanup levels because of low bioavailability.

Senior Oversight, Pesticide and Herbicide Contamination. Provided senior oversight of projects related to pesticide and herbicide contamination, including evaluation of health and environmental effects of pesticides and herbicides used by Northwest utilities on vegetation and on utility poles. Supervised expert toxicology work regarding a potential poisoning caused by an organophosphate pesticide, and the use of pesticides on school buses and likely effects on children.

Health Evaluations, Zinc Smelters. Conducted focused health evaluations of zinc smelters/refineries in Texas and Tasmania, including presentations of the results to regulatory officials and the news media.

Assessed Inhalation Toxicology For An Air Permit. Evaluated the inhalation toxicology of criteria pollutants and metals in support of an air permit hearing before the Texas Air Board for the modernized equipment proposed by a copper smelter.

Risk Assessment of Petroleum Contamination. Assessed risks associated with PAH and petroleum hydrocarbon contamination from underground storage tanks at an industrial site in Massachusetts. This risk assessment provided the state regulatory agency with sufficient scientific justification to approve a limited cleanup for the protection of workers.

Select Project Experience (continued)

Health Risk Assessments of Incineration. Directed multipathway risk assessments of hazardous and municipal waste incinerators. Researched the health effects of incineration ash. Incineration sites included New Jersey, Kentucky, Midwestern states, and Seattle. Chemicals of primary concern for potential risks were metals and dioxins and furans.

Health Evaluation of Indoor Air. Evaluated the levels of volatile organic chemicals in air within a commercial building in Southern California to assess whether volatile chemicals in groundwater were migrating into the building at levels of health concern for workers. Exposures were found to be below California worker health criteria.

Health Issues Related to a Cadmium Refinery. Provided health risk and toxicology expertise for an active cadmium refinery in Denver, including review of risk assessments, evaluation of air emissions, interpretation of health data of residents, discussion of technical issues with the state agencies, and risk communication to the public. This site required environmental cleanup for cadmium, lead, and arsenic.

Risk Assessment of a Naval Shipyard. Examined the nature and extent of underground contamination at an abandoned naval shipyard in Northern California converted for residential use. Evaluated the potential for adverse health effects to future residents from long-term exposure to petroleum hydrocarbons, lead and other metals. Developed cost-effective, risk-based cleanup levels which were approved by the California Department of Health Services.

Risk Assessment of a Industrial Munitions Site. Directed human health and ecological risk assessment of lead, PAHs and explosive chemicals at a former industrial munitions facility. The site encompassed a large woodland area including small lakes and a salmon stream, and bordered a wildlife refuge and river delta. Ecological concerns included both potential aquatic impacts and risks to burrowing animals in the upland areas.

Evaluated Risks of Urban Storm Water. Directed a review and assessment of risks to public health and aquatic life due to urban storm water discharges in the Seattle area.

Select Project Experience (continued)

Risk Communication. Participated in public meetings and news conferences as a health risk expert. Explained health issues to concerned parents at a day-care facility near a Superfund site. Evaluated and communicated potential health risks of a nearby hazardous waste site cleanup to the cast and crew of a television studio in California.

Contingency Plan for Incineration of Oily Waste. Provided senior direction and review on a contingency plan for incineration of oil-soaked waste and debris associated with oil spill cleanup in Alaska. This work was performed for a major petroleum consortium in response to regulatory requirements.

Expert Evaluation of Groundwater Contamination. Evaluated the potential health risks of groundwater contaminated with volatile organic chemicals in support of a legal settlement for a property owner adjacent to a major Superfund site in Washington.

Review of the NPL Listing of a Mine Waste Site. Reviewed the National Priorities List ranking of a mine waste site in Idaho. Comments primarily focused on the lack of consideration of the bioavailability of arsenic and lead in the mine waste.

Various Projects, U.S. EPA. Directed projects for the U.S. EPA Technical Enforcement Support (TES) program. Responsibilities included direction of risk assessments for the EPA and oversight of potentially responsible parties (PRPs) conducting risk assessments.

Publications and Presentations

Recent Presentations

"Metals Uptake and Health Risks Associated With Cattle Grazing on Mine Tailings." Society of Environmental Toxicology Annual Meeting. Denver, Colorado. November 1994.

