LAW ENVIRONMENTAL, INC.

4501 INDIAN SCHOOL ROAD, NE
SUITE 104
ALBUQUERQUE, NM 87110-3929
505-255-0200

December 30, 1991

Cliff Hawley, Chief
Program Support Bureau (Room S4300)
New Mexico Environment Department
P. O. Box 26110
1190 St. Francis Dr.
Santa Fe, NM 87502-6110

Subject: New Mexico Environment Department
Hazardous and Radioactive Materials Bureau
Request for Proposals for Professional Services
Technical Review of WIPP Application
Law Environmental Proposal No. 11-1226

Dear Mr. Hawley:

Law Environmental is pleased to submit this proposal to provide professional services to the New Mexico Environment Department (NMED) to assist in the technical review of the RCRA permit application and other technical documents of the Waste Isolation Pilot Plant (WIPP). This proposal is submitted in response to the NMED Hazardous and Radioactive Materials Bureau Request for Proposals for Professional Services, November, 1991.

Law has experience in waste management and storage of hazardous and radioactive waste in salt. Law was the geologic program manager for the U.S. Department of Energy's Gulf Coast Salt Dome project to investigate the geologic feasibility of high-level radioactive waste storage in salt domes. Law has also prepared a RCRA application for an HTW storage facility in a salt dome in Louisiana.

Law has conducted thousands of environmental investigations including RCRA permit writing and RCRA related activities. Law has over 4,500 employees worldwide including environmental professionals in a wide variety of fields and experience to assist in reviewing technical documents.

Law will team with Aguirre Engineers, Inc., a 100% owned and operated Disadvantaged Business Enterprise (DBE) and a certified 8(a) Small Business Enterprise (SBE). Aguirre Engineers, Inc. is a multi-disciplinary geotechnical, hazardous waste and hydrogeologic engineering and construction materials testing organization. An overview of Aguirre

911204

Engineers, Inc., related project experience and resumes are included in Appendix A of this proposal.

As discussed with Dr. Gordon, the NMED project manager, a potential conflict of interest may exist in the future. However, if we are chosen by the NMED this potential will be resolved.

We will abide by all federal and state laws, rules, regulations, and executive orders pertaining to equal employment opportunity. We certify that no collusion, as defined by the Federal and State anti-trust laws, occurred during proposal preparation.

We look forward to negotiating a contract with NMED upon being chosen, and providing the NMED with additional information it may require. We appreciate the opportunity to propose on this project. Should you have any questions or wish further information, please do not hesitate to contact us in Albuquerque at (505) 255-0200.

Very truly yours,

John G. Kinker
Environmental Engineer

Sidney S. Brandwein, P.G.
Principal Geologist
Albuquerque Office Manager

JGK/SSB/msc

WIPP Library

EID
PROGRAM SUPPORT BUREAU
91 DEC 30 AM 9:30

LAW ENVIRONMENTAL

PROPOSAL
TO PROVIDE
PROFESSIONAL SERVICES

Prepared for:

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS AND RADIOACTIVE MATERIALS BUREAU
SANTA FE, NEW MEXICO

by

LAW ENVIRONMENTAL, INC.
ALBUQUERQUE, NEW MEXICO
Law Proposal No. 11-1226

December 30, 1991

CONFIDENTIALITY

The materials and information in this Proposal are provided and submitted to the State of New Mexico Environment Department for their sole and exclusive use in connection with the evaluation of our firm as a prospective consultant. The materials and information contained herein are proprietary and confidential. Disclosure to any third parties without our prior written approval is prohibited.

TABLE OF CONTENTS

1.0 THE LAW COMPANIES 1-1

2.0 CAPABILITIES 2-1

3.0 RCRA CAPABILITIES 3-1

4.0 PROJECT APPROACH/PRICING 4-1

5.0 RELATED EXPERIENCE 5-1

5.1 RCRA Projects 5-1
5.2 Salt Storage Technology Projects 5-2
5.3 Geologic Investigation and Nuclear Projects 5-4
5.4 Mining and Tunnelling Projects 5-11
5.5 References 5-14

6.0 PERSONNEL CAPABILITIES 6-1

7.0 INSURANCE INFORMATION 7-1

APPENDIX A - AGUIRRE ENGINEERS, INC.

Company History/Scope of Services
Related Project Experience
Resumes
Pricing

1.0 THE LAW COMPANIES

Law was formed in 1947, incorporated in the State of Georgia as an employee-owned consulting engineering and materials testing company. At the present time, the company provides engineering consulting services through 54 domestic branches with 30 international offices with a total employment in excess of 4,500. Law has established an excellent reputation as a geotechnical, environmental and materials consulting firm with complete in-house support services such as drilling and soil and chemical laboratory testing. Law has a Dun & Bradstreet rating (D&B No. 00-331-9936) of 4A-1, the highest possible for a professional consulting firm. Law is divided into three separate groups serving the environmental, engineering and international markets.

Law Environmental, Inc.'s main office in Atlanta, Georgia is Law's center of hazardous waste management technology and environmental consultation. Mr. Lee M. Thomas, former EPA administrator, now chairman and chief executive officer, heads up our team of quality engineers and earth scientists. Law Environmental is organized into four divisions. The Government Services Division responds to government clients, the Commercial Services Division responds to industry, ENSITE provides clean-up services, and the Law National Environmental Laboratories provides a broad spectrum of analytical services.

Law has completed over 5,000 hazardous waste projects principally involving site investigations, ground-water monitoring programs, remediation studies, and new facility design projects over the past several years. Because of client satisfaction many projects are for repeat clients such as U.S. Army Corps of Engineers, General Electric, IBM, Olin, Mobil, Weyerhaeuser and International Paper. Law has performed thousands of subsurface investigations throughout the world for industry and government. Thus, the Law family has gained extensive working knowledge of the regional and local conditions near many existing hazardous waste sites. This background has created an experienced, multidisciplined staff of professionals, who have in-depth expertise throughout the United States. Law has, in-house, the full spectrum of professionals, facilities and equipment needed to effectively assist NMED personnel.

Law and its sister companies are located in the following cities:

Albany, New York
Albuquerque, New Mexico
Anaheim, California
Asheville, North Carolina
Atlanta, Georgia
Knoxville, Tennessee
Lexington, Kentucky
Los Angeles, California
Louisville, Kentucky
Los Alamitos, California

Augusta, Georgia
Austin, Texas
Baltimore, Maryland
Birmingham, Alabama
Chantilly, Virginia
Charleston, South Carolina
Charlotte, North Carolina
Chicago, Illinois
College Park, Maryland
Columbia, South Carolina
Dallas, Texas
Ft. Lauderdale, Florida
Greensboro, North Carolina
Greenville, North Carolina
Greenville, South Carolina
Hackensack, New Jersey
Harrisburg, Pennsylvania
Houston, Texas
Indianapolis, Indiana
Jacksonville, Florida
Kansas City, Missouri
Kennesaw, Georgia
Miami , Florida
Naples, Florida
Nashville, Tennessee
New York, New York
Norfolk, Virginia
Orlando, Florida
Pensacola, Florida
Philadelphia, Pennsylvania
Pittsburgh, Pennsylvania
Phoenix, Arizona
Raleigh, North Carolina
St. Louis, Missouri
San Diego, California
San Francisco, California
San Juan, Puerto Rico
Seattle, Washington
Springfield, Virginia
Tampa, Florida
Tulsa, Oklahoma
Vienna, Virginia
Washington, D.C.
Wilmington, North Carolina

These offices form a network of human resources, facilities and equipment, and technical expertise.

The office in close proximity to NMED is our Albuquerque, NM office. In order to reduce cost, as much work as possible will be completed by this Law office. Project control and coordination will also take place from the Albuquerque office. To provide the appropriate resources for this project, the Albuquerque office may call upon appropriate resources from across the company.

Law's applicable experience includes many RCRA hazardous waste projects including the preparation of a Part B permit for an HTW storage facility in a salt dome. Law also has experience in large scale hydrogeologic characterizations, as on DOE's high-level radioactive waste disposal facility investigations of Gulf Coast Salt Domes project and various states' low-level radioactive waste disposal facilities, and mining, underground and tunnelling experience.

COMMITMENT TO OUR CLIENTS

Law Environmental's primary clients worldwide are the managers and executives of industry, utilities, development companies, and government agencies. These individuals generally are responsible for making certain their organizations comply with environmental regulations. Technical excellence is the cornerstone of our business, but we also recognize the essential element of responsive client service. To sustain our success, Law Environmental reliably provides superior service to its clients, who in turn continue to honor the firm with repeat assignments.

We believe the most important person in our economic life is the client. This primary tenet of our business philosophy is substantiated through our daily commitment to:

- Listening to our client and understanding his/her point of view
- Developing and maintaining strong personal client relationships
- Providing a superior service responsive to the client needs
- Keeping the client informed and always meeting our commitments
- Personally visiting our client if problems develop

CONFIDENTIALITY

As general policy, Law Environmental considers its projects confidential. Project-related information is not released to a third party without specific authorization from the client. Many hazardous waste and siting projects are conducted under written confidentiality agreements, which each employee working on the project is required to sign. As an extra security precaution, a project may be conducted under a code name.

2.0 CAPABILITIES

COMPREHENSIVE ENVIRONMENTAL SERVICES

Environmental projects can require a broad range of comprehensive services. Law Environmental has the capability to address many, if not all, of your environmental concerns. Below, we have summarized some of our major environmental services.

KEY SERVICE AREAS

Law Environmental focuses its resources on selected segments of the environmental marketplace. These key service areas are:

- RCRA
- Air Quality
- CERCLA/SARA (Superfund)
- Hydrology/Water Resources and Storm Water Management
- Real Estate - Property Transfers
- Solid Waste Management
- Underground Storage Tanks
- Wetland, Aquatic Assessment and Protected Species

The company has appointed leaders and formed committees dedicated to providing clients with high-quality, cost-effective services in each of these fields. Committee members have a high level of expertise in their respective areas and are prepared to answer technical questions and offer advice to particularly complex problems. More detailed Statements of Qualifications for each of these key service areas are available upon request. A brief overview of our services in these key areas is presented below.

RCRA Services

The Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA) provide a comprehensive regulatory framework for permitting and corrective action at industrial facilities. Law Environmental has a specific group of professionals directed toward helping industry to comply with regulations promulgated under RCRA and HSWA. This includes developing plans to cope with the recently proposed requirements (RCRA Part 264 Subpart S) for corrective action for solid waste management units (SWMUs).

Key RCRA services offered by Law Environmental include:

- Strategy Development for SWMUs
- RCRA Facility Investigations
- Compliance Auditing and Consultation
- Permit Preparation and Negotiation
- Closure Plans
- Risk Assessment
- Corrective Action Evaluation and Performance Monitoring

Clients need consultants with experienced staff who can develop inventive solutions. For several years, Law Environmental personnel have developed many innovative approaches, such as those for waste management areas encompassing several sources of contamination and conditional corrective action. These innovations have been accepted by agencies and have been cost-effective for facility owners. Section 3.0 of this proposal further discusses Law's RCRA capabilities.

Air Quality Services

One of Law Environmental's specialties is the evaluation of technical air quality regulations and the subsequent recommendation of cost-effective air quality management solutions. Law Environmental can help facilities to comply with environmental regulations relating to air quality control. Law's primary services in this area include:

- Air Quality Modeling
- Air Toxics Services
- Air Pollution Control/Prevention, Evaluation, Selection and Design, or RACT, BACT, LAER and MACT
- Indoor Air Quality Studies
- Ambient Air Quality Monitoring and Sampling
- Industrial Hygiene/Occupational Health and Safety
- Environmental Compliance Audits
- Noise Surveys

Law Environmental also has considerable experience conducting incinerator studies. Our experience in this area includes conducting studies of environmental impact, feasibility, siting, and the performance of municipal and hazardous waste incinerators. In addition, our affiliate Law Associates offers air quality services in:

- Asbestos surveys and abatement management
- Indoor air quality studies

CERCLA/SARA (Superfund) Services

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or Superfund, and the Superfund Amendments Reauthorization Act (SARA) pose some of the greatest environmental/regulatory compliance challenges to American industry today. This intricate network of laws focuses on past waste disposal activities at inactive or abandoned sites. CERCLA contains strict liability provisions, detailed opinions of risk, and extensive remedial action requirements.

Our consulting services in the Superfund area include:

- Regulatory Assistance
- Preliminary Assessments and Site Investigations (PA/SI)
- Remedial Investigations and Feasibility Studies (RI/FS)
- Data Validation
- Risk Assessments
- Community Relations
- Remedial Design & Remedial Action (RD/RA)

Regarding waste site characterization, we are ready to assist with state and federal agency negotiations, scoping, work plan preparations, immediate removal, remedial investigations, Quality Assurance/Quality Control (QA/QC) management, and community relations.

Our RD/RA services include, but are not limited to, treatability and pilot studies, closure planning, and remedial alternative design. In addition, our remedial construction services include:

- Removal Assessments and Removal Actions
- Remedial Action
- Contract Document Preparation
- Construction Management
- Resident Oversight
- Field Testing
- Certification Completion
- Post-Closure Care/Monitoring

Law Environmental can also handle bid analysis, equipment procurement, vendor submittal approval, and progress reports for remedial construction.

Hydrology/Water Resources and Storm Water Management Services

Law Environmental's hydrology and water resources services include a wide range of surface-water and ground-water programs. Our professional staff has earned a reputation for excellence and leadership in virtually all areas of hydrology and water resources services, including planning, investigations, design, and monitoring. Our clients include government agencies, private and public water utilities, industry, and mining.

Law Environmental's professional hydrology/water resources services include:

- Water Resources Reconnaissance and Planning
- Comprehensive Hydrologic Evaluations
- Conceptual and Comprehensive Designs

In addition, Law Environmental offers support services, such as in-house laboratory testing for water chemistry and aquatic toxicity. We also provide comprehensive services in field testing and data collections.

Our hydrogeologists, geologists, geophysicists and ground-water engineers have a diversity of experience in all phases of ground-water resource exploration and water-supply development and management. Ground-water projects can be regional or site-specific in scope, depending upon client needs and the reliability and detail of currently available information. Computer modeling of ground-water systems is an important tool used in many projects. Law Environmental's water resource professionals have considerable experience with both public domain and proprietary ground-water models, and they possess the practical experience to recognize the advantages and limitations of modeling in complex settings.

To offer clients the best in surface-water hydrology and water quality protection services, Law Environmental takes a multidisciplinary approach, combining water resources, hydrology, aquatic ecology, biology, environmental engineering, and chemical engineering. We have considerable experience with the design and execution of water quality surveys of streams, rivers, lakes, and estuaries. In addition, Law Environmental offers a broad variety of field services and operates a system of computer graphic programs specifically designed to analyze, manage, and report water quality data.

Real Estate - Property Transfer Services

Whenever industrial or commercial real estate is bought or sold, offers and price adjustments are often based on the condition of the property and associated structures. Equally important for both buyer and seller is the environmental state of the property. If environmental contamination is discovered after the sale, the current owner and all former owners may be held jointly liable for cleanup costs. In some instances, the cost of environmental cleanup, exclusive of litigation, may greatly exceed the property's normal market value.

For the protection of buyers, sellers, and lenders, Law Environmental specializes in the independent evaluation of environmental conditions of industrial and commercial property. Our services range from reviewing public records and other available information about the property to conducting on-site testing, sampling, and laboratory analysis. We have experience with sites throughout the United States, ranging from single-site acquisitions and divestitures to multi-site business buyouts.

We have extensive experience in performing multi-site environmental assessments. Typically, one of our offices is assigned the task of coordinating logistics on projects of this type. The coordinating office serves as a central contact for the client and thus provides uniformity in report format and interpretation of environmental concerns. Frequently, Law offices closest to the site perform the site visits and research, providing cost savings to the client. Law Environmental can also advise clients during regulatory negotiations to help them understand environmental risks, liabilities, and associated cost impacts.

An environmental assessment can consist of many phases, with the scope of each phase depending on previous results and the client's position. The assessment phases can include:

- Phase I -Preliminary Environmental Liability Assessment
- Phase II -Soil, Ground-Water and Surface Water Contamination Assessment
- Phase III -Remedial Investigation and Cleanup Method Design
- Phase IV -Cleanup Execution

By nature, industrial real estate requires more thorough evaluations than commercial. For operational industrial facilities, Law Environmental conducts independent environmental compliance audits. These audits focus on compliance with applicable regulations and permit conditions. We also try to advise clients of circumstances or activities that might be modified to help reduce environmental risks.

Solid Waste Management Services

Law Environmental provides "turnkey" services for solid waste management planning, facility design, operation, and closure. Through many years of experience, our professionals have developed expertise in planning, siting, assessment, design, permitting, and construction of solid waste management facilities.

Law Environmental's solid waste expertise has evolved in line with prevailing regulations. As a result, we have extensive experience with federal, state, and local regulations and guidelines. Law Environmental's solid waste management services include:

Solid Waste Management Planning

- Waste Generation Studies and Waste Composition Analysis
- Integrated Solid Waste Management Planning
- Solid Waste Handling and Disposal
- Recycling and Waste Minimization Plans

Siting

- Alternative Site Identification
- Ecological Evaluations
- Site Suitability Comparisons
- Conceptual Development Planning

Assessment

- Detailed Geotechnical and Hydrogeological Assessments
- Ground-Water Monitoring Plans
- Ground-Water Quality Evaluations
- Air Quality Evaluations

Design

- Operational Plans
- Conceptual Designs
- Detailed Sold Waste Management Facility Designs
- Surface Water Discharge, Wastewater Treatment and Ground-Water Remediation
- Contract Document Preparation
- Facility Closure

- Remedial Investigations/Feasibility Studies
- Final Land-Use Planning

Permitting

- Regulatory Liaison Activities
- Permit Preparation
- Community Education Programs

Construction Services

- Contract Administration and Management
- Construction Quality Assurance/Quality Control

Underground Storage Tank Services

EPA regulations can have a dramatic impact on owners and operators of hazardous waste, chemical, or petroleum storage tanks and piping systems. Law Environmental provides a wide range of services for underground storage tank (UST) systems. Ever changing federal and state regulations are monitored and updated regularly to service our national and local clients' needs. Our professionals have earned a reputation for excellence by producing innovative solutions based on client requirements. Law Environmental offers comprehensive and cost-effective UST services including:

- Regulatory Guidance and Consultation
- Tank Management Planning
- Assessment and Remediation
- Tank and Line Testing
- Tank Closure
- New Tank Systems Design

Wetland, Aquatic Assessment and Protected Species Services

Wetland habitats are defined as areas with sufficient surface or ground water to support vegetation during part or all of the growing season. Industrial use of wetland resources has become increasingly complex with the expansion of government regulatory control. Federal, state, and local governments have wetland regulations which must be considered prior to filling or otherwise disturbing wetland habitats.

Law Environmental believes its clients can benefit from our extensive and comprehensive range of wetland-related services. Our experienced technical professionals have the ecological, hydrologic, and engineering experience that wetland assessment, identification, and permitting require. Some of Law Environmental's wetland-related services are:

- Wetland Identification
- Permit Preparation and Assistance
- Mitigation Design and Planning
- Protected Species and Cultural Resources Surveys

OTHER SERVICES

In addition to its key service areas, Law Environmental offers many other resources for clients' environmental engineering and earth sciences needs. Summaries of these services follow. Also included are expanded discussions of some services which come under the key areas. Particularly beneficial to many clients are Law Environmental's international presence and experience. Also, our in-house capabilities yield high-quality projects, while controlling costs.

Mining and Tunnelling

Law personnel have a proven track record of providing a broad range of services to its clients in the mining industry. Our multidisciplinary staff are specialists, experienced in the areas of mining, permitting, exploration, evaluation, extraction, processing, and reclamation. The variable nature of our projects and the geographic diversity of sites has given our staff the opportunity to deal with various exploration techniques, operating problems, equipment types, stratigraphy and geologic structure. This breadth of experience directly benefits our clients in the successful planning, design and operation of mines.

Law's tunnel engineering services offer our clients a unique blend of our strong geotechnical engineering excellence with an outstanding comprehension of construction methods. Law's engineers and scientists are widely recognized for their contributions in the evaluation and design of earth structures and the associated technical disciplines needed for geotechnical design services.

Law serves its clients with tunnel engineering for water/sewer, transportation and power resources and mining through its technical capability to perform feasibility studies, preliminary engineering, final design and to provide engineering services during construction.

Law has as its basic mission, the optimization of design of facilities that require the multi-disciplinary application of civil, geotechnical and structural design disciplines. To this end, Law is committed to cost effective design utilizing sound engineering principals, critical construction conscious internal review, standard design production, and good contracting practices.

Over the years, Law has acquired extensive experience on various engineering aspects related to design and construction of tunnels and shafts. Tunnel engineering services provided by Law include the following:

- Review of geologic and geotechnical data to evaluate and identify the possible construction problems.
- Feasibility studies and analyses for selection of tunnel route and profile.
- Evaluation of geotechnical parameters for design.
- Constructability Aspects. Review and evaluation of alternative excavation methods, e.g. Tunnel Boring Machine (TBM), Road Headers, and Shield Method, etc., based on specific geologic conditions.
- Impact of specific construction method on the ground surface and existing structures.
- Evaluation of the support system alternatives in relation to excavation methodology.
- Analysis of the rock mass surrounding the tunnel and shaft to determine loading conditions and deformation.
- Design of initial and final support systems.
- Evaluate the drainage requirements and design of suitable waterproofing system for long-term performance.
- Inspection services during construction to record and evaluate rock/ground conditions encountered in the tunnel. Review of excavation and support methodology in relation to actual conditions.

Regulatory Compliance

Environmental projects often involve a considerable amount of interaction with state and federal regulatory personnel. This interaction might include technical briefings, study plans, corrective action negotiations, hearings, consent orders, and in some cases, legal enforcement actions.

Law Environmental has a group of highly skilled and experienced regulatory compliance consultants who work closely with clients and their legal counselors in this complex arena. These consultants combine technical expertise with regulatory knowledge to advise clients and design practical programs for cost-effective compliance. Law's professionals can guide a project through planning, site assessment, alternative evaluation, detailed design, and corrective action implementation.

Washington Environmental Policy Center

Today's rapidly changing environmental policies and the growing importance of environmental factors in the marketplace present both problems and opportunities. Law Environmental's Washington, D.C.-based Environmental Policy Center assists a variety of individual companies and broad-based coalitions in meeting those challenges. The center has extensive experience in short-term policy analysis and long-range strategic planning to position clients "ahead of the curve."

In the area of policy analysis, the center evaluates specific policy issues in-depth, assesses existing environmental policies, tracks evolving issues, and advises on the significance of new developments.

Long-term strategic planning is an important service for clients who want to go beyond strict compliance with current regulations and anticipate where regulations may be headed or launch independent environmental initiatives. Our policy center can anticipate environmental policy trends, prepare corporate management plans, and advise on approaches for meeting economic and environmental goals.

Nowhere is environmental policy developing faster than in the international arena. Thus, the center offers its services in both the United States and abroad and draws on international perspectives and developments in its policy analyses and strategic plans. The policy center's staff includes former senior EPA officials, environmental lawyers, and experts in international environmental affairs. The CEO of Law Companies Environmental Group, Lee Thomas, frequently participates in center projects. Mr. Thomas served as EPA Administrator from 1985 to 1988.

Process Technology Services

Law Environmental's experienced staff of chemical engineers, chemists, and scientists provide comprehensive process technology design and consulting services. We are particularly experienced in solving environmental problems related to a client's particular process operation or design.

Law Environmental's comprehensive process technology services include:

Water and Wastewater Treatment

- Ground-Water Recovery and Treatment
- Impoundment Water Treatment
- Process Wastewater Treatment
- Troubleshooting and Process Studies

Air Emissions

- Emission Assessments
- Air Emission Control

Waste Minimization

- Process Innovation
- Alternate Technology
- Comprehensive Program Development

General Process Engineering

- Design of Modular Units
- Design of Mobile and Movable Systems
- Process Troubleshooting
- Process Design

Law Environmental is experienced in developing facility process designs as a result of facility siting studies and process engineering as required for new or modified facility environmental assessments.

Exposure And Risk Assessment

Law Environmental's toxicologists, biochemists, epidemiologists and environmental scientists have extensive knowledge of the complexities inherent in predicting the fate of materials released into the environment and their potential to adversely affect living systems. Law Environmental's comprehensive services in these areas include:

Exposure Assessment

- Soil, Ground-Water and Surface-Water Sampling and Analysis
- Sampling/Exposure Monitoring for Contaminants
- Modeling of Environmental Fate (air, water or soil)
- Complex Multimedia Exposure Analysis

Risk Assessment

- Detailed Toxicological Evaluations of Specific Chemicals
- Risk Characterization and Quantification
- Studies Related to Issues of Environmental Hazardous Risk
- Uncertainty Analysis
- Statistical Evaluations of Data
- Epidemiological Assessment and Population Evaluation

We offer environmental management programs, risk communication, public-meeting presentations, literature search and acquisition services, and training courses for professionals and non-professionals. Law Environmental's experience in these areas of exposure and risk and the professional skills of its staff demonstrate the company's unique capability to execute complex projects.

Waste Minimization

With the increasing costs and regulatory complexities associated with waste management and disposal, you may find advantages in a waste minimization program. With appropriate implementation goals, schedules, and objectives, a waste minimization program can be a cost-effective means of reducing waste disposal and treatment costs. Law Environmental has senior staff experienced in waste minimization programs. These programs have involved minimization of a broad spectrum of environmental contaminants including wastewater, process water, sludges, chemicals and raw materials, products, solid wastes, hazardous wastes, radioactive materials, and air emissions. The concept of waste minimization may come under many types of programs including:

- In-Plant Wastewater Control
- On-Site Spill Containment and Prevention
- Material Reuse/Recycling
- Water and Energy Use Reduction

Such a program may require implementation of simple measures such as changing operating practices or substituting raw materials. Other measures may be complex, such as constructing extensive waste segregation and treatment systems. Regardless of the necessary measures, a successful waste minimization program requires a team approach. To execute the program, Law Environmental can provide managers, operators, process engineers, and on-site waste minimization program "facilitators." Facilitators coordinate the program investigation and act as catalysts for monitoring its implementation.

In-House Laboratory Services

Law Environmental National Laboratories (LENL) provides chemical, biological, and physical analysis of water, soils, and other environmental constituents. The vast majority of the work involves compliance with the exacting test methods for trace analyses promulgated by the EPA and other regulatory bodies.

LENL has established a reputation for consistently meeting its commitments and for providing legally defensible data at a fair price. The Kennesaw, Georgia Laboratory, located at Law Environmental's headquarters, specializes in responding to the needs of clients in the industrial sector. The Pensacola, Florida Laboratory specializes in the rigorous protocols and documentation requirements of the EPA Contract Laboratory Program (CLP). LENL is certified for the American Association for Laboratory Accreditation (A2LA) and by various states and is validated by the U.S. Army Corps of Engineers. Specific service areas include:

- Field Sampling
- Inorganics and Metals Analysis
- Gas Chromatography (GC) Analysis
- Gas Chromatography/Mass Spectrometry (GC/MS) Analysis
- Physical Testing

On an overnight basis, we provide shipping packages with prepared containers and chain-of-custody documents to meet sampling and preservation requirements.

Water Quality Protection

EPA published its regulations governing Storm Water Discharges under the NPDES permit program in November 1990. They became effective December 17, 1990. EPA expects the program to apply to more than 100,000 individual plants and require facilities that discharge "storm water associated with industrial activity" to submit an NPDES application for such discharge. Three permitting options are provided: Individual, Group or General. The Individual application is site specific and is similar to existing NPDES procedures. The Group is, as the name implies, an entity representing a group of facilities. The General category applies to companies with similar discharges that must meet the industry norms for discharges for individual facilities. Rules have not been finalized for General permits. A "Notice of Intent" is required with Part I applications due March 18, 1991 and Part II applications due November 18, 1991.

Law Environmental also performs storm water management and drainage analyses. We have the ability to model hydrologic parameters to determine expected peak storm water discharges for various frequency events and the analytical capability to provide reasonable and defendable estimates of associated pollutant discharge. The results of this modeling can be used to design or analyze hydraulic structures such as culverts, channels, lakes, and spillway structures as well as diversion, control, and treatment facilities to comply with the new storm water regulations.

Law Environmental is prepared to assist in obtaining NPDES permits for industrial storm water discharges. Our familiarity with the present NPDES program and our experience in performing storm water analyses will enable us to efficiently help clients affected.

International Services

Law Environmental is well-positioned to respond to the environmental challenges of a global marketplace through its sister company Sir Alexander Gibb & Partners, Ltd. (Gibb). Law Companies merged in 1989 with this highly respected British engineering firm. This union created one of the world's largest consulting engineering organizations with a combined staff of more than 4,000 employees. Law has more than 100 offices worldwide, offering a complete range of environmental, engineering, design, and program management services.

Gibb Environmental Services (GES), a division of Gibb, provides multi-disciplined environmental consulting services. GES has diverse public and private sector experience in the United Kingdom, as well as in other countries.

Together, Gibb and Law offer the latest environmental science, engineering, and policy services internationally through an extensive network of more than 30 offices in Africa, Australia, Europe, the Middle East, and the Pacific Basin.

Environmental Training Programs

Environmental training programs can increase your company's awareness of environmental issues and the regulations governing them. It is prudent that your personnel, especially managers and supervisors, understand how these regulations apply.

The professionals at Law Environmental are experienced in providing environmental training programs for industrial managers and supervisors. Our seminars are aimed at educating your key personnel in environmental issues such as air and water quality and their governing regulations including RCRA, Superfund, the Clean Air Act, and the Clean Water Act.

Law Environmental also offers special training programs that address employee health and safety. In accordance with Occupational Safety and Health Administration (OSHA) and EPA regulations, Law Environmental has developed 24-hour and 40-hour courses to teach specific responsibilities and duties, personal protective measures, and sampling procedures.

To enhance your own environmental training programs, Law Environmental has professionals who can speak at seminars you may plan. Later, you could benefit from our training program services by holding regional or company-wide seminars, which focus on specific issues such as underground storage tank management or waste minimization.

3.0 RCRA CAPABILITIES

Law has extensive experience in assisting clients in interpreting regulations and standards, determining their applicability to specific circumstances, and in working with federal/state regulatory authorities to reach negotiated settlements on compliance areas and matters not subject to discretionary determinations. Many of the projects listed in Section 5.0 have involved such interaction. Knowledge of the laws, regulations and standards and a good working relationship with regulatory agencies are primary assets in successful conduct of an environmental program.

Law has been involved in projects dealing with the regulatory framework for over twenty years. This framework has established regulations which are the very essence of a project. In other words, without the regulations, the project would not exist.

Since the advent of the Clean Water Act, Clean Air Act and others instituted in the early seventies, the engineering community has had to deal with a relatively new dimensions - knowing, understanding and interpreting both federal and state regulations.

However, even before the early seventies, Law was dealing with both complex and, even more importantly, evolving regulations. The present day federal legislation dealing with hazardous waste (i.e., RCRA and CERCLA/SARA) are probably the most complex and far reaching laws ever passed. They have imposed requirements upon industry and government , both for present and past activities. Licensing requirements for a hazardous waste land disposal site, for example, are tremendously complex. Litigation is presently underway against industry for sites under CERCLA result in situations where liability is applied to even the most remote party, who may have innocently sent their waste to an approved site. Needless to say, working in this environment requires a knowledge of both the regulatory and legal framework.

3.1 Resource Conservation and Recovery act (RCRA), SUBTITLE D, as Amended

The requirements of RCRA, with respect to federal facilities, subject them to federal, state and local requirements just as any nongovernmental entity.

- *RCRA Section 6001, Application of Federal, State, and Local Law to Federal facilities*, states that all branches of the federal government, having jurisdiction over any solid waste management facility or disposal site, shall comply with federal, state, and local solid waste or hazardous waste disposal requirements. The President may exempt any solid waste management facility of any department if it is "in the paramount interest of the United States." An exemption may be granted for one year.

There are several other sections of RCRA that have specific application to federal facilities. These include:

- *Section 3004(u), Continuing Releases at Permitted Facilities, Section 3004(v), Corrective Action beyond Facility Boundary*, states that all treatment, storage and disposal facilities must satisfy new requirements. These requirements involve: a) identifying all solid waste management units at the facility; b) identifying releases of hazardous wastes or constituents that have occurred from those units; and c) performing corrective action for those releases. The provisions apply to all regulated facilities, inactive and closed as well as operating units. All Federal facilities are subject to corrective action requirements to the same extent as any facility owned or operated by private parties.

  The statute requires Federal agencies to operate under the same property-wide definition of "facility": the entire site under control of the owner or operator involved in hazardous waste management. In 1986, EPA interpreted ownership to refer not to the United States as a whole but rather to individual Federal departments, agencies, and instrumentalities. (51 Federal Register 7722 (1986)). At the same time US EPA issued a notice of intent to propose rules indicating its intent to address three outstanding Federal facilities issues through rulemaking: recognition of specific subdivisions within a Federal agency, where appropriate, definition of "principle ownership" of property, and establishment of national priorities for cleanup (51 Federal Register 7723-24 (1986)).

- *Section 3007Z(c), Inspection*, states that the Administrator will annually inspect all Federal agency hazardous waste treatment, storage, and disposal facilities. Additional State inspections of such facilities may also occur.

- *Section 3016, Inventory of Federal Agency Hazardous Waste Facilities*, provides that each Federal agency must submit to US EPA an inventory of the sites that it owns or operates or previously owned or operated where hazardous waste is or was stored, treated or disposed at any time. The inventory should include the following information:

  - Location of the site
  - Amount and toxicity of the waste
  - Extent of environmental contamination
  - Current status of the site
  - List of disposal sites at the facility and monitoring reports
  - Response actions

- Identification of waste treated, stored or disposed
- Name and address of the responsible Federal agency for each site

If a facility does not provide adequate information, the Administrator shall notify the chief official of that agency. If after ninety days an inventory has not been developed, the Administrator shall carry out the inventory. US EPA guidance for developing this inventory is issued every two years.

- *Section 6002, Federal Procurement*, states that each procuring agency must select those items made of the highest percentage of recovered materials practicable unless such items are unreasonable, fail to meet performance standards, or are only available at an unreasonable price.

- *Section 6003, Cooperation with US EPA*, states that all Federal agencies must make available all information required by the Administrator concerning past or present waste management practices and past or presently owned, leased or operated solid or hazardous waste facilities.

- *Section 6004, Applicability of Solid Waste Disposal Guidances to Executive Agencies*, states that Executive Agencies must comply with Solid Waste Management Regulations where the Agency:

  - Has jurisdiction over real property or the operation and management of a facility that is involved in solid waste management;
  - Generates solid waste and which, if conducted by a person other than the Agency, would require a permit or license to dispose of the waste.

- *Section 9007, Federal Facilities*, states that Federal facilities' underground storage tanks containing regulated substances or petroleum must comply with all Federal, State and local requirements. (Note there are also requirements for hazardous waste storage tanks regulated under Subtitle C of RCRA.) The President may exempt a Federal agency from compliance if it is determined to be "in the paramount interest of the United States." The exemption is granted for one year and may only be renewed at one-year intervals.

Law's RCRA Services encompass the following areas of hazardous waste management and related activities:

- Conducting RCRA Facility Investigations
- Permitting Preparation and Negotiation

- Corrective Action Evaluation/Strategies and Performance Monitoring
- Closure and Post-Closure
- Compliance and Performance Monitoring, Auditing and Consultation
- Risk Assessment
- Environmental Compliance Audits
- Strategy Developments for SWMU's

The Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA) provide a comprehensive regulatory framework for permitting and corrective action(s). Law has a specific group of professionals directed toward assisting with complying to regulations promulgated under RCRA and HSWA.

Law's professionals provide services, including but not limited to, permit preparation and/or reviewing, siting assessment, landfill design, remedial action, closure, and post-closure, and post-closure activities, to conform to RCRA criteria. We stay abreast of the changing regulations which impact industrial facilities to better serve your needs. Law's professional staff consists of geologists, hydrogeologists, biologists, chemists, engineers, risk assessment professionals, safety professionals, and health physicists trained and experienced in the RCRA arena.

Our Washington, D.C. Policy Center works with a variety of individual companies and industry groups in analyzing specific environmental policy issues and trends. The Center has extensive experience in short-term policy analysis and often assists in long-term strategic planning to position clients "ahead of the environmental cause".

RCRA RELATED SERVICES

Law Environmental's RCRA Services encompass the following areas of hazardous waste management and related activities:

- Permitting
- Corrective Action Evaluation/Strategies
- Closure and Post-Closure
- Compliance and Performance Monitoring
- Risk Assessment
- Environmental Compliance Audits

Law Environmental's professionals provide services, including siting assessment, landfill design, remedial action, closure, and post-closure activities, to conform to RCRA criteria. We stay abreast of the changing regulations which impact industrial facilities to better

- Developing a strategy that makes sense for the facility and minimizes "study".
- Negotiating a practical RCRA Facility Investigation (RFI) Workplan.
- Implementing the RFI in a logical sequence of activities.
- Evaluating Corrective Measures with proper consideration for natural variability and current remedial practices.

Corrective Action Strategies

The development of a corrective action philosophy or strategy for a given facility should consider the following:

- Nature of Past Releases
- Potential Migration Pathways and Receptors
- Related Permits and Environmental Policy Issues
- Past and Future Plant Operational Plans

Law has years of experience in working with facility and corporate management in developing overall strategies and in projecting the financial impacts. Typical concepts for industrial facilities are illustrated in Figure 1.

Negotiating a Practical RFI Workplan

A practical RFI Workplan:

- Includes a carefully prepared description of current conditions maximizing the use of existing information
- Obtains data necessary for decision making, not for the sake of study
- Provides a logical approach for implementation
- Maintains flexibility and allows for adjustment as new data are obtained

The proper limitation of the number of units or areas for assessment is a critical factor. Law has prepared technical elements for rebuttals that have substantially reduced the scope of study. In one case, the number of solid waste management units requiring assessment was reduced from 114 to 15 by the efforts of Law Environmental personnel.

Quality Assurance/Quality Control Management
Community Relations

- COMPLETE FIELD AND LABORATORY ANALYTICAL SERVICES

  Waste Characterization
  Clean Water Act Monitoring
  Data Quality Evaluation

- REMEDIAL DESIGN

  Feasibility Studies

    Alternative Screening
    Lab/Bench Scale Treatability Testing
    Pilot Plant Scale Treatability Testing

  Closure Planning
  Remedial Alternative Design

    Ground-Water Control and Recovery
    Soil Washing/Biodegradation
    In-Situ Fixation and Solidification
    Waste Excavation and Removal
    Cover Design
    Ground-Water Recovery and Treatment
    Cost Estimating

- REMEDIAL CONSTRUCTION

  Remedial Action
  Preparation of Contract Documents
  Bid Analysis
  Equipment Procurement
  Vendor Submittal Approval
  Construction Management
  Resident Engineer Oversight
  Field Testing

Progress Reporting
Closure Certification
Post Closure Care and Monitoring

4.0 PROJECT APPROACH/PRICING

Law strongly believes that a team approach to environmental consulting offers our clients superior service, with effective cost control. To conduct environmental studies effectively, Law organizes a Project Team for each project. The Project Team is composed of persons with the required skills in environmental studies and designs, advanced technology, and research to develop solutions which incorporate the current scientific knowledge and practical experience. Some persons on a project may have very specialized experience and are utilized only for specific portions of major tasks. This approach provides a cost-effective method for individual assignment of work. It also gives the client confidence that the work is conducted by personnel with appropriate talent and experience.

A Principal of the firm is assigned to each Project Team and is responsible for technical oversight, project quality assurance, and contractual matters. The managers assigned are responsible for supervising the daily activities of the project staff and for maintaining contact with the client and on-site personnel. Depending on site-specific needs, Principal-level individuals may be assigned as managers for specific projects or for major components of projects.

Principals are ultimately responsible for the projects they are assigned. All principals complete a rigorous four- to five-year certification program. During this program, they must demonstrate their technical, project management, and report-writing skills before a corporate review board and pass an oral examination. They must also be registered or certified in their fields of professional specialization. Principals with broad recognition as technical experts are designated Corporate Consultants.

Typically, the proposed Project Team has worked together on other complex environmental studies. They have successfully dealt with intricate regulatory requirements, complex environmental settings, and have completed numerous projects which are regulated under the jurisdiction of EPA and many state regulatory agencies. Specific project personnel are discussed in Section 6.0.

INFORMATION MANAGEMENT RESOURCES FOR PROJECT EXECUTION

Law uses a well-developed system of physical and data-control resources to accomplish project objectives. The resources are based upon the Law Computer Support System. The Computer Support System uses a sophisticated data processing hardware and software, including large data base management programs.

LEGS Proposal Number: 11-1226
LEGS Proposal Preparation Date: 20-Dec-91
LEGS Proposal Preparation Time: 02:16 PM
LEGS Proposal Preparer's Name: Dane T. Velie
LEGS Client Name: State of New Mexico EPA
LEGS Client Contract/RFP No.:
File Name: C:\LOTUS3\123FILES\NEWMEXEP.WK1

Law Environmental, Inc.
Government Services Division
Proposal Cost & Pricing Data for Personnel Contract Hourly Invoice Rates
During the First Optional Contract Performance Period of 01/01/93 - 12/31/93
Including Forward Priced Direct Labor Rates and Indirect Cost Rates (Fringe Benefits, Overhead and G & A Expense)
In Response to the Request for Proposal from the State of New Mexico Environmental Protection Agency
for Environmental Consultation Services to be Provided to the State of New Mexico EPA - Hazardous & Radioactive Materials Bureau

Contact: Dane T. Velie

DERIVATION OF PERSONNEL HOURLY INVOICE RATES USING
AUDITED LAW ENVIRONMENTAL, INC. INDIRECT COST RATES==========>

Personnel Category:	Contract Forward Priced Base Performance Period Direct Labor Rates	Escalation or Forward Pricing of the 1992 Payroll Rates of Pay: 100% Times 5% or 5.00% Current Pay Rate	Contract Forward Priced Direct Labor Rate During the Contract Performance Period: 01/01/93 - 12/31/93	Fringe Benefits: 23.5% Times Forward Priced Direct Labor Rate (2)	Subtotal: Direct Salary Cost - Direct Labor & Fringes	Environ. Program or Dept. Overhead 67.69% Times Direct Salary Cost (2)	Branch Overhead 57.23% Times Direct Salary Cost (2)	Subtotal: Direct Salary Cost and Overhead	Gen & Admin Expense: 7.63% Times Direct Salary Cost & Overhead(2)	Total Cost: Direct Labor, Overhead, and G & A Expense Per Hour For Base Year Period	Profit - 10% Times Total Cost	1st Option Year: 01/01/93 - 12/31/93 Rounded Cost and Profit Per Hour
Salaried (Exempt) Technical and Professional Personnel:												
Professional Level:												
P1	$11.29 /Hour	$0.56	$11.85	$2.79	$14.64	$9.91	$8.38	$32.92	$2.51	$35.43	$3.54	$39.00 \Hour
P2	13.59 /Hour	0.68	14.27	3.35	17.62	11.93	10.08	39.63	3.02	$42.65	4.27	$46.90 \Hour
P3	16.72 /Hour	0.84	17.55	4.12	21.68	14.67	12.41	48.75	3.72	$52.47	5.25	$57.70 \Hour
P4	20.40 /Hour	1.02	21.42	5.03	26.46	17.91	15.14	59.50	4.54	$64.04	6.40	$70.45 \Hour
P5	25.12 /Hour	1.26	26.37	6.20	32.57	22.05	18.64	73.25	5.59	$78.84	7.88	$86.75 \Hour
P6	28.69 /Hour	1.43	30.12	7.08	37.20	25.18	21.29	83.67	6.38	$90.05	9.01	$99.05 \Hour
P7	38.24 /Hour	1.91	40.15	9.44	49.59	33.57	28.38	111.54	8.51	$120.05	12.00	$132.05 \Hour
P8	61.36 /Hour	3.07	64.43	15.14	79.57	53.86	45.54	178.97	13.66	$192.63	19.26	$211.90 \Hour
Hourly Paid (Non-Exempt) Administrative & Technical Personnel:												
Technicians:												
T1	$6.67 /Hour	$0.33	$7.00	$1.65	$8.65	$5.85	$4.95	$19.45	$1.48	$20.93	$2.09	$23.00 \Hour
T2	8.55 /Hour	0.43	8.97	2.11	11.08	7.50	6.34	24.93	1.90	$26.83	2.68	$29.50 \Hour
T3	10.22 /Hour	0.51	10.73	2.52	13.25	8.97	7.58	29.80	2.27	$32.07	3.21	$35.30 \Hour
T4	12.89 /Hour	0.64	13.54	3.18	16.72	11.32	9.57	37.61	2.87	$40.48	4.05	$44.50 \Hour
T5	15.79 /Hour	0.79	16.58	3.90	20.48	13.86	11.72	46.06	3.51	$49.57	4.96	$54.55 \Hour
Drafting/Graphics Personnel:												
DT2	$8.23 /Hour	$0.41	$8.64	$2.03	$10.67	$7.23	$6.11	$24.01	$1.83	$25.84	$2.58	$28.45 \Hour
DT3	6.66 /Hour	0.33	6.99	1.64	8.63	5.84	4.94	19.42	1.48	$20.90	2.09	$23.00 \Hour
DT4	12.88 /Hour	0.64	13.53	3.18	16.71	11.31	9.56	37.58	2.87	$40.44	4.04	$44.50 \Hour
DP3	19.99 /Hour	1.00	20.99	4.93	25.92	17.55	14.84	58.31	4.45	$62.76	6.28	$69.05 \Hour
Clerical/Secretarial/Administrative Personnel:												
C1	$5.51 /Hour	$0.28	$5.79	$1.36	$7.15	$4.84	$4.09	$16.08	$1.23	$17.30	$1.73	$19.05 \Hour
C2	8.34 /Hour	0.42	8.75	2.06	10.81	7.32	6.19	24.32	1.86	$26.17	2.62	$28.80 \Hour
C3	9.67 /Hour	0.48	10.15	2.39	12.54	8.49	7.18	28.21	2.15	$30.36	3.04	$33.40 \Hour
C4	11.55 /Hour	0.58	12.13	2.85	14.98	10.14	8.57	33.69	2.57	$36.26	3.63	$39.90 \Hour

(1) Please refer to the December 20, 1991 Law Environmental, Inc. Employee Rate Classification Analysis sheet for details.

(2) Please refer to the indirect cost ratio calculation sheets including the attached workpapers which provide the detailed documentation for derivation of the indirect cost rates.