"Current Uses of the EPA Lead Model to Assess Health Risks and Action Levels for Soil." Rocky Mountain Lead, Arsenic Conference. Society for Environmental Geochemistry and Health. Salt Lake City, Utah. July 1994.

"Scientific Considerations in Using Aquatic and Sediment Criterion." The Second Annual Clean Water Act Conference. Puget Sound Water Quality Authority. Seattle, Washington. June 1994.

Publications and Presentations (continued)

"From Mice to Men: How Risk-Based Cleanup Levels are Developed." The Science Behind Environmental Law. Washington State Bar Association Continuing Legal Education Committee and the Environmental Land Use Section. Seattle, Washington. February 1994.

"Toxic Exposure and Risk Factors." The Science in the Courtroom. Washington State Bar Association Continuing Legal Education Committee. Seattle, Washington. February 1994.

"Risk Assessments in Washington State." Invited Speaker for the monthly program of the Association of Women in Environmental Professions. Seattle, Washington. November 1993.

"Air Toxics and Risk Management Analysis in Arizona." Air Quality Technical Workshop. Arizona Association of Industries and Kleinfelder, Inc. Prescott, Arizona. August 1993.

"Effects of Chemical and Physical Form on the Bioavailability of Arsenic in the Environment." Poster presentation at the International Conference on Arsenic Exposure and Effects. Society of Environmental Geochemistry and Health. New Orleans, Louisiana. July 1993.

"Risk Assessment in Independent Cleanup Actions." Lecture for the Continuing Legal Education (CLE) International Conference on the Washington Model Toxics Control Act. Seattle, Washington. October 1992.

"Toxicological Basis of Absorption Factors." Presentation at the Annual Meeting of the Society of Toxicology, Seattle, Washington, February 1992.

"Risk Assessment of Residue Disposal and Utilization. Presentation at the Meeting of the International Ash Working Group." Rutgers University, February 1992.

"Advanced Issues: Risk Assessment Methodologies." Eighth Annual Hazardous Waste Law and Management Conference. Sponsors, U.S. Environmental Protection Agency, Region 10, University of Washington School of Law, 1991.

Publications and Presentations (continued)

"Evaluation of Impacts to Terrestrial Ecosystems: Opportunity for Ecotoxicologists." Coauthored poster at the Annual Meeting of the Society of Environmental Chemistry and Toxicology, Seattle, Washington, November 1991.

"Risk Assessment of Hazardous Wastes and Hazardous Materials." Invited speaker for the quarterly meeting of the Academy of Hazardous Materials Management, Pacific Northwest Chapter, Seattle, Washington, December 1990.

"Health Effects of Solid Waste Incinerator Ash." Symposium on Solid Waste Management, National Environmental Health Association, Seattle, Washington, June 1989.

"Essential Components of a Human Health Risk Assessment." Invited speaker for the Puget Sound Section of the American Chemical Society, Everett, Washington, April 1989.

"Application of Toxicology." Participant in a panel discussion. Pacific Northwest Association of Toxicologists, Annual Meeting, Moscow, Idaho, September 1988.

"Principles of Toxicology." Invited lecturer for the Hazardous Waste Managers Course. University of California Los Angeles. November 1987.

Publications

Tsuji, J.S. and K.M. Serl, "Current Uses of the EPA Lead Model to Assess Health Risk and Action Levels for Soil." Environmental Geochemistry and Health. Submitted.

Tsuji, J.S. and G.A. Pascoe, "The Toxicological Basis of Absorption Factors in Risk Assessment." Regulatory Toxicology and Pharmacology, 1995, in preparation.

"Are Hazardous Waste Site Edicts Over-Protective?" Puget Sound Business Journal 12(20):9A, 13A, 1991

Kalvig, B.A., L. Maggio-Price, J.S. Tsuji, and W.E. Giddens, "Salmonellosis in Laboratory-Housed Iguanid Lizards (*Sceloporus* spp.)." Journal of Wildlife Diseases 27(4):551-556, 1991

Publications and Presentations (continued)

Tsuji, J.S., R.B. Huey, F.H. van Berkum, T. Garland, Jr., and R.G. Shaw, "Locomotor Performance of Hatchling Fence Lizards (*Sceloporus occidentalis*): Quantitative Genetics and Morphological Correlates." Evolutionary Ecology 3:240-252, 1989

van Berkum, F.H., R.B. Huey, J.S. Tsuji, and T. Garland, Jr., "Repeatability of Individual Differences in Locomotor Performance and Body Size During Early Ontogeny of the lizard *Sceloporus occidentalis* (Baird & Girard)." Functional Ecology 3:97-105, 1989

Tsuji, J.S., "Seasonal Profiles of Standard Metabolic Rate of Lizards (*Sceloporus occidentalis*) in Relation to Latitude." Physiological Zoology 61:230-240, 1988

Tsuji, J.S., "Thermal Acclimation of Metabolism in Sceloporus Lizards from Different Latitudes." Physiological Zoology 61:241-253, 1988.

van Berkum, F.H. and J.S. Tsuji. "Interfamilial Differences in Sprint Speeds of Hatchling *Sceloporus occidentalis* (Reptilia: Iguanidae)." Journal of Zoology, London 212:511-519. 1987.

Tsuji, J.S., J.G. Kingsolver, and W.B. Watt, "The in-Flight Thermal Physiological Ecology of a Butterfly (*Colias*)." Oecologia 69:161-170, 1986.

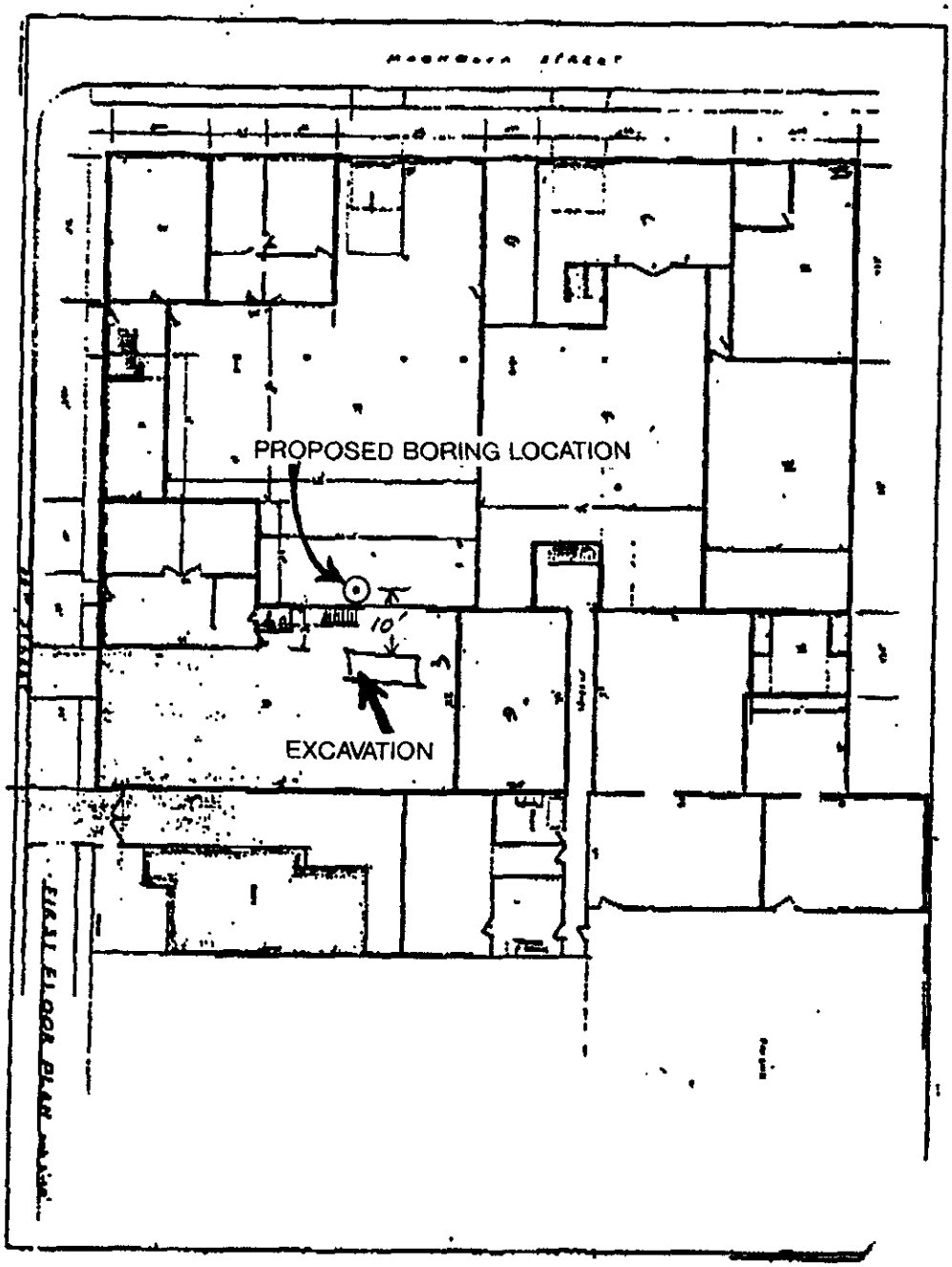
Stevenson, R.D., C.R. Peterson, and J.S. Tsuji, "The Thermal Dependence of Locomotion, Tongue Flicking, Digestion and Oxygen Consumption in the Wandering garter snake." Physiological Zoology 58:46-57, 1985.