LEGS Proposal Number: 11-1226
LEGS Proposal Preparation Date: 20-Dec-91
LEGS Proposal Preparation Time: 02:16 PM
LEGS Proposal Preparer's Name: Dane T. Velie
LEGS Client Name: State of New Mexico EPA
LEGS Client Contract/RFP No.:
File Name: C:\LOTUS3\123FILES\NEWMEXEP.WK1

Law Environmental, Inc.
Government Services Division
Proposal Cost & Pricing Data for Personnel Contract Hourly Invoice Rates
During the Second Optional Year Contract Performance Period of 01/01/94 - 12/31/94
Including Forward Priced Direct Labor Rates and Indirect Cost Rates (Fringe Benefits, Overhead and G & A Expense)
In Response to the Request for Proposal from the State of New Mexico Environmental Protection Agency
for Environmental Consultation Services to be Provided to the State of New Mexico EPA - Hazardous & Radioactive Materials Bureau

Contact: Dane T. Velie

DERIVATION OF PERSONNEL HOURLY INVOICE RATES USING
AUDITED LAW ENVIRONMENTAL, INC. INDIRECT COST RATES==========>

Personnel Category:	Contract Forward Priced First Option Year Direct Labor Rates	Escalation or Forward Pricing of the 1993 Payroll Rates of Pay: 100% Times 5% or 5.00% Current Pay Rate	Contract Forward Priced Direct Labor Rate During the Contract Performance Period: 01/01/94 - 12/31/94	Fringe Benefits: 23.5% Times Forward Priced Direct Labor Rate (2)	Subtotal: Direct Salary Cost - Direct Labor & Fringes	Environ. Program or Dept. Overhead 67.69% Times Direct Salary Cost (2)	Branch Overhead 57.23% Times Direct Salary Cost (2)	Subtotal: Direct Salary Cost and Overhead	Gen & Admin Expense: 7.63% Times Direct Salary Cost & Overhead(2)	Total Cost: Direct Labor, Overhead, and G & A Expense Per Hour For Base Year Period	Profit - 10% Times Total Cost	2nd Option Year: 01/01/94 - 12/31/94 Rounded Cost and Profit Per Hour
Salaried (Exempt) Technical and Professional Personnel:												
Professional Level:												
P1	$11.85 /Hour	$0.59	$12.44	$2.92	$15.37	$10.40	$8.80	$34.57	$2.64	$37.21	$3.72	$40.95 \Hour
P2	14.27 /Hour	0.71	14.98	3.52	18.50	12.52	10.59	41.61	3.17	$44.78	4.48	$49.25 \Hour
P3	17.55 /Hour	0.88	18.43	4.33	22.76	15.41	13.03	51.19	3.91	$55.10	5.51	$60.60 \Hour
P4	21.42 /Hour	1.07	22.49	5.29	27.78	18.80	15.90	62.48	4.77	$67.25	6.72	$73.95 \Hour
P5	26.37 /Hour	1.32	27.69	6.51	34.20	23.15	19.57	76.92	5.87	$82.79	8.28	$91.05 \Hour
P6	30.12 /Hour	1.51	31.63	7.43	39.06	26.44	22.35	87.85	6.70	$94.55	9.46	$104.00 \Hour
P7	40.15 /Hour	2.01	42.16	9.91	52.07	35.25	29.80	117.11	8.94	$126.05	12.60	$138.65 \Hour
P8	64.43 /Hour	3.22	67.65	15.90	83.55	56.55	47.82	187.92	14.34	$202.26	20.23	$222.50 \Hour
Hourly Paid (Non-Exempt) Administrative & Technical Personnel:												
Technicians:												
T1	$7.00 /Hour	$0.35	$7.35	$1.73	$9.08	$6.15	$5.20	$20.42	$1.56	$21.98	$2.20	$24.15 \Hour
T2	8.97 /Hour	0.45	9.42	2.21	11.64	7.88	6.66	26.18	2.00	$28.17	2.82	$31.00 \Hour
T3	10.73 /Hour	0.54	11.26	2.65	13.91	9.42	7.96	31.29	2.39	$33.68	3.37	$37.05 \Hour
T4	13.54 /Hour	0.68	14.22	3.34	17.56	11.88	10.05	39.49	3.01	$42.50	4.25	$46.75 \Hour
T5	16.58 /Hour	0.83	17.41	4.09	21.50	14.55	12.31	48.36	3.69	$52.05	5.21	$57.25 \Hour
Drafting/Graphics Personnel:												
DT2	$8.64 /Hour	$0.43	$9.08	$2.13	$11.21	$7.59	$6.41	$25.21	$1.92	$27.13	$2.71	$29.85 \Hour
DT3	6.99 /Hour	0.35	7.34	1.72	9.06	6.14	5.19	20.39	1.56	$21.94	2.19	$24.15 \Hour
DT4	13.53 /Hour	0.68	14.20	3.34	17.54	11.87	10.04	39.46	3.01	$42.47	4.25	$46.70 \Hour
DP3	20.99 /Hour	1.05	22.04	5.18	27.22	18.43	15.58	61.23	4.67	$65.90	6.59	$72.50 \Hour
Clerical/Secretarial/Administrative Personnel:												
C1	$5.79 /Hour	$0.29	$6.08	$1.43	$7.51	$5.08	$4.30	$16.88	$1.29	$18.17	$1.82	$20.00 \Hour
C2	8.75 /Hour	0.44	9.19	2.16	11.35	7.68	6.50	25.53	1.95	$27.48	2.75	$30.25 \Hour
C3	10.15 /Hour	0.51	10.66	2.51	13.17	8.91	7.54	29.62	2.26	$31.88	3.19	$35.05 \Hour
C4	12.13 /Hour	0.61	12.73	2.99	15.73	10.65	9.00	35.37	2.70	$38.07	3.81	$41.90 \Hour

(1) Please refer to the December 20, 1991 Law Environmental, Inc. Employee Rate Classification Analysis sheet for details.

(2) Please refer to the indirect cost ratio calculation sheets including the attached workpapers which provide the detailed documentation for derivation of the indirect cost rates.

5.0 RELATED EXPERIENCE

5.1 RCRA Projects

Law has numerous projects involving all aspects of RCRA applications. The following table is a representative sampling of Law's wide-ranging RCRA capabilities.

LAW ENVIRONMENTAL, INC.

RCRA PROJECT EXPERIENCE

CLIENT / LOCATION	PERMIT APPLICATION	FACILITY DESCRIPTION	WASTE CHARACTERISTICS PROCESS INFORMATION	GROUND-WATER MONITORING	PROCEDURES TO PREVENT HAZARDS / CONTINGENCY PLAN	PERSONNEL TRAINING	CLOSURE PLANS	OTHER FEDERAL LAWS	CERTIFICATION	SOLID WASTE MANAGEMENT UNITS	CLOSURE EQUIVALENCY DETERMINATION	RFI PLAN	RFI IMPLEMENTATION	CORRECTIVE ACTION PLAN	MANAGEMENT OF CLOSURE CONSTRUCTION ACTIVITIES	ACL PETITION	PERMIT MODIFICATION / APPEAL	RISK ASSESSMENT
Allied Fairfield, AL										●		●					●	
Alternate Energy Resources Augusta, GA				●						●							●	
American Cyanamid Willow Island, WV				●														
Aristech Chemical Haverhill, OH				●								●	●					
Atlantic Steel Atlanta, GA	●	●		●						●		●	●					
Auburn University Auburn, AL												●						
BKK Corporation West Covina, CA		●		●			●			●								
Bluebird Body Company Fort Valley, GA	●	●	●	●	●	●	●	●	●									
Blue Bird Body Mt. Pleasant, IA							●								●			
Celanese Houston, TX		●	●				●			●		●	●					
Conbraco Matthews, NC				●			●		●	●	●							
Confidential Client NC	●	●	●		●	●	●			●								

LAW ENVIRONMENTAL, INC.

RCRA PROJECT EXPERIENCE

CLIENT / LOCATION	APPLICATION	FACILITY DESCRIPTION	WASTE CHARACTERISTICS PROCESS INFORMATION	GROUND-WATER MONITORING	PROCEDURES TO PREVENT HAZARDS / CONTINGENCY PLAN	PERSONNEL TRAINING	CLOSURE PLANS	OTHER FEDERAL LAWS	CERTIFICATION	SOLID WASTE MANAGEMENT UNITS	CLOSURE EQUIVALENCY DETERMINATION	RFI PLAN	RFI IMPLEMENTATION	CORRECTIVE ACTION PLAN	MANAGEMENT OF CLOSURE CONSTRUCTION ACTIVITIES	ACL PETITION	PERMIT MODIFICATION / APPEAL	RISK ASSESSMENT
Confidential Client TX	●	●	●		●				●		●							
Courtaulds Coatings Louisville, KY		●	●	●			●			●		●						●
Diversified Products Opelika, AL				●						●								
DuPont Beaumont, TX	●	●	●	●						●		●						
Ellis & Everard Chesapeake, VA	●	●		●	●			●										●
Ellis & Everard Fayetteville, NC	●	●	●	●	●		●			●		●						●
General Electric Bridgeville, PA													●					
General Electric Fort Edward, NY	●	●	●		●	●	●											
General Electric Multiple sites, PR							●			●				●				
General Electric Waterford, NY				●			●			●				●	●	●		
Genicom Waynesboro, TN	●	●		●			●		●	●		●						
Koppers Grenada, MI	●	●	●	●	●		●											

LAW ENVIRONMENTAL, INC.

RCRA PROJECT EXPERIENCE

CLIENT / LOCATION	APPLICATION	FACILITY DESCRIPTION	WASTE CHARACTERISTICS PROCESS INFORMATION	GROUND-WATER MONITORING	PROCEDURES TO PREVENT HAZARDS / CONTINGENCY PLAN	PERSONNEL TRAINING	CLOSURE PLANS	OTHER FEDERAL LAWS	CERTIFICATION	SOLID WASTE MANAGEMENT UNITS	CLOSURE EQUIVALENCY DETERMINATION	RFI PLAN	RFI IMPLEMENTATION	CORRECTIVE ACTION PLAN	MANAGEMENT OF CLOSURE CONSTRUCTION ACTIVITIES	ACL PETITION	PERMIT MODIFICATION / APPEAL	RISK ASSESSMENT
Koppers N. Little Rock, AR	●	●	●		●		●											
Langley AFB VA				●				●		●	●	●	●					
LCP Chemical Wilmington, NC	●	●		●			●	●										
Lexington Blue Grass Army Depot KY				●			●	●		●	●	●	●					
Metal Fabricators Atlanta, GA				●			●			●								
Murray Ohio Mfg. Lawrenceburg, TN	●	●		●								●	●					
Myrtle Beach AFB SC				●			●	●		●		●	●					
Olin Corp. E. Alton, IL	●	●	●	●			●	●		●								
Reliance Electric Vidalia, GA	●	●	●	●	●	●	●	●	●	●			●		●			
Sandoz Charlotte, NC				●					●	●								
Seitzinger Atlanta, GA	●	●	●	●	●	●	●	●	●	●	●							
Seymour Johnson AFB NC				●				●		●	●	●	●					

LAW ENVIRONMENTAL, INC.

RCRA PROJECT EXPERIENCE

CLIENT / LOCATION	APPLICATION	FACILITY DESCRIPTION	WASTE CHARACTERISTICS PROCESS INFORMATION	GROUND-WATER MONITORING	PROCEDURES TO PREVENT HAZARDS / CONTINGENCY PLAN	PERSONNEL TRAINING	CLOSURE PLANS	OTHER FEDERAL LAWS	CERTIFICATION	SOLID WASTE MANAGEMENT UNITS	CLOSURE EQUIVALENCY DETERMINATION	RFI PLAN	RFI IMPLEMENTATION	CORRECTIVE ACTION PLAN	MANAGEMENT OF CLOSURE CONSTRUCTION ACTIVITIES	ACL PETITION	PERMIT MODIFICATION / APPEAL	RISK ASSESSMENT
Southern Wood Piedmont Augusta, GA				●			●			●						●	●	●
Southern Wood Piedmont Baldwin, FL				●			●			●		●				●		●
Southern Wood Piedmont Chattanooga, TN				●			●			●								
Southern Wood Piedmont East Point, GA				●			●			●						●	●	
Southern Wood Piedmont Spartanburg, SC				●			●			●		●					●	
Southern Wood Piedmont Waverly, OH							●			●		●	●					
Torrington Clinton, SC				●	●				●	●		●	●					
Union Carbide Woodbine, GA	●	●	●	●			●		●	●		●				●	●	
University of Georgia Athens, GA												●						
Virginia Chemical Portsmouth, VA		●	●	●			●											
Xerox Atlanta, GA				●										●	●			
Xerox Webster, NY				●						●		●	●					

LAW ENVIRONMENTAL, INC.

REPRESENTATIVE SOLID AND HAZARDOUS WASTE MANAGEMENT SERVICES

CLIENT	PROJECT	GROUND-WATER MONITORING AND ASSESSMENT	REGULATORY AGENCY NEGOTIATIONS	PUBLIC HEARINGS/ COMMUNITY RELATIONS	RCRA FACILITY PERMIT APPLICATION	CLOSURE PLAN PREPARATION	CLOSURE PLAN IMPLEMENTATION AND CERTIFICATION	CORRECTIVE ACTION DESIGN AND IMPLEMENTATION	RCRA FACILITY DESIGN	WASTE CHARACTERIZATION/ DELISTING	RISK ASSESSMENT
OLIN CORPORATION EAST ALTON, IL	HAZARDOUS WASTE INCINERATOR AND CONTAINER STORAGE BUILDING PERMIT APPLICATION		●	●	●	●		●	●	●	
OLIN CORPORATION EAST ALTON, IL.	CLOSURE PLAN FOR 13 INTERIM STATUS UNITS	●	●			●	●			●	●
ALLIED-SIGNAL CORP. FAIRFIELD, AL	HAZARDOUS WASTE INCINERATOR PERMIT APPLICATION AND PERMIT REVIEW COMMENTS	●	●	●	●			●	●	●	
ITT CORPORATION (WOOD PRESERVING SITES IN GA, FL. TN, SC)	DETAILED SITE ASSESSMENTS, CLOSURE DESIGNS, AND CORRECTIVE ACTIONS	●	●	●	●	●	●	●	●	●	●
ATLANTIC STEEL COMPANY ATLANTA, GA	RCRA FACILITY CLOSURE AND CLOSURE PERMITS	●	●	●	●	●	●	●		●	
FEDERAL PACIFIC ELECTRIC VIDALIA, GA	RCRA FACILITY PART B PERMIT APPLICATION	●	●	●	●	●	●		●	●	
BLUE BIRD BODY COMPANY FT. VALLEY, GA	RCRA LANDFILL CLOSURE AND POST CLOSURE CARE PERMIT APPLICATION	●	●	●	●	●	●	●		●	
RHONE-POULEC WOODBINE, GA	RCRA FACILITY CLOSURES AND PERMIT APPLICATION	●	●	●	●	●	●	●		●	●
SCHILLING SUPERFUND SITE IRONTON, OH	SITE ASSESSMENT AND RISK-BASED CLEANUP LEVEL DETERMINATION	●	●	●	●	●	●	●		●	●
SEITZINGER, INC. ATLANTA, GA	REMEDIATE K069 LANDFILL	●	●	●	●	●	●	●		●	
GENERAL ELECTRIC COMPANY WATERFORD, NY	DETAILED ASSESSMENT OF LANDFILLS AND REMEDIAL DESIGN	●	●	●	●	●	●	●		●	●
GENERAL ELECTRIC COMPANY MORRISTOWN, TN	IMPOUNDMENT CLEAN CLOSURE	●	●	●	●	●	●	●		●	

5.2 Salt Storage Technology Projects

Evaluation of Gulf Coast Salt Domes, U.S. Department of Energy

Law has served as Geologic Program Manager for the U.S. Department of Energy's Gulf Coast Salt Dome project to investigate the geologic feasibility of high-level radioactive waste storage in salt domes and to characterize selected domes. Law's investigation included definition of the regional groundwater hydrology with respect to groundwater flow, facies changes, geologic structure, recharge/discharge, and fresh water/salt water contacts. Geohydrological maps were detailed showing thickness, sand-shale ratio, isotransmissivity and potentiometric surfaces for water-bearing units. Site-specific investigations included evaluations of dome geometry, erosion and inundation predictions, internal structure of salt domes, the preparation of salt-diapirism models, salt-dissolution studies, surface and subsurface hydrology and stream monitoring data collection. In addition, geophysical surveys, including gravity and seismic, were conducted over candidate domes.

The objective of the Gulf Coast Salt Dome Project was to evaluate the regional geologic and hydrologic environment of the Gulf Coast salt dome basins where numerous salt domes occur to select study areas for detailed characterization and to inventory the natural resources of the basin. On the region scale, the investigation included definition of the regional ground water hydrology with respect to the ground-water flow, facies changes, geologic structure, recharge-discharge, and freshwater-saltwater relations and preparation of geohydrological maps showing thickness, sand-shale ratio, isotransmissivity, and potentiometric surfaces for water bearing units. Site-specific investigations included evaluations of dome geometry erosion and denudation, and internal structures of salt domes; the preparation of salt diapirism models; salt dissolution studies; surface and subsurface hydrology and stream monitoring data collection; topographic mapping; field seismic refraction and reflection studies; remote sensing; and assessment of ecologic structure and stratigraphy. These investigations included the drilling of hydrologic test holes, core drilling, borehole geophysical logging, and shallow exploratory borings. Additionally, geophysical gravity surveys were conducted over candidate domes. Subtasks include obtaining right-of-access of private lands on which these studies were performed and obtaining the necessary permits to conduct investigations. For each investigation, an environmental impact statement was prepared. The investigative area was studied for areas of environmental concern, such as wetlands, endangered species, flora, and fauna. Mitigation and restoration plans were prepared and implemented for each site. Upon completion of research activities in study areas, potential sites which met selection criteria and specifications were recommended for detailed characterizations.

A four-volume report of more than 3000 pages of text, tables and figures was prepared, representing Law's achievement of establishing leadership in the geotechnical characterization of salt domes.

Strategic Petroleum Reserve, U.S. Department of Energy/Sandia National Laboratory

Also for the Department of Energy, Law investigated the suitability of existing solution-mined cavities in salt domes for the storage of crude oil, as a part of the Strategic Petroleum Reserve (SPR) project. Law's effort included characterization of the geologic and hydrologic environment of salt-dome storage sites to identify possible hazards and recommend solutions to known and potential problems. Site-specific investigations for SPR includes evaluations of dome geometry, cavern stability, internal structure of salt domes, salt dissolution, surface and subsurface hydrology and stream-monitoring-data collection, topographic mapping, remote sensing, assessment of structure and stratigraphy, soil mechanics, and engineering geology.

Law's SPR investigation included description of the regional hydrology with respect to groundwater flow at the site, stratigraphic facies changes, geologic structure, recharge/discharge, and fresh water/salt water relations. The work included preparation of geohydrologic maps showing thickness, transmissivity and potentiometric surfaces for water-bearing units. Regional geologic investigations included stratigraphy, seismicity, soils, and structural characterizations.

Jefferson Island Salt Dome Project

Texaco, Inc. selected Law for its technical expertise and assistance in Texaco's investigation of an incident at the Jefferson Island Salt Dome, Jefferson Island, Louisiana.

Pakhoed U.S.A.

Law prepared the Part B permit for an HTW storage facility in Southwestern Louisiana, for Pakhoed U.S.A. The permit characterized a large salt dome near Vinton, Louisiana and surface facilities which would handle, treat and store compatible HTW streams at several thousand foot depths. The state required full site characterization, emergency response actions and contaminant transport models.

5.3 Geologic Investigation and Nuclear Projects

Illinois Low-Level Rad Site
Nuclear Engineering Company - Louisville, Kentucky
Sheffield, Illinois
Mr. James N. Neel and
U.S. Ecology - Richard Sauer - (502) 426-7160

The Illinois Low-Level Rad Site consists of contiguous rad disposal and chem disposal sites operated by U.S. Ecology. In 1975, it was proposed to enlarge the rad site. The previous operating practice was to use unlined trenches which were sized to provide separation from the water table. Law Engineering worked with U.S. Ecology to identify geologically suitable expansion areas and designed the utilization concept for the expansion. These activities included site characterization and ground-water models fort he expansion site. In addition, a ground-water monitoring and emergency plan was developed for the previous site. Site characterization and trench design was also done for the adjacent chem site. During chem site trench construction liner quality and trench stability was checked.

Department of Energy
Savannah River Site
Aiken, South Carolina

Westinghouse Savannah River Co.
Aiken, South Carolina
POC: Mr. Ed. A. Campbell, (803) 725-2037

Westinghouse Savannah River Company (WSRC) selected Law to provide technical and management assistance for implementation of Savannah River Site (SRS) environmental programs. The contract is administered using task orders for discrete tasks. The task orders to date have allowed Law to provide services in the following areas: regulatory review/interpretation, mixed waste Land Disposal Restriction assistance, waste minimization, environmental newsletter preparation, electrofishing, seismic network evaluation, closure of mixed waste tanks, Quality Assurance activities, and geotechnical consultation. The following paragraphs briefly describe several of the task order assignments.

Law is assisting WSRC to comply with The Land Disposal Restriction (LDR) regulations (40 CFR Part 268) with regards to disposal of site hazardous and mixed waste. In particular, Law is surveying waste treatment systems to evaluate the compliance status of these facilities. When necessary, Law is preparing case-by-case extensions or treatment variance petitions for submittal to EPA. Law interprets and summarizes Federal, State and DOE environmental regulations for WSRC staff. In addition, Law publishes a newsletter for WSRC staff that discusses these regulatory summaries and other environmental issues at SRS.

Law is conducting a Phase I geotechnical investigation for siting of the New Production Reactor at the Savannah River Site. The subsurface investigation consisted of soil test borings, deep cone penetrometer soundings with associated uphole seismic testing and piezometer installation, and inflow permeability testing to evaluate hydrologic characteristics. Geophysical logging of all borings has been performed. Law will perform strength and classification tests in the laboratory. This work was performed in accordance with the Quality Assurance requirements of the Department of Energy and Westinghouse Savannah River Company. Law's Quality Assurance Plan is modeled after CFR 50, Appendix B and addresses the 18-point criteria outlined therein and in ASME's NQA-1, Quality Assurance Program Requirements for Nuclear Facilities and Specific Requirements in ASME's NQA-2, Section 2.20, Quality Assurance Requirements for Subsurface Investigations for Nuclear Power Plants.

Pennsylvania Low-Level Waste Siting Study
Chem-Nuclear Systems, Inc.
750 East Park Drive, Suite 200
Harrisburg, Pennsylvania 17111
Dr. Robert Meyers (717) 561-1522

Law is conducting statewide screening for suitable site selection using entire state. Phase I applies a series of broad disqualification criteria to the entire state. Phase II applies evaluation criteria to areas surviving Phase I disqualification. During this effort, Law will create a Geographical Information System (GIS) database for the State. A series of sites remaining after Phase I and Phase II will require detailed site characterization.

During site characterization, Law will conduct one-year studies to define site conditions for licensing. They will include the following disciplines: natural resources, water resources, geochemistry, air quality, meteorology, seismicity, geomorphology, geotechnical, hydrogeology and geophysics. Law will also support Chem-Nuclear Systems, Inc., during site license application preparation. Law'S project manager also is providing support during public meetings.

North Carolina Low-Level
Chem-Nuclear Systems, Inc.
Site Characterization Study
5400 Glenwood Avenue, Suite 305
Raleigh, North Carolina 27612
Mr. David Ebenhack (919) 787-0782

Because of Law's involvement during the statewide screening effort, we were retained to provide detailed site characterization on sites selected by North Carolina for low-level

radioactive waste disposal. Initially, Law was asked to verify the selection criteria, developed earlier by EBASCO, and report to Chem-Nuclear Systems, Inc. on the validity of those criteria. Once this initial assessment was completed, a pre-characterization study was begun. This study involved multi-discipline site walk-over and geologic and hydrologic evaluations. Soil borings and rock cores were made to verify screening selections. The pre-characterization effort will allow the selection of two sites for detailed site characterizations. Once the two sites have been selected by North Carolina, Law will conduct a one-year detailed site characterization study to include the following disciplines: natural resources, water resources, geochemistry, air quality, meteorology,

Advanced Neutron Source (ANS) Facility
Martin Marietta Energy Systems
Oak Ridge, Tennessee
Steven B. Jones (615) 574-8656

Law Engineering, Inc. is currently providing Drilling and Engineering/Geologic Services for Site Characterization activities for the ANS Facility at the Oak Ridge National Laboratory. This project is being conducted under a detailed project-specific QA program developed to address the requirements of ASME NQA-2, Part 2.20, "QA Requirements for Subsurface Investigations for Nuclear Power Plants" and ASME NQA-1, "Quality Assurance Program Requirements for Nuclear Facilities".