"Seasonal Changes in Standard Metabolism and Habitat Temperatures of *Sceloporus occidentalis* Lizards." Abstract, American Zoologist 26:136A, 1985.

Tracy, C.R., F.H. van Berkum, J.S. Tsuji, R.D. Stevenson, J. Nelson, B. Barnes, and R.B. Huey. "Errors Resulting from Linear Approximations of Heat Balance Equations in Biophysical Ecology." Journal of Thermal Biology 9:261-264, 1984.

Feder, M.E., A.G. Gibbs, G.A. Griffith, and J.S. Tsuji. "Thermal Acclimation in Salamanders: Fact or Artifact." Journal of Thermal Biology 9:255-260, 1984.

APPENDIX C
Map Showing General Area of Investigation Provided by Semco



ADELINE STREET

N
W
E

NOT TO SCALE

S E M C O

3623 ADELINE STREET
EMERYVILLE

APPENDIX D
Kleinfelder's Field Protocol

APPENDIX D
KLEINFELDER FIELD PROTOCOL

D-1 FIELD PREPARATION

Before performing work in the field, environmental staff will review the scope of work, prepare a health and safety plan, coordinate the work to be done with their supervisor, assemble the necessary sample containers, and check, calibrate and clean equipment to be used in the field. When underground utilities may exist at a site where subsurface soil samples are being collected, Underground Service Alert (USA) will be contacted with the boring locations and the scheduled date of drilling, or a utility locating firm will be employed to check the boring locations.

D-2 SUBSURFACE SOIL SAMPLING

D-2.1 Drilling

Subsurface soil samples will be collected from soil borings. Soil borings are advanced using a truck-mounted drill rig, equipped with 8-inch to 12-inch hollow stem augers, depending on the desired boring diameter and/or well casing size. The borings will be advanced vertically, or at an angle up to 45 degrees from vertical. During drilling, an experienced representative of Kleinfelder will classify the soil, log the lithology and collect soil samples for laboratory analysis.

D-2.2 Decontamination of Equipment

To reduce the potential for cross-contamination, augers and associated equipment will be steam cleaned prior to drilling each boring. In addition, sampling equipment will be cleaned with detergent and water and rinsed with tap or distilled water prior to collecting each soil sample.

D-2.3 Collection of Soil Samples

Unless field conditions dictate otherwise, soil samples will be collected approximately every 5 feet for field screening, lithologic logging, and potential chemical analysis. Samples will be collected by advancing the boring to a point immediately above the desired sampling depth and then driving (vertical borings) or pushing (slant borings) a Modified California Sampler, lined with three brass tubes, into the undisturbed soil. The sampler will then be removed from the bottom of the boring. The ends of the bottom (third) or center (second) tube will be covered with Teflon tape oe aluminum foil and sealed with tight-fitting plastic caps.