Clinch River Breeder Reactor
Burns & Roe, Paramus, New Jersey 07652
Oak Ridge, Tennessee
Mr. Walter Brusey (201) 447-2954

The Clinch River Breeder Reactor site is an extension of Bethel Valley, within the Oak Ridge Reservation. Law Engineering was the geology, seismology and geotechnical consultant for the design and safety analysis. The site and region were extensively studies to document the natural conditions that must be defended during the licensing process. These studies included detailed reviews and consultation with ORNL scientists that were operating the deep injection well in Haw Ridge. The Clinch River site was investigated by borings observation wells, aquifer tests, geophysics, field dispersion tests, and laboratory analysis. A test grouting program was conducted to study the interaction of joint and fracture patterns and their influence on ground-water flow. The site was successfully defended through "the regulatory process" and limited work authorization for site work was achieved.

Seismicity Evaluation of Potential Nuclear Plant Site
Southwest United States
Major Southeastern Utility - Confidential Client

Law Engineering conducted a seismicity study evaluating the potential licensing problems and site suitability of 11 potential nuclear power plant sites covering a three state area. The investigation included determining the current seismicity at each site using portable microearthquake recorders, development of a seismic geological model for determination of hypocenters, and analysis of the maximum possible earthquake for each site.

Nevada Low-Level Radioactive
U.S. Ecology
Waste Disposal Facility
9200 Shelbyville Road
Louisville, Kentucky
Beatty, Nevada
Mr. Richard Sauer - (502) 426-7160

Law was a consultant to this site. Our services included consultation on the geohydrologic aspects of the site, site design and site operation. Using surface electrical surveys, we mapped the location and extent of buried trenches which had been lost by the operator. Using borehole geophysics we determined the geohydrologic and strength properties of subsurface materials to allow the design of containment structures.

Kentucky Low-Level
U.S. Ecology, Inc. - Louisville, Kentucky 40207
Radioactive Waste Disposal Facility
Mr. Richard Sauer - (502) 426-7160
Maxey Flats, Kentucky

Maxey Flats is a low-level rad site which was operated by Nuclear Engineering Company for the State of Kentucky. The operating practice was to bury low-level waste in unlined trenches. Included in the inventory were significant quantities of tritium. In 1974, tritium began appearing in surface drainage near the site. Law Engineering characterized the influence of surface and subsurface drainage at the site and performed contaminant transport analyses to ascertain the probable future excursions from the site. The first phase involved compilation of an extensive bibliography of closure experience and research from the nuclear and hazardous waste industries and government agencies. Decommissioning design components, such as waste compact methods and low-permeability burial site cover design alternatives, were evaluated based on the review of available

technologies. The second phase included evaluation of potentially applicable alternatives through a wide variety of performance modeling techniques. Engineering designs and implementation cost estimates were prepared for several different components of a closure plan.

Nuclear Fuel Preprocessing Plant
Exxon Nuclear Company, Inc.
Oak Ridge, Tennessee
600 108th Avenue, NE - Bellevue, Washington
Paul C. McMurry - (206) 453-4300

Law Engineering conducted a detailed subsurface investigation, geologic/historic sturdy, and structural analysis for a nuclear fuel reprocessing plant to be located near Oak Ridge, Tennessee. Geologic investigations included deep and shallow exploratory borings to define subsurface stratigraphy and structures. Seismic crosshole and uphole techniques were utilized in defining dynamic properties of subsurface materials. Installation of deep and shallow piezometers, determination of aquifer permeabilities utilizing pump tests and inflow-outflow testing, and surface run-off studies were included in hydrologic studies.

Nuclear Fuel Reprocessing Plant
Atlantic Richfield/Hanford Company
South Carolina
Richland, Washington (509) 946-0326

Law Engineering conducted extensive geologic, geophysical, and surface and ground-water hydrology studies in preparation of submittal of a PSR for this nuclear fuel reprocessing plant. Detailed seismological studies were conducted and several large earthquakes in South Carolina were re-evaluated. In addition, seismic response spectra, earthwork criteria, and foundations recommendations were developed.

McGuire and Oconee Nuclear Power Plants
Duke Power Company
North and South Carolina
501 South Church Street - Charlotte, NC
S.B. Hager - (704) 373-4226

In preparation for submittal of the PSAR and FSAR for Units I and II for both plants, Law Engineering conducted extensive studies for Duke power Company which included geologic investigations, ground and surface water hydrological investigations, and seismological and engineering analysis. Remote sensing techniques were utilized for the

5.5 References

The following is a list of references familiar with recent environmental work performed by Law.

Frank Schearer, P.E. 205/955-5140
U.S. Army Corps of Engineers
Huntsville Division

Ms. Katie Schenk 402/691-4520
Mr. Paul E. Dappen 402/221-7681
U.S. Army Corps of Engineers
Omaha District

Mr. Frank Bader 816/426-5668
Ms. Joan Chapman 816/426-6484
U.S. Army Corps of Engineers
Kansas City District

6.0 PERSONNEL CAPABILITIES

Summary of Overall Staffing Capabilities

The professionals in Law Environmental are specialists with strong academic credentials and a great deal of practical experience. The staff includes natives of more than 30 states and foreign countries, and collectively represents graduates from more than 60 different colleges and universities. Most have earned advanced degrees, and the disciplines represented include:

- Agricultural Engineering
- Biology
- Chemical Engineering
- Chemistry
- Civil Engineering
- Ecology
- Environmental Engineering
- Fisheries Biology
- Forestry
- Geochemistry
- Geology
- Geophysics
- Geotechnical Engineering
- Hydraulic Engineering
- Hydrogeology
- Hydrology
- Industrial Hygiene
- Law
- Marine Geology
- Mathematics
- Mechanical Engineering
- Meteorology
- Operations Research
- Petroleum Engineering
- Physics
- Planning
- Petrography
- Seismology
- Soil Sciences
- Toxicology
- Water Resources Engineering
- Wildlife

The Law Companies encourages staff membership and participation in various relevant professional societies. We believe such involvement fosters individual professional growth and helps keep our staff up to date on current developments. Many of the senior staff members also serve on subcommittees or teach in sponsored workshops. Our staff participates in the following national organizations:

- Albuquerque Geologic Society
- American Association for the Advancement of Science
- American Academy of Industrial Hygiene
- American Association of Petroleum Geologist
- American Chemical Society
- American Geophysical Union
- American Institute of Chemical Engineers

- American Institute of Hydrology
- American Institute of Professional Geologists
- American Planning Association
- American Society of Agricultural Engineers
- American Society of Agronomy
- American Society of Civil Engineers
- American Society of Mammalogists
- American Society of Mechanical Engineers
- American Society of Testing and Materials
- American Statistical Association
- American Water Resources Association
- American Water Works Association
- Association of Engineering Geologist
- Association of Groundwater Scientists and Engineers
- Construction Specifications Institute
- Consulting Engineering Council
- Earthquake Engineering Research Institute
- Ecological Society of American
- Geological Society of America
- Georgia Groundwater Association
- Hazardous Materials Control Research Institute
- International Society of Soil Mechanics and foundation Engineering
- National Association of Environmental Professionals
- National Society of Professional Engineers
- National Water Well Association
- New Mexico Geologic Society
- New Mexico Hazardous Waste Society
- Operations Research Society of America
- Society of American Foresters
- Society of Exploration Geophysicists
- Society of Mining Engineers of A.I.M.E.
- Society of Professional Well Log Analysts
- Society of Wetlands Scientists
- Soil Science Society of America
- Technical Association of the Pulp and Paper Industry
- Water Pollution Control Federation
- Wildlife Society
- US Council on Rock Mechanics

Following are resumes of key personnel who may be directly involved in the project. These individuals will be allowed to draw upon the qualifications, resources, and background of individuals throughout the company with the many disciplines described above.

Mr. Sidney Brandwein is the Albuquerque Project Office manager and is a principal geologist/geophysicist with Law. He will be the project principal and will organize the appropriate personnel from throughout the company and Aguirre.

Mr. Ben Rusche will act as project consultant and provide overall guidance and the benefit of his experience to the project. Mr. Rusche brings a broad spectrum of experience and accomplishment in the nuclear industry covering a period of 38 years in private industry and government. As one of his many accomplishments, Mr. Rusche was appointed Director of Office of Civilian Radioactive Waste Management, at the level of Assistant Secretary in the U.S. Department of Energy.

Mr. Mark Bailey will be Aguirre's primary point of contact. Mr. Bailey conducted 14 Superfund assessments of suspect sites for the Bureau of Land Management in New Mexico. During these investigations, he has worked directly with EPA Region VI and the New Mexico Environment Department.

BEN C. RUSCHE
Senior Vice President and Director
Project Consultant

Mr. Rusche has a broad spectrum of experience and accomplishment in the nuclear industry covering a period of thirty-eight years in private industry and in government. Much of that experience is directly relevant to environmental and safety issues and to radioactive waste disposal.

Following a fifteen year period majoring in detailed reactor physics and reactor and nuclear safety experiments, design, and hands-on operations, involving at the time, the world's largest production reactors, Mr. Rusche was appointed Director of Environmental Sciences for the DuPont Company at the Savannah River facility of the U.S. In this role from 1968 forward, he participated in the design and evolution of the environmental program and oversaw the activities aimed at protecting public and employee health and safety and in protecting the environment. He was responsible for technical, engineering, policy and regulatory matters and participated frequently in review by outside advisory and regulatory groups and by the public.

In 1975, Mr. Rusche was appointed the first Director of Nuclear Reactor Regulation for the U.S. Nuclear Regulatory Commission. In this role, he directed a staff of about 600 who were charged with the review of designs and proposed operating procedures for commercial nuclear power reactors for the U.S. The responsibilities included oversight and exercise of regulatory control over operating power plants to assure protection of public and employee health and safety and protection of the environment. As a part of the senior management of the NRC, Mr. Rusche participated in the development of regulatory policy and standards related to low-level radioactive materials including uranium mining and processing wastes. He participated in ten public hearings before the U.S. Congress and was presented the Commission's award for Outstanding Management upon conclusion of the two year tour.

Upon returning to the DuPont Corporation, Mr. Rusche was appointed the first Director of Health and Safety for the DuPont Corporation worldwide. In this role he was responsible for guiding the corporation in its compliance with new environmental regulations related to clean air, clean water, toxic substances, and hazardous wastes. Attention was placed on internal operations as well as protection of the public in the use of DuPont products.

Shortly thereafter, Mr. Rusche formed a privately funded Energy Research Institute, addressing energy efficiency objectives for private industry and government. While in this position, the Three Mile Island Reactor accident occurred, and Mr. Rusche was called to the site within a week of the accident to direct waste management activities. For one year he remained on site as a consultant employee of the General Public Utilities Corporation. This unique exercise in technical innovation and management under dynamic and difficult circumstances was indeed a broadening experience. The engineering and environmental

challenge was compounded by the unusual public interaction and represents a one-of-a-kind experience.

Upon election of President Reagan, Mr. Rusche was selected by Secretary of Energy James B. Edwards as his principal technical assistant. In this role he provided guidance to operating programs from a technical standpoint with particular emphasis on nuclear, electric power, and on nuclear waste and weapons. Special attention was given to the implementation of the Low-Level Radioactive Waste Disposal Act adopted by the U.S. Congress in 1980, in view of the substantial role played by Dr. Edwards and Mr. Rusche in its adoption. Two years later he joined an executive management consulting firm (Management Analysis Company) providing CEO level management and technical consulting services to electric utilities, primarily nuclear utilities. Environmental audits, management assessments, financial structure, and human resources were frequent subjects of interest with the results being recommended action plans for corrective measures.

In 1984, President Reagan appointed and the U.S. Senate confirmed Mr. Rusche as Director of the Office of Civilian Radioactive Waste Management, at the level of Assistant Secretary in the Department of Energy. This program, established by statute in 1984, was and remains one of the more controversial programs in the U.S. government. Its purpose is to select a site and establish the infrastructure, design, and construct a facility for disposal of the nation's high-level radioactive waste for both commercial power reactors and government weapons facilities. For nearly four years, Mr. Rusche led this program requiring unusual public and political involvement as well as the development and implementation of a first-of-a-kind technical program for the U.S.

Since joining Law in 1987, Mr. Rusche has provided senior consultant services to private companies with residual radioactive waste disposal issues.

Mr. Rusche has been instrumental in Law's two major projects related to low-level radioactive waste disposal. he is the Principal Manager for these projects and serves as the Chairman of the Corporate Oversight Committee.

SIDNEY S. BRANDWEIN
Principal Geologist/Geophysicist

EDUCATION: M.S., 1974, Geology (Geophysics Major), University of New Mexico
B.S., 1971, Geology, Brooklyn College

PROFESSIONAL MEMBERSHIP: Association of Engineering Geologists, ASTM, New Mexico Geological Society, Albuquerque Geological Society

PROFESSIONAL REGISTRATION: Professional Geologist in Arizona, Georgia, North Carolina, South Carolina, and Tennessee

CAREER SUMMARY

Mr. Brandwein has consulting experience, both independently and with Law Environmental, in all phases of geological and geophysical surveying, including planning, field operations, interpretation, and integration of geological and geophysical data. Geological experience includes mapping and boring programs for geohydrologic characterizations. Geophysical experience includes electromagnetic, electrical resistivity, gravity, magnetic, seismic refraction, ground penetrating radar, radiometric, magnetotelluric and downhole geophysical logging surveys. Mr. Brandwein has worked in hazardous waste investigations, geotechnical studies, mineral and energy exploration, sinkhole investigations, earthquake studies and research projects throughout the U.S. and in polar regions.

HAZARDOUS WASTE INVESTIGATIONS

Mr. Brandwein has performed geologic characterization of hazardous waste sites. He was a project geologist on the Department of Energy's Gulf Cost Salt Dome High Level Radioactive Waste Disposal Study. He was responsible for geologic mapping of 4 dome areas covering approximately 250 square miles and conducting numerous geophysical surveys for the project. He is Geophysics discipline leader on the North Carolina Low Level Radioactive Waste Disposal Facility.

Mr. Brandwein has planned, conducted, analyzed, and reported on all phases of geophysical investigations related to hazardous waste investigations. These included initial site location and data gathering for predictive and operational models of site performance and site monitoring, both during operation and after decommissioning. He has also used geophysical surveys to find existent dump sites whose exact locations were not known and to define the extent of contaminant plumes. Geophysical techniques used include electrical surveys (both resistivity and EM), ground penetrating radar, seismic refraction surveys, magnetic surveys, and downhole geophysical logging.

GEOTECHNICAL SURVEYS

Mr. Brandwein has planned, conducted, and interpreted geological surveys for geotechnical investigations and interpreted them with geophysical and engineering data in various projects. Projects include fossil fuel and nuclear plant sites, dam sites, sinkhole investigations, underground storage and other commercial projects. Geophysical techniques included seismic refraction, ground penetrating radar, electrical, magnetic and gravity surveys and downhole geophysical logging. He was project geologist on a siting investigation for a breeder reactor on the Idaho National Engineering Laboratory. He has also worked on and managed seismic hazard investigations for major facilities.

ARCTIC STUDIES

Mr. Brandwein has experience in glacial and Pleistocene geology, glaciology, and polar geophysics. He was a member of the 1974 Ross Ice Shelf Program in Antarctica where he participated in gravity, magnetic, seismic, electrical resistivity, electromagnetic, and glaciological studies. He has also been involved in glacial studies in Alaska and Europe investigating the effects of both continental and mountain glaciation.

REPRESENTATIVE WASTE MANAGEMENT PROJECTS

Project manager of geologic reconnaissance mapping of 250 square miles over four geologic salt domes in Texas, Louisiana, and Mississippi.

Project geophysicist responsible for delineating buried low-level nuclear waste trenches for a western U.S. client.

Project geophysicist responsible for seismic and electrical surveys used to map the geology of a proposed waste site.

Project geophysicist responsible for locating underground contamination at an oil tank farm.

Project geophysicist responsible for locating fracture sets in limestone that acted as a transportation mechanism of ground contamination for a proprietary client.

Numerous geological and geophysical projects in relation to RCRA and CERCLA waste sites, describing the geohydrologic environment and delineating the extent of source zones and contaminant plumes; mapped preferential flow zones, located waste sources, outlined contaminated plumes and delineated vertical and horizontal extent of contamination.

REPRESENTATIVE DAM AND POWER PLANT (LARGE SCALE) PROJECTS

Project manager for a seismic hazard study for a uranium enrichment facility in Louisiana.

Project manager for a siting study for a proposed breeder reactor nuclear facility in Idaho.

Project geophysicist responsible for the collection of data for the Rocky Mountain Pumped Storage Project near Rome, Georgia.

Project geophysicist responsible for a microseismic survey for a siting study for a nuclear power plant in South Carolina.

Project geophysicist responsible for seismic refraction and electrical surveys for a geotechnical study for a fossil fuel power plant in South Carolina.

BRUCE P. CAVAN
Principal Geologist, Program Manager

Registered Professional Geologist, Georgia - 1977, Virginia - 1984

Master's Program, 1979-80, Engineering Geology, Georgia Tech
B.S., 1967, Geology, University of Georgia

AREAS OF EXPERIENCE

Mr. Cavan has 20 years of professional experience in planning, design and construction of major heavy civil mining and hazardous waste projects. He has participated at all project levels and utilized a wide range of investigative techniques. Mr. Cavan participated in the field investigative activities for a major hazardous waste assessment project in upper New York State. In this capacity he was responsible for prequalification and selection of subcontractors, participated in analyses of subsurface data and made assessments of field investigation techniques. He has provided design and construction period consultation on Superfund Site Closures in Ohio, Massachusetts, and New Jersey. He is also an accredited Asbestos Abatement Project Designer.

Mr. Cavan has extensive experience in the planning, design, and construction of major civil works projects including tunnels, dams, rock and soil slope stability.

While with Corps of Engineers, Mr. Cavan served as Assistant Resident Engineer and Acting Resident Contracting Officer. Duties included management and administration of field office staffs and Quality Assurance on major civil and hydro construction projects.

MAJOR CLIENTELE

- Federal governmental agencies, other A-E firms, heavy construction firms

GEOGRAPHICAL LOCATIONS OF SIGNIFICANT EXPERIENCE

United States, Canada, Europe

BEFORE JOINING LAW

U.S. Army Corps of Engineers

WILLIAM A. STEWART, J.D., P.E.
Environmental Attorney

PROFESSIONAL REGISTRATION: Attorney-at-Law, Alabama
Professional Engineer - Alabama, Mississippi, Georgia

EDUCATION: M.S., Environmental Engineering, Mississippi State
J.D. Law, Tulane University

PROFESSIONAL MEMBERSHIP: Alabama Bar Association

CAREER SUMMARY

Mr. Stewart has over 10 years of experience as an environmental engineer in the application of state, federal, and international environmental laws, regulations, and policies and in the application of engineering principles to everyday events and extraordinary projects. He has broad experience in law and engineering; intensive experience in the law and engineering of RCRA/HSWA, CERCLA/SARA, and the Clean Water Act.

LEGAL COUNSEL

Mr. Stewart's legal experience includes counseling employers on applicable environmental law for construction projects throughout the U.S. and Germany. As an environmental engineer, he has developed documentation for employers and clients for routine compliance with foreign and domestic environmental laws. Mr. Stewart was responsible for environmental compliance with German and U.S. law and Army regulations for a military community of 22,000 people at over 17 geographic locations in Germany. His primary involvement has included guidance on oil spill and release remediation, sewage discharge criteria, drinking water quality criteria, solid waste management regulations and air release quality criteria. At EPA he provided regulatory interpretations to industry and developed permits which complied with federal regulations and policies. He has written RCRA permits, reviewed Part Bs, RFAs, RFI, CMSs, and CAPs while with EPA. He has advised and developed opinions for the Mississippi Bureau of Pollution Control concerning state statutory authority for various RCRA activities. He has pursued legal enforcement of RCRA sanctions against TSD facilities and negotiated settlements in these cases. He has developed guidance and standard operating procedures for remediation of non-NPL sites in Mississippi which conform to federal and state laws and regulations. He has served on two National Governors Association committees for review of national legislation for the reform of CERCLA, and assisted in development of environmental criminal cases. Activities have included regulatory interpretation, client counseling, negotiation with regulators, training and project management and process engineering for wastewater, solid and hazardous waste projects.

GARY W. RHODES, P.E.
Principal Design Engineer

Registered Professional Engineer, Georgia, California, District of Columbia, Maryland, North Carolina, Pennsylvania and Massachusetts (Pending)

M.S., Civil Engineering, University of Missouri-Rolla
B.S., Civil Engineering, University of Missouri-Rolla

AREAS OF EXPERIENCE

Geotechnical and civil engineer for various projects involving geotechnical exploration, field and laboratory testing of soil and rock, civil and geotechnical design. He has served as project engineer and project manager for the preliminary and final design of dams, power houses, shafts, tunnels, adits, transit stations, landfills, roads and drainage structures including construction drawings, specifications, cost estimates and construction contract agreements.

MAJOR CLIENTELE

- Local and Federal Governmental Agencies
- Heavy Construction Contractors
- Utility Companies

GEOGRAPHICAL LOCATIONS OF SIGNIFICANT EXPERIENCE

Massachusetts, Pennsylvania, Maryland, Virginia, District of Columbia, North and South Carolina, Georgia, Florida, Alabama, Tennessee, Kentucky, Illinois, California and Oregon

BEFORE JOINING LAW

Research Assistant - University of Missouri-Rolla

LOUIS S. KARABLY
Principal Geological Engineer

Certified Geologist
Registered Professional Engineer

M.S., Geological Engineering, University of Missouri - Rolla
B.S., Geological Engineering, University of Mississippi

AREAS OF EXPERIENCE SINCE 1971

Planning and management of a wide variety of site assessments, remedial investigations, feasibility studies and closure plans at chemical waste and low-level radioactive waste management facilities; management of large projects on DOD's Installation Restoration Program, the Defense Environmental Restoration Program, DOE's high-level radioactive waste management programs and the Strategic Petroleum Reserve (SPR) Program.

MAJOR CLIENTELE

- District and division offices of the U. S. Army Corps of Engineers
- U. S. Air Force Command and Base Civil Engineers
- Department of Energy and National Labs
- Defense and Energy Prime Contractors

SPECIAL RESEARCH AREA

Soil-gas survey applications at hazardous waste sites.
Dynamic response of earth materials to shock loads (i.e., weapon effects).

GEOGRAPHICAL LOCATIONS OF SIGNIFICANT EXPERIENCE

Alabama, Alaska, Arizona, Colorado, Florida, Georgia, Louisiana, Mississippi, Missouri, Nevada, New Mexico and South Carolina

BEFORE JOINING LAW

U. S. Air Force - Project and Program Manager for siting strategic systems (MX, Deep Basing, etc.) and field test programs

GLENN BROWN
Senior Vice President

EDUCATION: B.A., Geology, University of California, Los Angeles

PROFESSIONAL MEMBERSHIP:
Geological Society of America (Fellow)
Association of Engineering Geologists
American Institute of Professional Geologists
American Water Resources Association
Association of Groundwater Scientists and Engineers
Earthquake Engineering Research Institute
International Association of Hydrogeologists
Southern California Waste Management Forum

PROFESSIONAL REGISTRATION:
California Registered Geologist No. 4
California Certified Engineering Geologist No. 3

CAREER SUMMARY

Glenn Brown has been active in the field of applied geology since his graduation. The majority of his geologic work has been directed towards engineering structures and the evaluation of ground water resources. He has made detailed hydrogeologic studies for Class I and Class II sanitary landfills for the Sanitation Districts of Los Angeles County, CalMat Company, City of Industry, the IT Corporation, BKK Corporation, Aminoil USA, and Moreland Development Co.

His professional training began with the California Department of Water Resources where he worked on dam, tunnel, and ground water investigations. In 1958, he was placed on loan to the State Water Rights Board where he served as Senior Geologist on the water rights litigation over the San Fernando Valley.

In 1963, he left state service and entered into the consulting field. In 1966 he formed Glenn A. Brown and Associates. This firm provided consulting services for a wide range of domestic and foreign projects involving engineering geology, environmental geology, and hydrogeology. In 1975, Glenn A. Brown and Associates merged into what is now the Law Companies Group.

EXPERT WITNESS EXPERIENCE

May 1989 Counter complainants vs. State of California, Stringfellow litigation in Federal Court. Presented testimony on Standard of Practice in the 1950's on the setting and investigation of waste disposal sites.

April 1988 Etchegoyen vs. Bastiaanse, Superior Court of Orange County. Provided testimony on ground water seepage and subsurface drainage on Hillside lot in Newport Beach.

August 1985 Retrial of Caltrans vs. Queen of Angels Hospital.

November 1982 Caltrans vs. Queen of Angels Hospital, Superior Court of Los Angeles County. Provided testimony on behalf of Queen of Angels Hospital over 1978 landslide of parking lot onto Hollywood Freeway.

March 1982 Santa Clarita Water Company vs. Charles Lyons, et al., Superior Court of Los Angeles County. Gave testimony on behalf of defendant Lyons in this case of a water well drilled on wrong land and the damage related to the taking of water.

August 1981 Carson Truckee Water Conservancy District, et al. vs. James E. Watt, Secretary of the Interior, et al. (Stampede Reservoir Case), Federal Court District of Nevada. Presented testimony for the State of Nevada on the availability and quality of ground water in the Truckee Meadows in this surface water regulation case.

PROFESSIONAL SERVICE

1985-89 Member of Professional Practices Committee of the State Board of Registration for Geologists and Geophysicists.

1983-89 Director, Southern California Waste Management Forum.

1979-81 Co-Editor, Association of Engineering Geologists Professional Practice Guidelines Manual.

1979-80 National Chairman, Association of Engineering Geologists Committee on Continuing Education.

1978-79 National Chairman, Association of Engineering Geologists Committee on GroundWater.

1969-77 Chairman of Professional Affairs Committee for Engineering Geology of the State of California Board of Registration for Geologists.

GLENN N. COFFMAN
Principal
Vice President

Registered Professional Engineer

M.S., Civil Engineering, University of Washington
B.S., Civil Engineering, University of Michigan, 1965

AREAS OF EXPERIENCE SINCE 1965

Geotechnical and civil engineering, structural mechanics, hazardous and solid waste site assessments and corrective action evaluations and designs, landfill siting and design, environmental regulations and permitting including RCRA Part B and closure plan preparation and implementation, waste management facility design, in situ soil testing and construction quality assurance management.

MAJOR CLIENTELE

- Environmental and plant managers in the industrial categories of: chemicals, steel, metal fabricating, pulp and paper, and petroleum
- Commercial waste companies
- Municipal governments
- Private practice lawyers defending industrial clients
- Private development companies

SPECIAL EXPERIENCE

Chairman, ASTM D-34.05.01, Subcommittee on development of waste facility liner systems.
Partner, Law Environmental; a New York Partnership
Partner, Law Environmental - Caribe; a Puerto Rico Partnership

GEOGRAPHICAL LOCATIONS OF PROFESSIONAL REGISTRATION

Arkansas, Georgia, New York, North Carolina, Puerto Rico, South Carolina, Virginia and Washington

BEFORE JOINING LAW IN 1971

The Boeing Company - Associate Engineer, Stress Analyst

L. DAVID WHEELESS
Principal Geotechnical Engineer
Vice President

Registered Professional Engineer

Graduate Studies, Civil Engineering, Georgia Institute of Technology
B.S., Civil Engineering, Georgia Institute of Technology

AREAS OF EXPERIENCE SINCE 1962

Project management; planning and on-site direction of hazardous waste remediation; environmental assessments involving soil, groundwater, surface water or structures; hazardous waste site safety; geotechnical engineering investigation; groundwater seepage analyses; earth dam design; slope stability analyses; structure foundation design; and expert testimony.

MAJOR CLIENTELE

- Industries having environmental problems requiring solution by assessment of contamination, design, and implementation of remedial action

GEOGRAPHICAL LOCATIONS OF SIGNIFICANT EXPERIENCE

Florida, Georgia, Indiana, New Mexico, New York, North Carolina, South Carolina, Tennessee, and Virginia

BEFORE JOINING LAW

U.S. Navy - Civil Engineer Corps

OWEN D. SVETER
Senior Hydrogeologist

EDUCATION: B.S., Geology, Texas A & M University, 1966
M.S., Geology, Texas A & M University, 1968

PROFESSIONAL MEMBERSHIP: Texas Water Conservation Association
Houston Geological Society

PROFESSIONAL REGISTRATION: Geologist and Engineering Geologist, Oregon, Arizona

CAREER SUMMARY

GEOLOGIC EXPERIENCE

Geologic experience varied from structural analysis of igneous and metamorphic rocks in highly active regions such as Alaska and Iran to resource and stratigraphic analysis of Jurassic to Recent sedimentary rocks in tectonically stable regions such as the Texas, Louisiana and Mississippi Gulf Coast. Experiences varied from field mapping, air photo interpretation and core analysis to interpretation of structural and stratigraphic well log and seismic reflection studies for engineering, petroleum and hydrogeology problems. Such projects include geologic and geophysical studies for industry and commercial facilities such as the Trans-Alaska Pipeline, over six lignite mines and conventional and nuclear power plants to storage facilities such as below ground storage of radioactive and hazardous wastes and petroleum in salt domes to surface storage of industrial hazardous waste.

HYDROLOGIC EXPERIENCE

Hydrologic experience has included modeling, design, development and master planning of groundwater resources for small and large municipalities and industry, a regional groundwater and surface water availability study for a nuclear power plant cooling water supply and regional and local hydrogeologic modeling of aquifers to determine the impact of groundwater withdrawal, oil storage and radioactive and hazardous waste disposal sites in Gulf Coast salt domes and existing or planned landfill sites. Other projects included dewatering associated with commercial developments to larger excavations such as Texas Stadium and several large surface lignite mines in the Gulf Coast. Some of the techniques utilized included literature surveys, pump tests, water well surveys and air photo interpretation. This work has required coordination between owners, State and Federal governments and the public.

WASTE EXPERIENCE

Waste storage experience has varied from involvement in geologic, hydrologic and geotechnical studies for storage of petroleum, radioactive and industrial wastes as well as

municipal sanitary landfills. Salt domes were the storage media selected for storage of radioactive wastes and petroleum. These projects were funded through the DOE for their waste isolation and strategic petroleum reserve programs. Other projects for industrial hazardous waste sites were the evaluation and selection of new sites and in some cases, remedial or clean-up studies for existing sites in the Gulf Coast region. These included geologic and hydrologic studies to define geohydrologic conditions in order to install monitoring wells and design a safe facility, meeting government regulations. Another project involved the assessment of an EPA Superfund site where pollution to surface and subsurface water bodies had occurred. Some of this work involved review of permit applications on existing or planned facilities for state governments. Several projects involve remedial design of recovery systems due to accidental industrial spills. Most of these emergency spill projects were related to hydrocarbon products, but some involve more toxic materials. Other projects involved environmental surveys (Site Assessments and Remediation) prior to real estate transactions throughout the United States for commercial, industrial and institutional clients.

GEOTECHNICAL EXPERIENCE

Geotechnical experience has varied from slope stability to foundation design in rocks and soil in subtropic to arctic environments. Experiences varied from developing and performing field exploratory drilling programs to recommending design parameters based on engineering analysis. Such projects include geotechnical and seismic design of slopes and foundations for the Trans Alaska Pipeline to foundation design for industrial facilities located on soft Recent sediments of the Mississippi delta to sinkholes in central Florida.

DAM EXPERIENCE

Mr. Sveter's experience has included geological and geotechnical aspects of various type dams. This includes a 200 foot high earthen dam in Utah to low water dams in Texas. These projects have included geologic and geophysical hazard studies for the dams to final geotechnical design.

CONSTRUCTION EXPERIENCE

Construction experience has varied from control of compacted fill, concrete and asphalt for public roadways and industrial developments to shallow foundation inspection and pile installation for bridges, elevated pipelines and heavy industrial structures. Such projects have also included rock and sand and gravel building material surveys including a shopping mall in Washington, various roads throughout Texas and the Trans Alaska Pipeline haul road.

MINING EXPERIENCE

Mining experience is mainly limited to surface lignite mines and rock and sand and gravel aggregate surveys. These include structural, stratigraphic and groundwater studies in the

Wilcox, Claiborne and Jackson Groups. The geographic distribution of lignite mines include at least six in Texas and one each in Arkansas, Mississippi and Washington. The main approach in these studies was to first evaluate the geophysical logs of exploratory lignite holes in order to develop a geologic model which accounts for vertical and horizontal variability in the sediments considering the depositional environments active during geotechnical models for groundwater control and mine stability analysis. Rock and sand and gravel aggregate surveys were primarily limited to State road construction and mine haul road construction in Texas. Often surveys were performed for a 200 foot dam in Utah to haul road construction for the Trans Alaska pipeline. Typical studies defined resource quantity from borehole drilling to quality from engineering evaluation testing.

THOMAS L. RICHARDSON
Project Engineer

EDUCATION: M.S., Civil Engineering, Georgia Institute of Technology
B.S., Civil Engineering, Duke University

PROFESSIONAL MEMBERSHIPS: American Society of Civil Engineers

PROFESSIONAL REGISTRATION: Professional Engineer in Georgia

CAREER SUMMARY

Mr. Richardson joined Law in 1977. His primary responsibility has been the Metropolitan Atlanta Rapid Transit Project and has progressed to the position of Project Manager. He has also participated in a variety of other projects in the Marietta branch. Mr. Richardson was employed by Dames and Moore from 1974 to 1976 and as a staff engineer worked in the Atlanta; Washington, D.C.; and Tehran, Iran offices. In 1973 Mr. Richardson held a summer job in the Geotechnical Department of Stone and Webster.

TRANSIT PROJECT EXPERIENCE

Mr. Richardson has had a variety of experience solving problems associated with transit facilities. He has had extensive experience in geotechnical investigations for cut and cover and tunnel construction of subways, at-grade and aerial alignments, stations, bridges, and associated facilities and structures. He has worked closely with design staffs in solving geotechnical related problems, including design of foundations, subgrades, retaining structures and drainage facilities. During construction he has been involved in a variety of consultations including tunnel instrumentation and geologic mapping, cut and cover instrumentation, and blast vibration monitoring and analysis.

SUBSURFACE INVESTIGATION PROJECT EXPERIENCE

Mr. Richardson has participated in and managed numerous geotechnical investigations and consultations for tunnels, subways, at-grade and aerial transit lines, roads, nuclear facilities, dams and buildings.

REPRESENTATIVE TRANSIT PROJECTS

Project Engineer for numerous geotechnical investigations for subway, at-grade and aerial alignments, stations and related facilities (Metropolitan Atlanta Rapid Transit Authority).

Project Engineer for a variety of geotechnical design consultations (Metropolitan Atlanta Rapid Transit Authority).

Project Engineer for seismic and air wave blast monitoring program for construction of underground transit facilities (Metropolitan Atlanta Rapid Transit Authority).

Project Engineer for geologic mapping of 3,000 feet of transit tunnels (Metropolitan Atlanta Rapid Transit Authority).

Staff Engineer for instrumentation of an exploratory pilot tunnel, cavern tunnel, and cut and cover transit facilities (Metropolitan Atlanta Rapid Transit Authority).

REPRESENTATIVE SUBSURFACE INVESTIGATION PROJECT EXPERIENCE

Staff Engineer for off-shore geotechnical investigation for a submarine pipeline (Salem, Massachusetts).

Staff Engineer for geotechnical investigation of swelling soil potential for residential and light commercial facilities (Richmond, Virginia).

Staff Engineer for off-shore geotechnical investigation for harbor and dry-dock facilities including extensive in-situ testing of permeability and strength parameters (Persian Gulf Ship Building Corporation; Bandar Abbas, Iran).

Project Engineer for numerous small and large geotechnical investigations for underground, at-grade and aerial transit facilities (Metropolitan Atlanta Rapid Transit Authority).

Project Engineer for geotechnical investigation of existing dam safety (Huntington District, U. S. Army Corps of Engineers).

Staff Engineer for geotechnical investigation of foundation conditions for a nuclear fuel processing plant (Portsmouth, Ohio).

Staff Engineer for geotechnical investigation of foundation conditions and borrow material (Plant Vogtle, Georgia Power Company).

MISCELLANEOUS PROJECTS

Staff Engineer for study on options to dispose of gypsum waste from phosphate processing operation (Mississippi Chemical Corporation). Staff Engineer for economic comparison for nuclear power plant siting (South Carolina Gas and Light).

Consultant for instrumentation installation and data interpretation for pilot tunnel (Rocky Mountain Pumped Storage Project, Georgia Power Company).
Staff Engineer for effect of blasting on nearby foundations (Plant Bower, Georgia Power Company).

Project Engineer for vibration studies at sensitive computer facilities (Georgia Department of Transportation).

JOHN G. KINKER
Environmental Engineer

EDUCATION: B.S. Environmental Engineering, New Mexico Institute of Mining and Technology, 1989

PROFESSIONAL MEMBERSHIPS: Water Pollution Control Federation

PROFESSIONAL REGISTRATION: EIT (New Mexico #4003)

CAREER SUMMARY

Mr. Kinker has focused on involvement in PA/SI, RI/FS, and UST investigations for the U.S. Army Corps of Engineers, Air Force H.S.D., and Defense Logistics Agency, including drafting of planning documents and preparation of feasibility study reports. He has performed UST leak detection investigations, soil gas surveys, soil and groundwater sampling, and soil column leachability studies. The latter includes experimental design and analysis of results using both analytical and numerical estimation. He has been the project engineer and principal author of many feasibility studies, all of which were conducted at military and GOCO facilities under the IRP.

Prior to coming to Law, Mr. Kinker was involved in construction/geotechnical inspection involving various commercial and residential building projects. He has extensive computer application skills including the use of both custom and commercially available graphics and numerical analysis packages for engineering design and problem solving. As part of his degree, Mr. Kinker emphasized the areas of engineered biological treatment systems, treatment plant hydraulics, and groundwater hydrology. In addition, Mr. Kinker has completed both the OSHA 40-hour Hazardous Waste Operations Training Course, the 8-hour Supervisor's Course, and Red Cross CPR and First Aid.

Representative Projects

Staff Environmental Engineer responsible for identification and collection of baseline information for compilation of a GIS database to be used in siting the Pennsylvania Low-Level Radioactive Waste Disposal Facility.

Field support/sampling team member responsible for collecting, storing, and manifesting samples prior to shipment at a RCRA Corrective Action site.

Project Manager and Engineer for the RI/FS for contaminated soils at a GOCO facility under the IRP.

Project Engineer and principal author of the feasibility study reports for contaminated soils at the Defense General Supply Center in Richmond, Virginia under the IRP.

Staff Environmental Engineer responsible for drafting the planning documents for PA/SI and RI/FS at Fort Riley, Kansas under the IRP.

LINDA S. HOLLINGSWORTH
Project Environmental Engineer

EDUCATION: B.S., Chemical Engineering, Tennessee Technological University, Cookeville, Tennessee

AREAS OF EXPERIENCE SINCE 1981

Hazardous waste site assessment and remedial action evaluation; leaking underground storage tank investigation and mitigation; hazardous waste management; hazardous waste training coordination and instruction; air emission inspections, air permit renewal; hazardous substance spill response; drinking water quality management; pilot unit operations.

MAJOR CLIENTELE

- Financial institutions
- City Redevelopment agencies
- Development Companies
- Major coatings manufacturer
- U.S. military installation

GEOGRAPHICAL LOCATIONS OF SIGNIFICANT EXPERIENCE

California

BEFORE JOINING LAW IN 1989

United States Navy - Environmental Engineer
Texaco, Inc. - Chemical Engineer

CYNTHIA L. ALLISON
Senior Environmental Scientist

EDUCATION: B.S., Chemistry and Biology, University of Wisconsin

PROFESSIONAL MEMBERSHIP:
Air and Waste Management Association
American Chemical Society
Southern Arizona Environmental Management Society
HazWaste Society
Environmental & Natural Resources Law Section of Arizona State Bar

CAREER SUMMARY

Currently at Law Environmental, Inc., Ms. Allison provides regulatory expertise in the areas of hazardous waste and air quality. Before joining Law, she provided regulatory expertise for environmental permitting, compliance audits and environmental site assessments. Ms.Allison also conducted ambient air monitoring in nonattainment areas and air quality industrial auditing. Ms. Allison's educational background and experience provides the technical expertise in data interpretation, quality assurance/quality control and data assessment and validation for various environmental program areas.

WASTE MANAGEMENT

At Law Environmental, Ms. Allison has developed closure plans for hazardous waste facilities and has provided data assessment and interpretation for various environmental program media.

While at Hargis & Associates, Inc. (H&A), Ms. Allison developed plans for hazardous waste closures, waste characterization, laboratory/bench-scale bioremediation treatability studies, groundwater quality assessments, and quality assurance, and provided regulatory assistance in environmental permitting. Ms. Allison also developed and implemented H&A's Laboratory Proficiency Evaluation Program to assess commercial environmental laboratory systems and performance capabilities to generate valid and legally defensible data. She also developed a data assessment and validation program to ensure the quality of analytical data generated for state and federal Superfund sites and hazardous waste facilities.

At Hughes Aircraft Company, Ms. Allison developed Resource Conservation and Recovery Act (RCRA) Part B permit applications, air emission inventories, hazardous waste closure plans, and waste characterization plans. Ms. Allison established asbestos abatement and polychlorinated biphenyl (PCB) compound storage and disposal programs. She supervised regulatory audits for hazardous waste, industrial wastewater, and the National Pollutant Discharge Elimination System, and conducted environmental compliance

audits for other Hughes' facilities. Ms. Allison also evaluated waste minimization alternatives, including incineration, solvent recycling, chemical fixation and stabilization technologies, to meet zero off-site disposal goals.

At the Arizona Department of Health Services, Ms. Allison conducted RCRA generator and treatment, storage and disposal facility (TSDF) inspections. She also assisted the department's Office of Emergency Response in remedial response activities and the Arizona Attorney General's Office in enforcement cases.

At the Wisconsin Department of Natural Resources (WDNR), Ms. Allison reviewed RCRA Part B permit applications and developed groundwater quality assessment programs. She managed special studies including a statewide arsenical pesticide removal program and a national interest project dealing with the characterization of municipal incinerator ash. Ms. Allison developed and implemented Wisconsin's First statewide Solid and Hazardous Waste Quality Assurance program Plan. Ms. Allison also supervised the statewide network of continuous ambient air monitoring special studies in nonattainment areas in Wisconsin and performed air quality industrial audits while employed by WDNR.

GEORGE S. GAMBLE
Process Engineer

EDUCATION: B.S., CHE, Virginia Tech
MBA, Augusta College

PROFESSIONAL MEMBERSHIP: Engineer-In-Training

CAREER SUMMARY

Mr. Gamble has broad experience in industry including six years at the Savannah River Site (SRS). He joined Law Environmental, Inc., in 1990 as a process engineer and is responsible for Law's contribution to the Waste Minimization Program at the Savannah River Site. Prior to joining Law Environmental, Inc., Mr. Gamble was employed by E. I. DuPont in various manufacturing positions and also by Process Technical Services, Inc. as a process engineer.

One of the unique features of Mr. Gamble's background is his diversity of manufacturing experience. He has worked with various groups such as design, construction, operations, maintenance, sales, and information systems. This knowledge gives him a unique approach to the dynamic waste management field.

Mr. Gamble was a supervisor in the Uranium Processing Plant as well as the Plutonium Processing Plant at SRS. In H-area, he supervised operation of the HM-process for uranium extraction, performed daily troubleshooting duties, and he was responsible for maintaining construction liaison, material accountability, and procedure control. Mr. Gamble was a member of the Naval Fuel Production Start-Up Team. He was responsible for maintaining construction quality control, operator training, developing procedures for operations, and coordinating start-up and troubleshooting of process equipment.

Mr. Gamble served as an area engineer for DuPont at their Polymer Products Department, Parkersburg, West Virginia Plant. He performed various duties in statistical process control and computer system implementation. He was responsible for process and control. He also implemented computer systems for lot quality release, inventory, and production scheduling.

Mr. Gamble assisted Lever Brothers while working for Process Technical Services, Inc. in start-up of their Surf Detergent Plant. He was responsible for troubleshooting pump problems and temperature control programs in their linear benzene sulphonate manufacturing and storage system. He also was responsible for check-out of new equipment installed in an expansion facility.

PRIOR TO JOINING LAW ENVIRONMENTAL

Process Technical Services, Inc. - Start-Up Engineer
DuPont, Polymer Products Department - Area Engineer
DuPont, Atomic Energy Department - Senior Supervisor

WILLIAM KENNETH WALLER
Manager, Environmental Remediation and Compliance

EDUCATION: B.S., Biology, Delta State University, 1976
Certificate, Health Physics and Radiation Protection, Oak Associated University, 1977
Certificate, Radiation Protection Engineering, Oak Ridge Asso University, 1980

CAREER SUMMARY

Mr. Waller has fifteen years of experience in health physics, radiation protection and low level radioactive/hazardous waste management. His experience includes management of radiological programs including environmental, health physics, radiation protection and overall health and safety for two commercial low-level radioactive waste disposal facilities. He managed the Waste Management Services Department that included activities such as decontamination and decommissioning, high force compaction, brokerage operations, transportation of radioactive and hazardous materials, training and health physics services. As Senior Research Scientist, Acting Group Leader, he was responsible for all environmental compliance activities pertaining to hazardous materials use and disposal. He also served as head of the licensing, inspection and enforcement section for the utilization of radioactive materials in the State of Mississippi.

HEALTH PHYSICS/RADIATION PROTECTION

Mr. Waller managed the health physics program for U.S. Ecology and served in the capacity of Chief Radiological Control and Safety Officer and Manager, Waste Management Services. He was responsible for the evaluation and administration of all radiological control and safety and environmental protection programs for all phases of low-level radioactive waste disposal operations, brokerage programs, transportation and health physics services. He was responsible for making engineering recommendations on new methods of safety handling, disposal, DOT packaging and shipping of radioactive waste and working with federal/state regulatory authorities, i.e. Washington Department of Ecology, Washington Department of Social and Health Services, Nevada Department of Health-Radiological Division, the U.S. Nuclear Regulatory Commission and the Environmental Protection Agency. Mr. Waller was responsible for the investigation, evaluation and establishment of action plans for various and unusual operating situations; conducting periodic inspections of LLRWD facilities; establishment and administration and training activities and writing manuals/procedures pertaining to radiological control and health and safety. He was instrumental in negotiating the operating licenses for the low-level radioactive waste disposal facilities with the Nuclear Regulatory Commission and the States of Nevada and Washington. Mr. Waller also assisted in the development of the California LLRW Disposal Facility License Application, and the Nebraska LLRW Disposal Facility License Application. He is very familiar with the NWPA and the NWPAA due

to his development in licensing activities in the Northwest Compact, Central Midwest Compact, California and Rocky Mountain Compact.