After the samples are collected they will be individually labeled. The label will include Kleinfelder's name, job number, the date and time the sample was collected, the employee number of the individual who performed the sampling, and a unique sample identification number. If required by regulation, a custody seal will also placed on the sample in such a way that any attempt to tamper with the sample is easily visible.

D-2.4 Qualitative Field Screening

If necessary, an organic vapor meter, such as a photoionization detector (PID) or a flame ionization detector (FID), will be used to provide a qualitative screening of each soil sample collected from the borings. The organic vapor detector measures ionizable compounds in the air in parts per million by volume (ppmv). Field calibration will be performed in accordance with the manufacturers recommendations. Ambient air will be used to set the instrument zero. The soil contained in the cone of the sampler or in a brass tube will be exposed and screened with the organic vapor detector. The vapor reading will be noted as the field screening result.

If required for the protection of the drilling crew, the organic vapor detector also will be used to measure the volatile organics concentrations in the breathing zone prior to and during the drilling of the samples. Total ionizable hydrocarbon readings in excess of one ppmv may necessitate respiratory protection for the affected crew members. This requirement will be included in the complete field health and safety plan developed for the project prior to the start of field work.

D-2.5 Sample Handling

After labeling, the sample will be immediately stored in a chilled cooler for transport to Kleinfelder's office sample control or to the analytical laboratory. A Kleinfelder chain-of-custody form will be attached to the cooler. The chain-of-custody form will include Kleinfelder's name, address and telephone number, the employee number of the individual who performed the sampling, the sample numbers, the date and time the samples were collected, the number of containers each sample occupies, and the analyses for which the samples are being submitted, if any. The chain-of-custody form will be signed by each person who handles the samples, including all Kleinfelder employees and the receiving employee of the analytical laboratory when the samples are delivered.

D-2.6 Soil Sample Selection for Laboratory Analysis

The selection of soil samples for laboratory analysis will be based upon: 1) the project objectives and requirements, 2) qualitative field screening performed in the field using the organic vapor detector, and 3) field observations such as lithology, odor, discoloration, or high moisture content. Generally, samples will be submitted from the bottom of the boring and from soil

horizons with significant potential for contamination as indicated by the organic vapor detector, observations, and site history. Samples may be collected from regular intervals when information on concentrations versus depth is desired. Samples that are not selected for laboratory analysis will be held in sample control for possible future reference. When these samples are no longer needed, they will be returned to the site and combined with the soil cuttings generated during their collection.

D-2.7 Soil Boring Closure and Soil Cutting Disposal

Soil borings will be closed immediately after the collection and logging of soil samples. Closure will be accomplished by grouting the boring with a cement/bentonite slurry or as otherwise required.

Drill cuttings will be left on site for disposal by the site owner.

D-3 GROUND WATER MONITORING

D-3.1 Monitoring Well Construction

Construction details for shallow ground water monitoring wells will be as follows:

- The well casing will be 2-inch, 4-inch, or 6-inch inside diameter, flush threaded joint, schedule 40 PVC pipe.

- The wells will be constructed in 8inch, 10-inch, or 12-inch diameter boreholes, depending on the casing diameter.

- Well screen sections will be perforated with 0.010- or 0.020-inch factory-cut slots. This parameter will be assessed (and modified if required) after the boring logs and, if warranted, a sieve test has been performed and the results received. Well screen will be 2-inch, 4-inch, or 6-inch inside diameter, flush threaded joint, schedule 40 PVC pipe.

- The well will be screened from up to 5 feet above to up to 20 feet below the first encountered groundwater. The screen length will be reduced if an aquitard with a minimum thickness of 5 feet is encountered. If an aquitard is encountered the well will usually be terminated 1 to 2 feet into the aquitard. Effort will be made not to screen across two aquifers.

- The annular space between the screen and the wall of the boring will be backfilled with the appropriate clean 0/30 or 2/12 sieve Monterey sand to approximately 1 to 2 feet above the top of the perforated sections. Based on soil logs or a sieve test, modifications may be made (if