ENVIRONMENTAL PROTECTION

Mr. Waller has assumed management of a number of projects including the development of plans and procedures for a research and development laboratory hazardous/mixed waste treatment facility. This facility is being permitted by the Washington Department of Ecology and the U.S. Environmental Protection Agency. He was the Project Manager involved in the writing of both the Part A and Part B permit applications and development of the overall plans/procedures for operation of the facility. His project experience also includes underground storage tank evaluations and remediation that is somewhat different than the normal in that these tanks involve not only hazardous components but also radioactive materials. He has also participated in the preparation of Remedial Investigation/Feasibility Study (RI/FS) documents, i.e., preparation of Quality Assurance Project Plans (QAPP), health and safety plans, and general plans. Mr. Waller participated and provided technical review of documents for submittal to the Department of Energy in regards to the Environmental Protection Agency (EPA) RCRA/CERCLA closure/post closure regulations and guidelines and preparation of guidance manuals for DOE employees and contractors. He participated in the review of three Federal Facility Agreements (FFA's) signed by the DOE, EPA and cognizant States and the development of a guidance document for future FFA';s. As Senior Research Scientist, Acting Group Leader-Waste Form Formulation at Battelle Pacific Northwest Laboratory, he was responsible for initiating and filing all DOE required NEPA documentation for his section. This included Action Description Memoranda (ADM), Memorandum to the File (MTF) and NEPA checklist.

REGULATORY DEVELOPMENT

As Section Chief for the Mississippi State Board of Health-Division of Radiological Health, Mr. Waller was instrumental in the development and administration of the regulations for radiation control in the State of Mississippi. He was responsible for the inspection and enforcement of these regulations and the licensing of all users of radioactive materials within the state. As both Section Chief for the Division of Radiological Health and Chief Radiological Control and Safety Officer for U.S. Ecology, Mr. Waller was responsible for providing technical review of both federal and state regulations. Mr. Waller provided technical review of the Nuclear Regulatory Commission, 10 CFR Part 61, Licensing Requirements for Land Disposal of Radioactive Waste. He has developed inspection guidelines and checklists, at both the state and private industry level, for conducting inspections at radioactive materials user facilities.

KATYSUE L. ALLEN
Project Engineer

EDUCATION: M.E., Environmental Engineering (Health Physics Major), University of Florida
B.S., Microbiology, University of Florida
B.A., Anthropology, Miami University

PROFESSIONAL MEMBERSHIPS: Water Pollution Control Federation
Hazardous Materials Control Research Institute
National Association of Environmental Professionals

PROFESSIONAL REGISTRATION: Engineer Intern Certificate
OSHA 40-Hour Training
Hazardous Waste Supervisor Training (8-Hour)

CAREER SUMMARY

Ms. Allen has recently joined Law Environmental, Inc. as a Project Engineer/Health Physicist. Her experience includes management of a radiological environmental monitoring program for a nuclear power plant, state and federal level regulatory development activities, project management and technical support for environmental contamination assessments and remedial actions for commercial and industrial clients, and implementation of a corporate health and safety program.

ENVIRONMENTAL HEALTH PHYSICS

Ms. Allen managed the environmental monitoring program for the Florida Power Corporation's Crystal River Nuclear Plant from 1983 through 1987. This position required coordination and oversight of data gathering efforts, laboratory analysis, program QA/QC, and preparation of reports in accordance with Nuclear Regulatory Commission Technical Specification requirements for the facility. She was also involved in the Florida Institute of Phosphate Research Project, "Radioactivity in Foods Grown on Florida Phosphate Lands." The study focused on the relative uptake of radium-226 by plants grown on phosphate and non-phosphate related soils to evaluate whether enhanced radium-226 levels occurred in food crops grown on soils reclaimed after phosphate mining.

ENVIRONMENTAL PROTECTION

Ms. Allen has assumed project management as well as technical oversight of a variety of environmental assessment and remediation projects performed in the Pennsylvania/Delaware region for commercial and industrial clients. Her project experience includes property acquisition and divestiture assessments, underground storage

tank evaluations and remediation, risk assessment, RCRA lagoon and landfill closure evaluation, and remediation of gasoline vapor migration into a private residence. She has also participated in Remedial Investigation/Feasibility Study (RI/FS) field activities at the Tybouts Corner Landfill in Delaware, a CERCLA National Priority List site, and at Pope Air Force Base, North Carolina.

REGULATORY DEVELOPMENT

Ms. Allen provided technical support in the development of a background information document for a National Emissions Standard for Hazardous Air Pollutants for radionuclide emissions from elemental phosphorous plants for the U.S. Environmental Protection Agency (EPA), Office of Air Quality Planning and Standards. She also developed state-level draft regulations for management of construction debris disposal sites in the State of Delaware. In addition, she assisted in the development of a federal information document to assist state agencies in implementing the current underground storage tank regulations for the EPA Office of Solid Waste, Underground Storage Tank Branch.

ADDITIONAL TRAINING

"Pathway Analysis and Risk Assessment for Environmental and Dose Reconstruction," February 25-March 1, 1991.

WINIFRED CURLEY, Ph.D.
Risk Assessment and Toxicology Program Manager
Principal

EDUCATION: Doctor of Philosophy - Biochemistry (Enzymes & Carcinogenesis), University of North Carolina, Chapel Hill
Bachelor of Science - Chemistry, Queens College, 1974

PROFESSIONAL MEMBERSHIPS: American Association for the Advancement of Science
The New York Academy of Sciences
National Association of Environmental Professionals

PROFESSIONAL CERTIFICATE: Certified Environmental Professional, NAEP

CAREER SUMMARY

TOXICOLOGY

In addition to managerial responsibilities, Dr. Curley contributes technical expertise in toxicology, biochemistry, and pharmacology, to projects requiring health effects evaluations. These skills are applied to both environmental assessment projects as well as product or media specific exposures to chemicals of concern. A current major effort involves evaluating the toxicological properties of PCBs as they relate to a variety of human and ecological receptors associated with a major U.S. river in the northeast.

As a result of her knowledge and expertise concerning drinking water contaminants, Dr. Curley has been retained by a variety of confidential clients to evaluate toxicity and risks associated with contamination in bottled water. She served as the toxicology consultant to The Perrier Group and evaluated the potential health impacts associated with benzene contamination and product recall in February 1990.

Both EPA/ODW and NSF projects focused on toxicological evaluation for potential drinking water contaminants and included handling of confidential business information. This work required knowledge of EPA previously approved drinking water additive products, the Safe Drinking Water Act, and the FDA food additives regulations. Health safety and exposure evaluations were conducted for a wide variety of organic and inorganic compounds. Over 14 assessment documents managed and edited by Dr. Curley were used by EPA to evaluate current or pending regulations and health effects associated with these chemicals. The Commonwealth of Virginia, U.S. Forest Service, and local counties have also contracted for Dr. Curley's services as an expert toxicologist for the presentation of material at public meetings or seminars describing exposure and risks related to pesticide application programs.

Dr. Curley managed another major project for the US Department of Agriculture, Animal and Plant Health Inspection Service. This project involved generating chemical profiles discussing the environmental chemistry and fate as well as toxicological characteristics (including mammalian) of ten pesticides. A text/manual detailing the principles of environmental fate and toxicological assessment was written as part of this project. Dr. Curley also acted as co-instructor when this material was presented to federal, state and foreign agriculture officials in six workshop sessions held across the US in 1984, 1985 and 1986.

RISK ASSESSMENT

Currently, Dr. Curley is participating in risk assessment activities for a variety of CERCLA oriented projects for both government and private clients.

These projects involve a variety of organic and inorganic contaminants as well as different exposure pathways and receptors including evaluation of impact to endangered species. One such project focuses on PCB contamination in a major U.S. River. Other risk assessment activities involve evaluation of existing risk or toxicity documents for completeness, accuracy or relevance to the client's needs.

Additional drinking water additives activities carried out by Dr. Curley include participation in the Drinking Water Additives Standards Development Program being conducted by NSF. Dr. Curley serves as an expert consultant to NSF for this program and is a member of the Health Effects Task Group. This Task Group developed risk assessment methodology for evaluating the health safety of drinking water additive products. She is currently participating in the ASTM effort to develop standards for risk assessment. As a part of the USDA contract, Dr. Curley has also co-authored a document presenting a risk analysis (including cancer) for the multiple application of three pesticides used to control grasshopper populations on rangeland. Potential impacts were evaluated for both human and ecological receptors.

PROJECT MANAGEMENT

In addition to toxicology and risk assessment activities, Dr. Curley has served as Law Environmental's Project Manager for a variety of site evaluations. These include environmental fate and potential health effects evaluations for sites containing various organic and inorganic contaminants.

Both soil and groundwater sampling and analysis were planned and conducted, remediation plans were provided. Such multidisciplinary activities require coordination of a variety of field activities and consolidation of input from several technical disciplines.

PRIOR TO JOINING LAW ENVIRONMENTAL

Other work performed as an environmental health consultant focused on contract work for the US Postal Service. It was Dr. Curley's responsibility to identify and evaluate medical research literature pertinent to health products being examined in mail fraud cases. Dr. Curley also has six years experience in laboratory research and management. As a Postdoctoral Fellow at Georgetown University, she established and operated a biochemical laboratory. This project examined the kinetic properties of neural CAMP phosphodiesterase and the effects of various cholinergic drugs on the activity of this enzyme. In other laboratory work conducted at the National Institute for Environmental Health Sciences, Dr. Curley designed and conducted a two year bioassay using Fischer Rats. This study examined colon carcinogenesis resulting from a single oral dose of 1,2-dimethylhydrazine. A variety of biochemical, developmental and tumorigenic endpoints were examined.

DAVID E. PAULS
Assistant Vice President
Senior Geotechnical Engineer

EDUCATION: B.S., Civil Engineering, Georgia Institute of Technology
M.S., Civil Engineering, Georgia Institute of Technology

PROFESSIONAL MEMBERSHIPS: American Society of Civil Engineers

PROFESSIONAL REGISTRATION: Professional Engineer in Georgia

CAREER SUMMARY

Mr. Pauls joined Law Engineering in 1965 as a staff geotechnical engineer. He has served as a geotechnical department manager in the Atlanta, Georgia branch; Branch Manager of the Morrow, Georgia office; Chief Engineer of the Atlanta office; and Project Manager in the Marietta, Georgia branch. Mr. Pauls is currently located at the Marietta office. His experience includes full administrative and technical responsibility for subsurface exploration and geotechnical evaluation for hundreds of investigations related to siting industrial facilities, commercial structures, transportation facilities, dams, and water supply and wastewater treatment facilities.

GEOTECHNICAL ENGINEERING

Mr. Pauls has conducted and provided senior technical management and review for hundreds of subsurface investigations and evaluations related to industrial facilities, commercial buildings, water supply and wastewater treatment facilities, airport and rapid rail transit systems, embankment dams, landslides, excavation stability, geologic exploration and ground-water control. Representative projects include planning and executing subsurface evaluations for the new Hartsfield International Airport Terminal Complex (Atlanta), numerous foundation evaluations for new mills and mill additions for the paper industry, evaluation of foundation conditions for MARTA stations and rapid rail transit lines, and management of a three state evaluation of the suitability of selected salt domes for permanent storage of commercial nuclear waste. Mr. Pauls has served as consultant to industry, government and private citizens in the investigation of failures related to slopes, excavation bracing, groundwater control and landfills.

PROJECT MANAGEMENT

Mr. Pauls has conducted and managed hundreds of projects requiring subsurface investigation, data collection and evaluation, and presentation of conclusions and recommendations. These include subsurface investigations and evaluations related to

industrial facilities, commercial buildings, water supply and wastewater treatment facilities, airport and rapid rail transit systems, embankment dams, landslides, excavation stability, geologic exploration and groundwater control. Representative projects include planning and executing subsurface evaluations for the new Hartsfield International Airport Terminal Complex (Atlanta), numerous foundation evaluations for new mills and mill additions for the paper industry, evaluation of foundation conditions for MARTA stations and rapid rail transit lines, and management of a three state evaluation of the suitability of selected salt domes for permanent storage of commercial nuclear waste.

INDUSTRIAL FACILITIES

Mr. Pauls has conducted and provided management and senior technical review of subsurface investigations and evaluations for a wide variety of industrial facilities. Representative industries include paper, textiles, chemicals, cement, brewing, railroads and agriculture. Project studies include foundation evaluations for intake and water treatment structures, wood yards, paper machines, stock chests, recovery boilers, clarifiers, raw material and finished goods warehouses, ground storage, elevated and process tanks, rotary kilns, cement and grain silos, wastewater treatment structures, aeration lagoons, bulkheads and other structures.

WATER SUPPLY/WASTE WATER TREATMENT FACILITIES

Mr. Pauls has conducted and provided senior technical management and review of subsurface investigations and evaluations for numerous water supply and wastewater treatment facilities. Representative projects include intake structures, pumping stations, raw water mains, raw water impoundments, flocculation and sedimentation basins, sludge digestors, sewer tunnels, lift stations, aeration ponds and outfalls. Clients include designers, municipalities and industry.

CONSTRUCTION DEWATERING

Mr. Pauls has conducted or provided management and senior technical review of numerous investigations and evaluations of construction groundwater control. The projects and solutions have ranged from simple to complex. Representative projects have included design of groundwater control and recharge systems for numerous major high-rise structures, water supply and wastewater treatment facilities, and the mile-long people mover subway for the new Hartsfield International Airport Terminal (Atlanta).

JOHN L. BROTHERS, P.G.
Senior Geologist

EDUCATION: B.S., Geology and Geography, Stephen F. Austin State University

PROFESSIONAL REGISTRATION: Registered Professional Geologist, Indiana

PROFESSIONAL MEMBERSHIPS: National Water Well Association, Houston Geologic Society

AREAS OF EXPERTISE SINCE 1981

Managing and conducting all types of hazardous waste site investigations for both private and public sector clients involving compliance with RCRA and CERCLA regulations. Geophysical evaluations of hazardous waste sites and landfills using electrical resistivity and conductivity data to delineate possible areas of affected ground water and soils. Conducting geotechnical subsurface investigations of waste disposal sites for the purposes of verifying the integrity and composition of cap and liner materials, identifying the types and concentrations of waste materials present, delineating the lateral and vertical extent of waste migrations, and determination of affected soil and waste material volumes. Design, installation, development and sampling of ground-water monitoring wells affected by low to high levels of waste constituents up to and including Level B respiratory protection.

Developing and preparing RFI work plans and sampling plans for the laboratory analysis of soils, sediments, surface water, ground water, air, sludge, and waste materials according to approved EPA-CLP protocol.

Providing enforcement support for the technical review of documents and oversight of all activities associated with remedial investigations, feasibility studies, endangerment assessments, comprehensive monitoring evaluations, and land ban restriction inspections. Compilation and preparation of an environmental quality management program for a process facility in Malaysia dealing with all types of waste materials. Preparation of environmental impact statements concerned with risk to ground-water resources associated with the construction of a crude oil pipeline and various other mining activities.

Map compilation and design associated with hydrogeologic investigation reports including geologic cross sections, hydraulic gradient maps, fence diagrams, and extent of waste migration maps.

BEFORE JOINING LAW

Stone and Webster Engineering Corp. - Senior Ground-Water Geologist
Jacobs Engineering Group, Inc. - Work Assignment Manager, Senior Hydrogeologist
Environmental Research and Testing, Inc. - Project Coordinator, Senior Geologist

GEOGRAPHICAL LOCATIONS OF SIGNIFICANT EXPERIENCE

Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

DAVID R. FETTER
Senior Environmental Regulations Specialist
Senior Chemical Engineer

M.E., Chemical Engineering, University of Louisville
B.S., Chemical Engineering, University of Louisville

AREAS OF EXPERIENCE

Chemical engineering; chemistry; hazardous and solid waste regulations & permitting; National Pollution Discharge Elimination System (NPDES) regulations and permitting; preparation of Resource conservation and Recovery Act (RCRA) Part B, NPDES discharge and Underground Injection Control (UIC) well permit applications for commercial hazardous waste facilities; preparation and implementation of RCRA closure plans for commercial facilities; preparation of RI/FS for commercial hazardous waste facilities; wastewater treatment plant operations; RCRA Facility Investigations (RFI); groundwater assessments and remediation at commercial facilities; hazardous waste TSD facility design, construction, management, operations, regulation, safety and training; regulatory compliance audits; mixed radioactive and hazardous waste regulations; expert testimony at evidentiary proceedings in areas of chemistry, chemical engineering, regulatory development, regulatory compliance, hazardous waste facility design, management and operation, regulatory interpretation; testimony at United States Environmental Protection Agency (USEPA) administrative proceedings.

MAJOR CLIENTELE

Commercial Hazardous Waste Management Managers and Facilities Engineering, Energy & Environmental Managers in the industrial categories of: chemicals, petroleum, fiber manufacturing, paint manufacturing and energy production

U. S. Department of Defense and Energy
U. S. Environmental Protection Agency
Environmental Risk Assessment Companies
Private practice attorneys representing industrial clients in regulatory and hazardous waste actions

SPECIAL EXPERIENCE AREAS

Environmental regulations with emphasis on hazardous/solid wastes. RCRA/HSWA development and interpretation. Past Chairman and Deputy Chairman for the National Solid Waste Management Association's (NSWMA) Institute of Chemical Waste Management (ICWM). 1982 USEPA's RCRA permit advisory committee.

GEOGRAPHICAL LOCATIONS OF SIGNIFICANT EXPERIENCE

California, Illinois, Kentucky, Missouri, Nevada, Texas, Washington, D.C. and Washington State

7.0 INSURANCE INFORMATION

Law Environmental, Inc. as a subsidiary of Law Companies Group, Inc. enjoys a longstanding and positive relationship with its major carrier, AETNA. A summary of coverages in the non-environmental arena is as follows and is shown on the Certificate of Insurance following this section.

A) Worker's Compensation and Employer's Liability: Statutory with $1,000,000.00 coverage B and $1,000,000.00 Maritime for all States except Louisiana, California, New Jersey and Monopolistic State Fund States. Separate AETNA policies cover Louisiana, Nevada, and State of Washington. Separate policy under unique California requirements providing Maritime coverage.

B) Commercial and General Liability: Covers all States, limited extension for owned, hired and non-owned watercraft. Employee benefits liability and "Worldwide" endorsements. Has pollution exclusion (see Professional Liability coverage below).

1) $2,000,000.00 each occurrence;
2) $3,000,000.00 general aggregate:
3) $2,000,000.00 products completed/operations;
4) $2,000,000.00 Personal Injury;
5) $50,000.00 Fire Legal;
6) Medical.

C) Business Automobile: Covers all States except Texas (separate policy for Texas). $2,000,000.00 combined single limit (same for Texas policy). Has pollution exclusion (see Professional Liability coverage below).

D) Umbrella and Excess Liability: Excess of Commercial, General, Auto, Aircraft, and Employer's Liability; additional catastrophe liability. Amounts confidential. Has pollution exclusion (see Professional Liability coverage below).

E) Hired and Non-Owned Aircraft: $5,000,000.00 combined single limit including passengers.

F) Commercial Crime: $1,000,000.00 Employee Dishonesty, Money and Securities/Inside-Outside; Depositors Forgery; ERISA Endorsement for Employee Benefit Plans. Worldwide protection.

PROFESSIONAL LIABILITY for environmental consulting work is provided through Stone Mountain, a captive insurance company and is in the amount of $1,000,000.00 per claim/$2,000,000.00 total annual aggregate on a claims made basis. Additional information can be obtained by calling office of Corporate Counsel.

PRODUCER

PRITCHARD & JERDEN, INC.
3565 PIEDMONT ROAD
BLDG 3, SUITE 700
ATLANTA, GA 30305-4604

CODE **SUB-CODE**

INSURED

LAW ENVIRONMENTAL, INC.
114 TOWNPARK DRIVE
KENNESAW, GA 30144-5599

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.

COMPANIES AFFORDING COVERAGE

COMPANY LETTER A	AETNA CASUALTY & SURETY
COMPANY LETTER B	
COMPANY LETTER C	
COMPANY LETTER D	
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)	ALL LIMITS IN THOUSANDS	
	GENERAL LIABILITY					
A	X COMMERCIAL GENERAL LIABILITY	11GL5004285[illegible]	1-1-92	1-1-93	GENERAL AGGREGATE	3000
	CLAIMS MADE X OCCUR.				PRODUCTS-COMP/OPS AGGREGATE	2000
	X OWNER'S & CONTRACTOR'S PROT.				PERSONAL & ADVERTISING INJURY	2000
					EACH OCCURRENCE	2000
					FIRE DAMAGE (Any one fire)	50
	X INCLUDES CONTRACTUAL, XCU COVERAGES				MEDICAL EXPENSE (Any one person)	5
	AUTOMOBILE LIABILITY					
A	X ANY AUTO	11FJ990823SEA	1-1-92	1-1-93	COMBINED SINGLE LIMIT	2000
	X ALL OWNED AUTOS	11FJ990821SEA			BODILY INJURY (Per person)	
	SCHEDULED AUTOS					
	X HIRED AUTOS				BODILY INJURY (Per accident)	
	X NON-OWNED AUTOS					
	GARAGE LIABILITY				PROPERTY DAMAGE	
	EXCESS LIABILITY				EACH OCCURRENCE	AGGREGATE
A	X UMBRELLA FORM	11XS[illegible]	1-1-92	1-1-93	1000	1000
	OTHER THAN UMBRELLA FORM					
	WORKER'S COMPENSATION AND EMPLOYERS' LIABILITY				STATUTORY	
A		11CE64520[illegible]SS	1-1-92	1-1-93	1000	(EACH ACCIDENT)
		11C[illegible]1059[illegible]			1000	(DISEASE–POLICY LIMIT)
		11CE[illegible]20[illegible]SS (CALIFORNIA)			1000	(DISEASE–EACH EMPLOYE
	OTHER					
A	PHYSICAL DAMAGE	11FJ99[illegible]23SEA	1-1-92	1-1-93	DEDUCTIBLES: $500 COMPREHENSIVE $500 COLLISION	

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/RESTRICTIONS/SPECIAL ITEMS

CERTIFICATE HOLDER

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

John Miller

SAMPLE

APPENDIX A

COMPANY HISTORY/SCOPE OF SERVICES

10. Use this space to provide any additional information or description of resources (including any computer design capabilities) supporting your firm's qualifications for this proposed project.

COMPANY HISTORY

Aguirre Engineers, Inc. was founded by Mr. Vukoslav E. Aguirre, P.E. on August 12, 1977 as a Geotechnical, Hazardous Waste and Construction Materials Consulting, Testing and Inspection Firm. The Firm has its permanent office in Englewood Colorado (suburb of Denver). One of our primary goals is to provide a quality service in a timely manner and for a reasonable fee. All projects, large and small, receive the personal attention of our senior staff.

Our firm has strived toward controlled growth over the past years, enabling us to achieve our present capabilities of registered and graduate engineers, environmental scientists geologists, hydrogeologists and engineering technicians with wide ranging experience in a multitude of varied projects.

The principals in our firm have had senior engineering management positions in the United States and overseas. Our principals have personally managed the geotechnical and/or hydrogeologic investigations, as well as provided construction materials testing services for Airports, Nuclear and Conventional Power Plants, Offshore Structures, Refineries and Petrochemical Facilities, Regional Wastewater Disposal Facilities, Aquifer Recharge Studies, Percolation/Evaporation Ponds, Storm Water Detention/Retention Ponds, Construction Dewatering System, Highways, New Town Development, High-Rises, Housing Developments, etc. Our clients look to us for geotechnical and construction materials, testing and consulting responsibility from site selection through structure occupancy.

EXPERIENCE OF FIRM

Aguirre Engineers, Inc. is a multi-disciplinary geotechnical, hazardous waste and hydrogeologic engineering and construction materials testing organization. We have permanent in-house engineering, and experienced technical support staff necessary to undertake major governmental, commercial, industrial, housing, utility, ground water and water resource projects. Our principals have over 22 years experience in their fields of expertise. Each of our staff members has over 12 years of experience. Our Field Engineers are certified in concrete, asphalt and soil testing procedures and receive regular refresher courses, as appropriate.

SCOPE OF SERVICES

Aguirre Engineers, Inc. normally provides the client with expertise from the planning stages through the construction monitoring phases of their projects. Specifically we provide:

A) Geotechnical, Geoenvironmental, Hazardous Waste and Hydrogeologic investigations including Level I and II Environmental Site Assessments; Remedial Investigation/Feasibility Studies (RI/FS), monitor well installation, ground water hydrology, aquifer recharge, geophysics, geology related engineering design analyses and reports, including plans and specifications.

B) Field and laboratory testing services, including hazardous waste and ground water monitoring, dewatering system inspection, engineering property evaluations and construction materials, engineering and testing services such as fill operations, foundation construction, and distress investigations.

C) Quality Assurance/Quality Control (QA/QC) inspections, Construction Management (CM), construction materials engineering testing services, including soil, concrete, asphalt, non-destructive testing (NDT), fire proofing, waterproofing, and structural steel operations.

D) Asbestos Condition and Assessment Surveys to comply with OSHA, NESHAPS and AHERA, including inspections, sampling, air monitoring, reports, abatement design, plans and specifications, cost estimates and recommendations for operations and maintenance.

E) Project Management including the following functions, estimating, cost/scheduling, contract administration, document control, construction inspection and surveying; Earned Value (C/SCSC) Methodology is used to plan and control performance; construction scheduling was Primavera Version 4 software; additional software available includes DOS, Norton, PC Tools, Windows 3.0; Lotus 1-2-3; Symphony; QuattroPro; Lucid 3D; Excel; Word Processors including MultiMate 3.3x, Microsoft Word 5.0, Word for Windows; Grammatik IV; PE II (full ASCII editor); Smartcom III; Procomm; PC Anywhere; Cross Talk; Management Support-RFFlow; Decision Pad; Pro-

(Continued)

10. Use this space to provide any additional information or description of resources (including any computer design capabilities) supporting your firm's qualifications for this proposed project.

ject Controls-including, Construction Estimating (Bautech 4.40; MC^2; Timberline; & Anaheim Bid Analysis); Scheduling (AMS Time Machine v. 3.2x scheduling & graphics; PrimaVera v. 4.x, PrimaVision; Project for Windows-MS); Expedition, other Project Control Logs; Project Planning Modules; Cost Control Systems & Project Accounting.

SOLICITATION EXPERIENCE

Aguirre Engineers, Inc. has specific project experience with geotechnical field studies and design projects in the capacity of design engineers, members of field teams and in a design review capacity for most services required in this solicitation. These include, but are not limited to:

A) Site Investigations
B) Subsurface Exploration
C) Hazard Waste Evaluations
D) Remedial Investigations/Feasibility Studies (FI/FS)
E) Ecological Studies
F) Risk Assessments and other engineering studies and reports
G) Geotechnical Design
H) Preparation of Plans and Specifications
I) Cost Estimating and Project Scheduling
J) Construction Management Services

Aguirre Engineers, Inc. also has familiarity and experience with Regulations and practices pertaining to hazardous waste sampling, handling, transportation and disposal. We have capacity in Civil, Geotechnical, and Environmental disciplines, and we have a Certified Industrial Hygienist.

We have specialists on staff, and have performed work in the past in the area of geohydrology, with emphasis on computer generated ground water modeling; industrial hygiene; cost estimating and ecology investigations.

PROJECT APPROACH

Our project approach to complete a geotechnical/hazardous waste project would be as follows:

1) After receiving a request for proposal from your Project Manager, our Project Manager and Project Sponsor would develop a detailed Scope of Work and Budget to complete the task order.

2) After negotiations are completed, our Project Manager would designate one or more appropriate Project Engineer(s), depending on the type of work request, to participate on the project execution.

3) Boring programs would be developed and our drilling supervisor would be given a work order to proceed with the required drilling. We would develop a Health and Safety Plan (HASP) for the particular site, based on our approved Corporate HASP.

4) Drilling supervision would be by one of our engineers and/or geologists that would classify the samples on site.

5) The samples would be brought back to our laboratory, soil field classifications would be checked by a senior project engineer, that would assign the appropriate laboratory testing.

6) Drafting of boring logs using our CADD capabilities could commence.

7) Analysis of the data would start as laboratory data became available.

8) A draft report, if required, would be performed under the direction of our Project Manager, and would be forwarded to your Project Manager for review and comments.

9) Appropriate comments would be incorporated in our Final Report prior to issue.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) MANUAL

Aguirre Engineers, Inc. has had a Quality Assurance/Quality Control Plan (QAP) in effect since September 8, 1978. This QAP was reviewed and approved by the National Institute of Science and Technology (NIST) known formerly as the US National Bureau of Standards, as part of Aguirre Engineers, Inc.'s participation and certifica-

(Continued)

10. Use this space to provide any additional information or description of resources (including any computer design capabilities) supporting your firm's qualifications for this proposed project.

tion into the National Voluntary Laboratory Accreditation Program (NVLAP). Bi-annual inspections by the Cement and Concrete Reference Laboratory (CCRL) have been performed from 1978 through 1988. Aguirre Engineers, Inc.'s QAP underwent a major revision on February 8, 1991 in order to meet, Quality Assurance Program Requirements for Nuclear Projects, the American Society of Mechanical Engineers (ASME), NQA-1-1989 Edition and 10 CFR 50, Appendix B, where applicable. Controlled copies of this document are available for your review.

PHYSICAL FACILITIES/LABORATORY

Aguirre Engineers, Inc. occupies its own 20,000 square foot office and laboratory building. The laboratory areas, that covers in excess of 6,000 square feet, is considered to be one of the most modern in the Denver Metropolitan area. Within our building we have space allocated for our future expansion.

HEALTH AND SAFETY PLAN

Aguirre Engineers, Inc. has a Corporate HASP for the past three years. The HASP is presently undergoing an annual review for possible changes. Site specific HASP's are prepared and approved prior to our entering any site which may contain Hazardous Waste Substances. Our HASP was designed to comply with OSHA requirements to identify, evaluate, and control health and safety hazardous, and provide for emergency response for hazardous waste operations as specified in 29 CFR 1910.120.

PERSONNEL TRAINING

A) 40 hours OSHA—CFR 1910.120 Hazardous Waste Operations and Emergency Response

1) Hazard Communications
2) OSHA 40-Hour Training, Level I Awareness
3) Hazardous Materials
4) Protective Equipment CFR-29, 8-Hour
5) Hazardous Materials Supervisor CFR-29 (8-Hour Training)
6) Annual Refreshers OSHA 8-hour Training, Level I Awareness

B) Miscellaneous
- Troxler "Use of Nuclear Testing Equipment"
- American Concrete Institute" ACI Concrete Field Testing Technician.
- National Institute for the Certification of Engineering Technicians (NICET)

C) On the Job Training

D) Medical Monitoring Program

CADD CAPABILITIES

Our in-house computer hardware includes:

One 386 PC-AT with 1 MB & 20 MB Hard Disk
Two 286 PC-AT with 1 MB & 20 MB Hard Disk
Two IBM PC-XT with 640K RAM, 20 MB Hard Disk
One IBM-PC with 320K RAM
Communication Modem (120 Baud Rate)

Our IBM PC's are equipped with graphic communication and data trapping cards. Our computer system also includes 1 Hewlett Packard Laserjet series II Printer and 3 dot-matrix printers with graphic capabilities. We have direct access to time sharing systems such as CDC 6400, Prime 750 and several main frame computer systems.

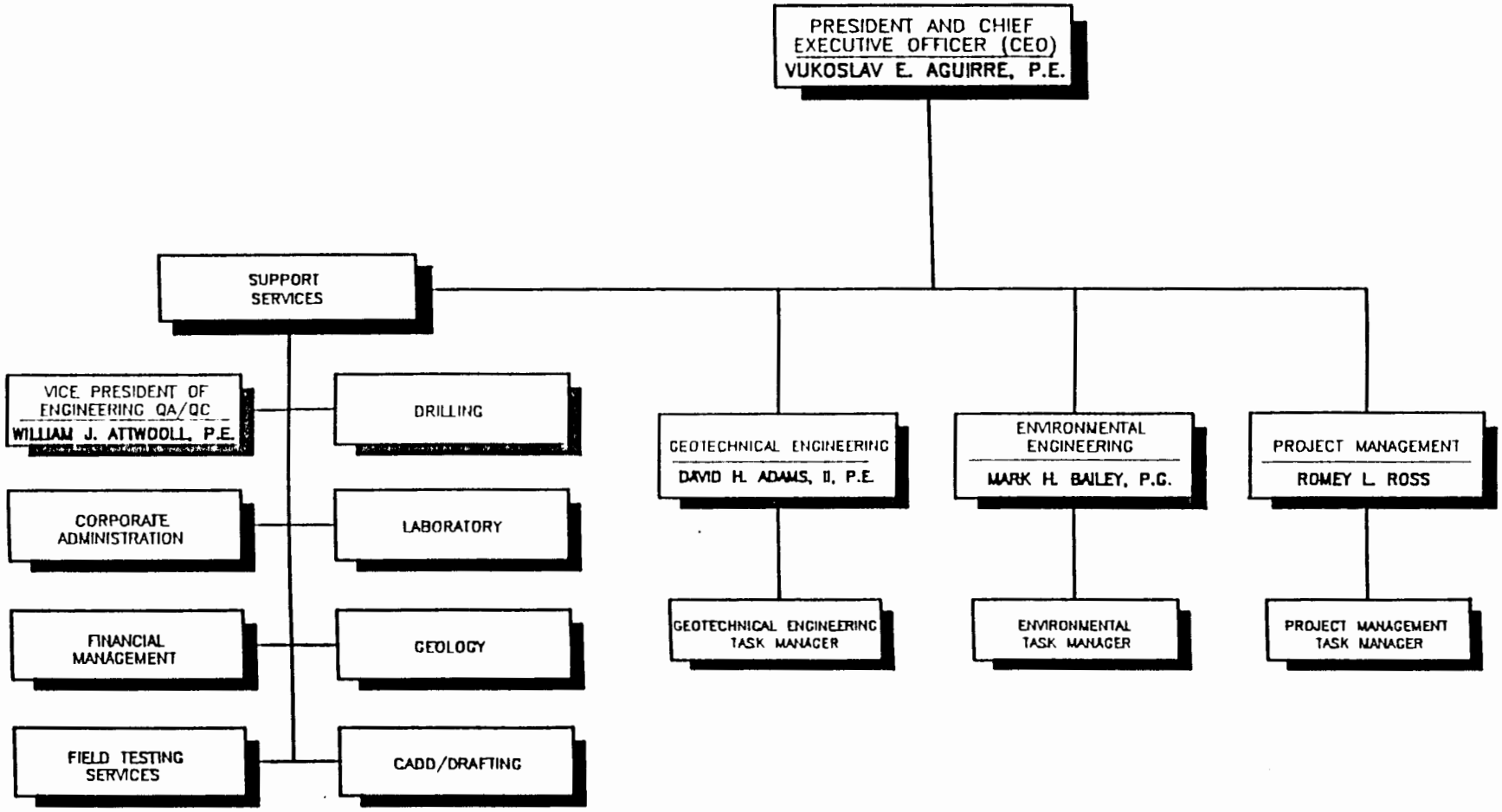
Our computer and CADD software includes a wide range of geotechnical and civil engineering, spread sheet, data base and accounting programs. Specifically, we have over two dozen geotechnical oriented programs for laboratory test analysis, statistical analysis of tests and data, bearing capacity, slope stability, ground water hydrology, retaining wall design, beam on elastic foundation analysis and pavement thickness design (roadways, airfields and AASHTO). All our test results and borings are printed using AutoCADD, release 10, which is compatible with the Omaha Districts Intergraph System.

COMPUTER SOFTWARE

We have the following software available in-house:

A) LPILE - 1 Response of Laterally Loaded Piles by Ensoft, Inc.
B) Three Dimensional Finite Difference Ground Water Flow Program by USGS.
C) Solute Transport and Dispersion in Ground Water (MDC) by USGS.

(Continued)



Aguirre Engineers, Inc. Corporate Organization
Experienced, Committed, and Accountable for Program Success

AGUIRRE ENGINEERS, INC.
Geotechnical • Geoenvironmental • Management
P.O. Box 3814 • Englewood, CO 80155-3814 • U.S.A.
303-799-8378 • FAX 303-799-8392

KEY PERSONNEL

VUKOSLAV E. AGUIRRE, P.E. ---- President
WILLIAM J. ATTWOOLL, P.E. ---- Vice President
DAVID H. ADAMS, II, P.E. ---- Geotechnical Division Manager
MARK H. BAILEY, CHMM, PG, REP ---- Hazardous Waste Division Manager
ROMEY L. ROSS, PMP, CE ---- Construction Management Division Manager

TOTAL PERSONNEL 54

MEMBERSHIPS
ACIL, ASTM, ACI
AWS, ASCE, NSPE
ASFE, ACEC, CECC
SAME, PMI, AACE

SCOPE OF SERVICES

GEOTECHNICAL ENGINEERING

ENGINEERING

- Hydrogeological Studies
- Earth Retention Systems
- Aquifer Characterization
- Foundation Investigations
- Earth Pressure Computations
- Geological Investigations
- Pavement Thickness Design & Evaluations
- Settlement & Bearing Capacity Analysis
- Earthen Dam Design
- Geophysical Studies
- Geological Investigations
- Geophysical Studies

LABORATORY SERVICES

- Classification
- Compaction, CBR & R-Value
- Consolidation, Time Rate Settlement
- Soil Chemical & Corrosion Properties
- Permeability
- Strength Testing; Direct Shear & Triaxial
- Soil Cement, Lime & Fly Ash
- Swell Index & Pressure Measurements

SPECIAL PROBLEMS

- Failure Investigations
- Ground Water Modifications, Deep Dynamic Compaction, Preloading
- Methane Gas Detection
- Retaining Wall Evaluations
- Slope Stability Analysis
- Soil Stabilization
- Soil/Rock Tie-backs

EXPLORATION & SAMPLING

- Cone Penetrometer Testing
- Exploratory Soil & Rock Testing
- Field Instrumentation
- Monitoring Well/Piezometer Installations
- Piezocone Soundings
- Prospecting - Split Spoon Sampling
- Undisturbed Sampling
- Well Development, Purging, Sampling

HAZARDOUS & TOXIC WASTE SERVICES

SUPERFUND SERVICES

- Pre-Remedial Superfund Studies
- Hazard Ranking System Scoring
- Remedial Investigations/Feasibility Studies
- Emergency Removals/Source Containments
- Health & Risk Assessments
- Remediation System Design/Operation

RCRA INVESTIGATIONS - CLEAN UPS

- RCRA Facility Investigations/Siting-Permits
- RCRA Corrective Measures Studies
- Waste Inventory & Minimization Programs
- Waste Characterization/Transport/Disposal
- USTs Assessments/Removals/Soil Remediation
- RCRA Facility Auditing-Release Monitoring

TOXIC SUBSTANCE

- Asbestos & ACM Sampling/ Removals
- PCB-Dioxin-Furan Compound Assessments/ Clean-Ups
- Lead Paint Abatement

OTHER SERVICES

- Environmental Site Assessments
- Air-Water-Soil-Sediment Sampling/Analysis
- Worker Exposure-Protection-Emergency Planning
- Spill Prevention-Response Planning
- Demolition Planning & Monitoring
- Compliance Assistance with Enforcement Agencies

MATERIALS TESTING

FIELD INSPECTION & TESTING

- Compaction Control
- Dynamic & Static Pile Load Tests
- Plate Load Bearing Tests
- Pile & Drilled Pier Installation

ASPHALTIC CONCRETE

- Aggregate Evaluation
- Extraction & Gradation Tests
- Marshall Mix Design
- Plant & Field Control
- Recycled Asphalt Designs

PORTLAND CEMENT CONCRETE (PCC)

- Aggregate Evaluation
- Post-Tensioning Inspection
- Mix Design
- Pipe Inspection
- Plant & Field Control
- Slump Tests & Air Content
- Strength, Compressive & Flexural

STRUCTURAL STEEL

- Bolt Torquing
- Magnetic Particle Testing
- Shop Fabrication Inspection
- Ultrasonic Weld Inspection
- Welder Qualification

CONSTRUCTION MANAGEMENT/PROJECT CONTROL SYSTEMS

- Cost Estimating (3 Levels Historical/Parametric)
- Cost Estimating (all Levels Quantity Take-Off)
- Budgeting
- Cost Management/Job Cost Control
- Life Cycle Cost Analysis
- Value Engineering
- Documents Control
- Scope Control
- Design Issues Management
- Submittals Control
- Change Order Control
- Earned Value-Progress/ Performance Control
- Material Tracking
- Procurement Control
- Project Planning
- Scheduling (All Levels)
- Resource Analysis/Leveling
- Team Development
- Communication Management
- Negotiation
- Claim Avoidance/Analysis
- Contract Administration
- Quality Control & Quality Assurance
- Decision Support
- Bid Packaging & Analysis
- Risk Management
- Market Studies
- Cash Flow Projections

RELATED PROJECT EXPERIENCE

AGUIRRE ENGINEERS, INC.
P.O. Box 3814, Englewood, CO 80155-3814
(303) 799-8378 FAX (303) 799-8392

SPECIFIC PROJECT EXPERIENCE
Site Environmental Assessments and Hazardous Waste Investigations

	OUR PROJECT NUMBER	PROJECT NAME	CLIENT AND ADDRESS	COST OF WORK (in 1,000's)	START DATE (Actual or Estimated)	COMPLETION DATE (Actual or Estimated)
1)	N/A	**Basic Ordering Agreement (BOA)** Support of Environment, Safety Health, Safeguards, Security Operations, and Quality Assurance Functions Rocky Flats Office (RFO), Colorado	**U.S. Department of Energy Rocky Flats Office (RFO)** P.O. Box 928 Golden, Colorado 80402-0928 Attn: Clyde Rallsback, Contract Specialist Phone: (303) 966-4078	**$ 2,500* fee** (Construction Cost Unknown) *Estimated "not to exceed" fee for the first year only, of a five year contract.	10/91	10/96
2)	19,012	**Interstate I-76/I-25 Interchange City & County of Denver, Colorado** CDOH Project No. I 76-1(140)	**Colorado Department of Transportation (CDOT) c/o CRS Sirine Inc.** 216 16th Street, Suite 1700 Denver, Colorado 80202-5131 Attn: Mr. Rick Hedrick, P.E. Phone: (303) 820-5240	**$ 230 fee** ($57,000 construction cost)	02/89	01/92
3)	N/A**	**Lowry Landfill (NPL) Solids & Gases Modules** Arapahoe County, Colorado	**City and County of Denver c/o Camp Dresser and McKee, Inc.** 1331 17th Street, Suite 1200 Denver, Colorado 80202 Attn: Ms. Patti Fuller Phone: (303) 298-1311	**$ 125 fee** (Construction Cost Unknown)	09/91	09/92
4)	20,033	**Coors Baseball Stadium 20th and Blake Street** City and County of Denver, Colorado	**Colorado Baseball District c/o Fairfield & Woods, P.C. and** HOK Architects 1700 Lincoln Street, Ste 2400 Denver, Colorado 80203-2524 Attn: Mr. Mike McKinstry Phone: (303) 830-2400	**$ 85 fee** ($130,000 construction cost)	06/90	09/93
5)	19,107 and 21,003	**Northeast Corridor Transit Project** RTD Project Nos. 10-RY-103 and 19-RY-006	**DMJM** 910 15th Street, Suite 500 Denver, Colorado 80202 Attn: Mr. Erik Collett, P.E. Phone: (303) 892-1300	**$ 84 fee** (Construction cost unknown)	12/89	12/91
6)	18,012	**Substation and Control Building Upgrades Rocky Flats Nuclear Weapons Plant** Jefferson County, Colorado	**US Department of Energy c/o Black & Veatch Engineers** 1500 Meadowlake Parkway Kansas City, Missouri 64114 Attn: Mr. Joel Kessler Phone: (913) 339-7373	**$ 67 fee** (Construction Cost Unknown)	02/88	04/89
7)	16,052 and 18,026	**State Highway 287 North** Broomfield, Colorado CDOT Project No. FCU 287-3(37)	**CDOH c/o Muller Engineers** 7000 West Fourteenth Avenue Lakewood, Colorado 80215 Attn: Mr. Robert G. Carlson, P.E. Phone: (303) 232-9340	**$ 48 fee** ($3,000 construction cost)	06/86	06/89
8)	N/A**	**Waste Management Plan Denver International Airport (DIA)** City and County of Denver, Colorado DIA Project No. E-144A	**R. W. Beck and Associates** 1125 17th Street, Ste 1900 Denver, Colorado 80202-2615 Attn: Mr. David A. Kahl Phone: (303) 299-5200	**$ 42 fee** (Construction cost unknown)	08/91	03/92
9)	21,011 and 18,026	**I-76 and Wadsworth Interchange Improvements** Jefferson County, Colorado CDOH Project No. I(CX)076-1(151)	**CDOH c/o Turner Collie & Braden, Inc.** 5445 DTC Parkway, Suite 600 Englewood, Colorado 80111-2051 Attn: Mr. James J Ryan, III, P.E. Phone: (303) 395-1400	**$ 42 fee** ($3,000 construction cost)	01/91	06/91
10)	19,007	**Heap Leach Pad No. 2 - North Expansion** Victor, Teller County, Colorado	**Texasgulf Minerals and Metals, Inc.** 5932 McIntyre Street Golden, Colorado 80403 Attn: Mr. John S. Burt Phone: (303) 279-9181	**$ 25 fee** ($ 250 Construction Cost)	01/89	01/90
11)	19,043	**Groundwater Investigation - Pipeline Spill** Brush, Weld County, Colorado	**Confidential c/o EHRT** 1755 Jasper Street, Suite H Aurora, Colorado 80011 Attn: Mr. Rick Ebel Phone: (303) 367-8352	**$ 25 fee** (Construction Cost Unknown)	04/89	01/90
12)	18,068 and 18,069	**Underground Storage Tank Investigation** Various Sites Colorado Springs, El Paso County, Colorado	**R. F. DeShazer Consultants, Inc.** 124 Southwest Oxford Place Lee's Summit, Missouri 64063 Attn: Mr. Richard DeShazer Phone: (816) 524-8784	**$ 25 fee** (Construction Cost Unknown)	07/88	12/88
13)	19,082	**Solid Waste Master Plan** City and County of Denver, Colorado	**Wastewater Management Division c/o R. W. Beck and Associates** 1125 17th Street, Suite 1900 Denver, Colorado 80202-2615 Attn: Mr. E. Larry Beaumont Phone: (303) 295-6900	**$ 25 fee*** (Construction Cost Unknown)	01/90	07/91
14)	20,032	**Happy Church** City and County of Denver	**Marilyn Hickey Ministries** P.O. Box 17340 Denver, Colorado 80217 Attn: Mr. Nicholas Kondur Phone: (303) 698-1155	**$ 20 fee** (Construction Cost Unknown)	07/90	08/90

** Contract under negotiation

AGUIRRE ENGINEERS, INC.
P.O. Box 3814, ENGLEWOOD, CO 80155-3814
(303) 799-8378 FAX (303) 799-8392

SPECIFIC PROJECT EXPERIENCE
ROCKY FLATS NUCLEAR WEAPONS PLANT

	OUR PROJECT NUMBER	PROJECT NAME	CLIENT AND ADDRESS	COST OF WORK (in 1,000's)	START DATE (Actual or Estimated)	COMPLETION DATE (Actual or Estimated)
1)	N/A	Basic Ordering Agreement (BOA) Support of Environment, Safety Health, Safeguards, Security Operations, and Quality Assurance Functions Rocky Flats Office (RFO), Colorado	U.S. Department of Energy Rocky Flats Office (RFO) P.O. Box 928 Golden, Colorado 80402-0928 Attn: Clyde Railsback Contract Specialist Phone: (303) 966-4078	$ 2,500* fee (Construction Cost Unknown) *Estimated "not to exceed" fee for the first year only, of a five year contract.	10/91	10/96
2)	N/A**	Plutonium Recovery Weapons Facilities Modifications (PRWFM) Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	Bechtel, Inc. c/o Merrick & Company P.O. Box 22026 Denver, Colorado 80222 Attn: Mr. Dave Sprenkle, P.E. Phone: (303) 757-0741	$ 250 fee (Construction Cost Unknown)	On Hold	On Hold
3)	18,012	Substation and Control Building Upgrades Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	US Department of Energy c/o Black & Veatch Engineers 1500 Meadowlake Parkway Kansas City, Missouri 64114 Attn: Mr. Joel Kessler Phone: (913) 339-7373	$ 67 fee (Construction Cost Unknown)	02/88	04/89
4)	19,072	Laboratory Testing Rocky Flats Nuclear Weapons Plant	Advanced Sciences, Inc. (ASI) 45 Urbana Street, Suite 401 Lakewood, Colorado 80228 Attn: Mr. Mike Waltermeir Phone: (303) 980-0036	$ 15 fee (Construction Cost Unknown)	09/89	01/90
5)	18,023	Industrial Waste Facility Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	US Department of Energy c/o Engineering Science, Inc. 1100 Stout, Suite 1100 Denver, Colorado 80204 Attn: Mr. Richard Anderton Phone: (303) 825-8100	$ 10 fee (Construction Cost Unknown)	05/86	12/88
6)	20,012	Plutonium Staging Vault Addition Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	US Department of Energy c/o Black & Veatch Engineers 1500 Meadowlake Parkway Kansas City, Missouri 64114 Attn: Mr. Joel Kessler Phone: (913) 339-7373	$ 8 fee (Construction Cost Unknown)	01/90	01/91
7)	16,043	Storm Sewer Drain, Building 460 Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	Merrick & Company P.O. Box 22026 Denver, Colorado 80222 Attn: Mr. Jim Haugen Phone: (303) 757-0741	$ 5 fee (Construction Cost Unknown)	09/86	11/86
8)	13,009	Addition to Building 883 Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	Merrick & Company P.O. Box 22026 Denver, Colorado 80222 Attn: Mr. David A. Sprenkle, P.E. Phone: (303) 757-0741	$ 5 fee (Construction Cost Unknown	09/89	04/83
9)	13,053	Wind Site Access Road and Colorado State Highway 128 Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	Merrick & Company P.O. Box 22026 Denver, Colorado 80222 Attn: Mr. David Frazier, P.E. Phone: (303) 757-0741	$ 2.5 fee (Construction Cost Unknown)	08/83	09/83
10)	13,056	Plant Protection Pistol Range Rocky Flats Nuclear Weapons Plant Jefferson County, Colorado	Merrick & Company P.O. Box 22026 Denver, Colorado 80222 Attn: Mr. Doug Morrow Phone: (303) 757-0741	$ 2.5 fee (Construction Cost Unknown)	09/83	10/83

**Contract under negotiation

AGUIRRE ENGINEERS, INC.
P.O. Box 3814, ENGLEWOOD, CO 80155-3814

SPECIFIC PROJECT EXPERIENCE
LARGE GEOTECHNICAL INVESTIGATIONS

OUR PROJECT NUMBER	PROJECT NAME	PRIME CONSULTANT AND ADDRESS	COST OF WORK (in 1,000's)	START DATE (Actual or Estimated)	COMPLETION DATE (Actual or Estimated)
1) Various	**Denver International Airport (DIA)** City and County of Denver, Colorado	**Various Primes** **c/o City and County of Denver** New Airport Office Stapleton International Airport Denver, Colorado 80207 Attn: Mr. Bill Smith Phone: (303) 270-1900	**Over $4,200 fee** (construction cost $3,100,000)	07/88	10/93
2) 9,063	**Green Valley Ranch** Denver, Colorado	**Alpert Corporation** 4643 South Ulster Street, Suite 1130 Denver, Colorado 80237 Attn: Mr. Theodore J. Alpert Phone: (303) 773-3400	**Over $ 1,250 fee** (construction cost unknown)	09/79	12/05
3) 12,018	**Piney Creek** Arapahoe County, Colorado	**MDC Construction Company** 3600 South Yosemite Street, Suite 400 Denver, Colorado 80237 Attn: Gary L. Mandarich, P.E. Phone: (303) 773-1100	**$1,200 fee** (construction cost unknown)	02/82	12/99
4) 11,044 and 16,006	**Marcy Gulch Wastewater Treatment Plant & Highlands Ranch Water Treatment Plant** Highlands Ranch, Colorado	**Nolte & Associates** 9955 South Ridgeline Boulevard, Unit P Highlands Ranch, Colorado 80126 Attn: Mr. Newell Wright, P.E. Phone: (303) 790-4830	**$ 600 fee** (Construction cost $54,000)	06/81	03/89
5) 88,001	**Banning Lewis Ranch** Colorado Springs, Colorado	**Aries Properties c/o P&D Technologies** 111 South Tejon Street, Suite 500 Colorado Springs, Colorado 80903 Attn: Alvaro J. Testa, Ph.D., P.E. Phone: (719) 520-9455	**$ 500 fee** (construction cost unknown)	01/88	On-Hold
6) E-006	**Domestic Airside Concourses** **Denver International Airport (DIA)** City and County of Denver, Colorado	**Seracuse Lawler & Partners, Inc.** 1100 Stout Street, Suite 200 Denver, Colorado 80202 Attn: Mr. Philip Coman Phone: (303) 623-7031	**$ 260 fee** ($150,000 construction cost)	07/89	01/90
7) 19,012	**Interstate I-76/I-25 Interchange** **City & County of Denver, Colorado** CDOH Project No. I 76-1(140)	**Colorado Department of Highways (CDOH)** **c/o CRS Sirrine Inc.** 216 16th Street, Suite 1700 Denver, Colorado 80202-5131 Attn: Mr. Rick Hedrick, P.E. Phone: (303) 820-5240	**$ 230 fee** ($57,000 construction cost)	02/89	01/91
8) E-009	**West Airfield Area, Grading and Drainage** **Denver International Airport (DIA)** City and County of Denver, Colorado	**URS Consultants, Inc.** 5251 DTC Parkway, Suite 800 Englewood, Colorado 8011-2737 Attn: Mr. Robert Kitchell, P.E. Phone: (303) 796-9700	**$ 170 fee** ($69,000 construction cost)	01/90	12/90
9) E-004	**Terminal Grading and Drainage Area** **Denver International Airport (DIA** City and County of Denver, Colorado	**Stone & Webster Engineering Corporation** Post Office Box 5406 Englewood, Colorado 80217-5406 Attn: Mr. Bob Reynolds, P.E. Phone: (303) 741-7700	**$ 150 fee** ($50,000 construction cost)	01/89	07/89
10) 19,024	**Interstate I-25/I-70 Interchange** **City & County of Denver, Colorado** CDOH Project No. IR 25-2(169)	**CDOH c/o Turner, Collie & Braden, Inc.** 5445 DTC Parkway, Suite 600 Englewood, Colorado 80111-2051 Attn: Mr. Ridley Moorman, P.E. Phone: (303) 694-2898	**$ 118 fee** ($52,000 construction cost)	03/89	01/91
11) 18,015	**Industrial Waste Separation & Ethylene Glycol Stormwater Management Systems, Stapleton International Airport (SIA), Denver, Colorado** SIA Project No. 86-174	**SIA c/o Camp Dresser & McKee, Inc.** 2300 15th Street, Suite 400 Denver, Colorado 80202 Attn: Mr. John N. Cevaal, P.E. Phone: (303) 458-1311	**$ 100 fee** (Construction cost $4,500)	03/88	03/89

AGUIRRE ENGINEERS, INC.
P.O. Box 3814, Englewood, Colorado 80155-3814
303-799-8378 FAX 303-799-8392

SPECIFIC PROJECT EXPERIENCE
Large Construction Management and/or Materials Testing

	DIA PROJECT NUMBER	PROJECT NAME	PRIME CONSULTANT AND ADDRESS	COST OF WORK (in thousands)	START DATE (actual or estimated)	COMPLETION DATE (actual or estimated)
1)	21,032	**Area 4, Construction Inspection Services** Denver International Aiport (DIA) City and County of Denver, Colorado DIA Project No. M-207A	**Stone & Webster Engineering Corporation** P.O. Box 5406 Denver, Colorado 80217-5406 Attn: Mr. Clarence E. Hilton, P.E. Phone: (303) 741-7200	**$1,875 fee** ($600,000 construction cost)	06/91	10/93
2)	9,063	**Green Valley Ranch** **City & County of Denver, Colorado**	**Alpert Corporation** 4643 South Ulster Street, Suite 1130 Denver, Colorado 80237 Attn: Mr. Theodore J. Alpert Phone: (303) 773-3400	**$ 1,250 fee** (construction cost unknown)	09/79	12/05
3)	12,018	**Piney Creek Subdivision** **Arapahoe County, Colorado**	**MDC Construction Company** 3600 South Yosemite Street, Suite 400 Denver, Colorado 80237 Attn: Mr. Gary L. Mandarich, P.E. Phone: (303) 773-1100	**$1,200 fee** (construction cost unknown)	02/82	12/01
4)	11,044 and 16,006	**Marcy Gulch Wastewater and Water Treatment Plants** **Highlands Ranch, Colorado**	**Nolte & Associates** 9955 South Ridgeline Boulevard, Unit P Highlands Ranch, Colorado 80126 Attn: Mr. Newell Wright, P.E. Phone: (303) 790-4830	**$ 600 fee** (Construction cost $54,000)	06/81	03/89
5)	21,062	**Area 3, Construction Inspection Services** **Denver International Airport (DIA)** **City and County of Denver, Colorado** DIA Project No. M-206A	**DMJM** 910 15th Street, Suite 500 Denver, Colorado 80202 Attn: Mr. Gil Butler, P.E. Phone: (303) 892-1300	**$525 fee** ($100,000 construction cost)	01/92	10/93
6)	10,009	**Cottonwood Subdivision** **Douglas County, Colorado**	**AG Development Company** 2305 East Arapahoe Road, Suite 207 Littleton, Colorado 80122 Attn: Mr. George M. Upton, P.E. Phone: (303) 741-4143	**$ 500 fee** (Construction cost unknown)	01/80	12/01
7)	14,014	**Consolidated Space Operations Center** **Falcon Air Station, Colorado**	**Department of Defense** **c/o Bechtel Corporation** Post Office Box 3965 San Francisco, California 94119 Attn: Mr. Joseph L. Torres Phone: (415) 768-3420	**$ 400 fee** (Construction cost $83,000)	03/84	01/86
8)	21,042	**Airport Boulevard** **Taxiway Bridges to Terminal** **Denver International Airport (DIA)** **City and County of Denver, Colorado** DIA Project No. F-129A	**Interstate Highway Construction** P.O. Box 4356 Englewood, CO 80155-4356 Attn: Mr. Martin Holt Phone: (303) 790-9100	**$ 220 fee** ($28,000 construction cost)	11/91	07/92
9)	21,075	**Airport Boulevard** **E470 to Taxiway Bridges** **Denver International Airport (DIA)**	**Interstate Highway Construction** P.O. Box 4356 Englewood, CO 80155-4356	**$ 220 fee** ($28,000 construction cost)	08/91	10/92

AGUIRRE ENGINEERS, INC.
P.O. Box 3814, Englewood, Colorado 80155-3814
303-799-8378 FAX 303-799-8392

SPECIFIC PROJECT EXPERIENCE
LARGE CONSTRUCTION MANAGEMENT
AND/OR MATERIALS TESTING

	DIA PROJECT NUMBER	PROJECT NAME	PRIME CONSULTANT AND ADDRESS	COST OF WORK (in thousands)	START DATE (actual or estimated)	COMPLETION DATE (actual or estimated)
10)	19,028	Denver Reception and Prison Diagnostic Center City and County of Denver	Colorado Department of Corrections c/o CRS Sirrine, Inc. 216 16th Street, Suite 1700 Denver, Colorado 80202-5131 Attn: Mr. Marshall Kramer Phone: (303) 820-5240	$ 200 fee (Construction cost $31,000)	10/87	04/88
11)	17,038	Glide Slope Grading and MALSR Building Relocation Light Air Cargo Aircraft Parking Area Stapleton International Airport, Colorado SIA Project No. 87-146	Isbill Associates, Inc. c/o Interstate Highway Construction 7135 South Tucson Way Englewood, Colorado 80112 Attn: Mr. Martin Holt Phone: (303) 790-9100	$ 200 fee (Construction cost $10,000)	10/87	04/88
12)	21,073	Interstate I-76 Ramps @ I-25 Adams County, Colorado CDOT Project No. ID(B)-1(CX)76-1(122)	Colorado Department of Transportation (CDOT) District 6 2000 South Holly Street Denver, Colorado 80222 Attn: Mr. Guillermo E. Vidal, P.E. Phone: (303) 757-9251	$183 fee (Construction cost $54,000)	11/91	07/93
13)	21,039	Interstate I-25 over Clear Creek Adams County, Colorado CDOT Project No. IR-1(CX)025-3(108)	Colorado Department of Transportation (CDOT) District 6 2000 South Holly Street Denver, Colorado 80222 Attn: Mr. Guillermo E. Vidal, P.E. Phone: (303) 757-9251	$147 fee (Construction cost $43,000)	11/91	07/93
14)	16,045	Colorado Center - Phase I City & County of Denver, Colorado	VRG Development Corporation 5555 DTC Parkway, Suite 2500 Englewood, Colorado 80111 Attn: Mr. Paul J. Stann Phone: (303) 220-0500	$ 150 fee (Construction cost $30,000)	09/86	10/87
15)	14,019	The Citadel City & County of Denver, Colorado	Rosewood Properties c/o David Cohen, P.C. 1700 Lincoln Street, Suite 3900 Denver, Colorado 80203-4539 Attn: Mr. David Cohen Phone: (303) 860-0977	$ 140 fee (Construction cost $13,000)	03/84	08/88
16)	18,015	Industrial Waste Separation and Ethylene Glycol Stormwater Management System Stapleton International Airport, Colorado SIA Project No. 86-174	Camp Dresser and McKee, Inc. c/o Park Construction Company 5800 Franklin Street, Suite 107 Denver, Colorado 80216 Attn: Mr. Scott Kyler Phone: (303) 296-0240	$ 100 fee (Construction cost $4,500)	03/88	03/89
17)	18,054	Extended Runways 18R/35L & Associated Taxiways Stapleton International Airport, Colorado SIA Project No. 87-029	Isbill Associates, Inc. c/o Siegrest Companies 6999 York Street Denver, Colorado 80229-7399	$ 100 fee (Construction cost $3,000)	06/88	06/89

RESUMES

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Vukoslav E. Aguirre, P.E.
President

b. Project assignment:

Project Sponsor

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 14 With other firms: 13

e. Education: Degree(s)/Year/Specialization:

Course work completed 1967 towards Ph.D. in Soil and Rock Mechanics
M.S./1965/Geotechnical Engineering
B.S./1964/Civil Engineering

f. Active registration: Year first Registered/Discipline:
1971/Civil Engineering

CERTIFICATIONS: 40-Hour OSHA Training
8-Hour OSHA Supervisors Training

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **Directed well over 2,000 geotechnical investigations, including studies, designs and reports.**
- **Project Sponsor on well over 20 geotechnical design analysis, preparation of plans and specifications completed.**
- **Project Sponsor and/or Project Manager on ground water control, airfield pavements, foundations, earthen dams, channel improvements, blasting, tunneling, grouting, monitoring well and other various geotechnical designs.**
- **Project Sponsor and/or Project Manager on field investigations including soil and rock drilling and sampling, test pit excavations, installation of geotechnical instruments and monitoring wells.**
- **Project Sponsor and/or Project Manager on geotechnical inspections, field oversight, cost estimating, drafting and CADD design.**
- **Project Sponsor and/or Project Manager on geotechnical distress investigations for buildings and pavements, pavement thickness design investigations, on and off-shore structures.**

EXPERIENCE AND QUALIFICATIONS

Mr. Aguirre has over 27 years of diversified experience in the field of geotechnical engineering. This experience includes field investigations, laboratory testing, analysis and design. Typical projects for which he has served as Principal-In-Charge include airports, highways, bridges, dams, high-rise structures, commercial complexes, nuclear and conventional powerplants, governmental and industrial buildings, and petrochemical complexes (on and offshore).

He has served as Principal-In-Charge for the geotechnical tasks associated with the preliminary development of the new Denver International Airport (DIA). In this capacity, he has assisted the overall Project Management Team in developing both civil and architectural standards for the total project. Also, he has overseen the preliminary and final geotechnical reports associated with several airport components, including terminals, runways, site work and drainage, and transportation routings. He has worked in this capacity on over 14 projects completed or in progress. He was also Principal-In-Charge for the preliminary geotechnical investigation of the Air Cargo/Infrastructure facilities planned by Continental Airlines at DIA.

Consultant to various primes on at least 8 projects at the Rocky Flats Nuclear Weapons Plant, Jefferson County, Colorado a Superfund Site. Work at this site required a U.S. Department of Energy (DOE) "Q" Security clearance be awarded to Mr. Aguirre.

Consultant to Camp, Dresser & McKee, Inc. for the geotechnical aspects of the Solids and Gas Modules at Lowry Landfill, Colorado, a Superfund site. Work expected to start September 1991.

I-76/I-25 Interchange Reconstruction, Adams County, Colorado—Principal-In-charge for Level I and Level II hazardous waste assessments for the on-going interchange reconstruction for the Colorado Division of Highways (CDOH). Interaction with CDOH regarding Weaver Electric and other Potential Responsible Party (PRP) hazardous concerns.

At the Denver Federal Center, Colorado, Mr. Aguirre was project manager for the geotechnical investigation of a 40 feet underground-stored communication antenna; and was geotechnical project sponsor for the geotechnical investigation of the Pavement Investigation Report (GSA Contract GS-07P-90-JUC-0002) and the Indefinite Quantity Contract (GSA Contract No. GS-07P-88-HUD-0219).

Mr. Aguirre has been involved on both the study and design aspects of geotechnical projects, and subsequently has been involved in the field oversight of the construction of these improvements. His experience includes projects completed throughout the United States, Central and South America, Africa and Europe.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

William J. Attwooll, P.E.
Vice President

b. Project assignment:

Project Manager

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 3 With other firms: 21

e. Education: Degree(s)/Year/Specialization:

M.S./1969/Soils Mechanics

B.S./1966/Civil Engineering

f. Active registration: Year first Registered/Discipline:

1970/Civil Engineering

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **Completed 25 Phase I and Phase II Environmental Site Assessments**
- **23 years of experience as a consulting geotechnical and geoenvironmental engineer**
- **10 years experience in environmental and hazardous waste site investigations**
- **15 years experience in Quality Assurance/Quality Control (QA/QC) aspects of geotechnical & geoenvironmental projects**
- **Geotechnical engineering aspects of RI/FS studies at several superfund/CERCLA sites, including remedial alternative evaluations**
- **Numerous baseline risk assessments in accordance with USEPA and Colorado Department of Health (CDH) guidance and protocols**

EXPERIENCE AND QUALIFICATIONS

Denver International Airport (DIA), Denver, Colorado—Project Manager for 14 geotechnical investigations at the new DIA. Projects have included airfield and apron pavement and drainage studies, foundation designs of terminals, passenger tunnels, etc.

I-76/I-25 Interchange Reconstruction, Adams County, Colorado—Project Manager for geotechnical engineering and Level I and Level II hazardous waste assessments for the on-going interchange reconstruction for the Colorado Division of Highways (CDOH). Interaction with Colorado Department of Health (CDH) regarding Weaver Electric and other PRP hazardous concerns.

Central Platte Valley Hazardous Waste Investigations. Project Manager for Environmental Site Assessments (ESAs) in Denver's Central Platte Valley including the proposed Major League Baseball Stadium, Centennial Park Improvements, and the I-25/38th Avenue Interchange project.

City of Denver Central Public Library—Project Manager for Level I/II ESA for major library expansion. Leaky Underground Storage Tanks (USTs) were suspected. The study outlined the area of contamination and recommended remedial measures.

UST Investigations and removals. Project Manager for site investigation studies at many suspected leaky UST locations. Developed remedial alternatives. Also, geoenvironmental support at UST removals in Boulder, Denver, Arapahoe and Adams Counties.

Yak Tunnel Superfund Site, Leadville, Colorado—Civil and geotechnical engineering Project Manager. Supervised and conducted civil and geotechnical engineering studies leading to the preparation of plans and specifications for the design and construction of seven acre lined impoundment to contain discharge from the Yak Tunnel Operable Unit in California Gulch. Design included stream channel diversions and spillways to carry design floods around the impoundment area. This project included substantial EPA and CDH interaction. The design studies were conducted on behalf of a Potential Responsible Party (PRP) to implement a Record of Decision (ROD).

Bunker Hill Mine Superfund Site, Kellogg, Idaho—Responsible for geotechnical engineering aspects of a Remediate Investigation/ Feasibility Study (RI/FS), including implementation of an EPA approved work plan. The 20 square mile site included several large tailings ponds, numerous mine dumps, and active and inactive mining facilities. Made several sampling/data analysis/inspections with designated EPA contractor personnel. Supervised field testing/monitor well/installation and borings in tailings disposal areas.

Eagle Mine CERCLA Site, Minturn, Colorado—Responsible for geotechnical engineering studies performed on behalf of the PRP to evaluate engineering characteristics of the old and new tailings ponds. Also evaluated extent, thickness and character of tailings in Rex Flats. Presented results of studies to CDH representatives and the judge representing the Federal Court. Design and implementation of remedial programs were by others.

US Department of Energy Rocky Flats Plant—Project Manager for geotechnical investigations for electrical systems improvements, storm drainage upgrade, and Plutonium Storage Vault Addition.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Mark H. Bailey, PG, CHMM, REP
Hazardous Waste Department Manager

b. Project assignment:

Assistant Project Manager

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 17

e. Education: Degree(s)/Year/Specialization:
B.S./1974/Geological Services
1976/Advanced Field Geology Program
1982/Geologic & Geophysical Training
1988/Advanced Geotechnical Training Program
1991/EPA Region IV SOP Training

f. Active registration: Year first Registered/Discipline:
1988/Certified Hazardous Materials Manager (Senior Level)
1976/Certified Professional Geologist
1988/Registered Environmental Professional
CERTIFICATIONS: 40-Hour OSHA Training
8-Hour OSHA Supervisors Training

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **Directed well over 100 Superfund pre-remedial investigation studies, including 85 for single client**
- **Directed well over 150 environmental site assessments (ESAs)**
- **Responsible for taking nearly 2,000 CLP site media samples**
- **Project Manager or Enforcement Specialist on several dozen major Superfund RI/FS and Emergency Removal projects**
- **Experienced with CERCLA, RCRA, SARA, TSCA, NEPA Regulations and Compliance.**

EXPERIENCE AND QUALIFICATIONS

Mr. Bailey with over 17 years of diversified environmental and hazardous waste experience and has been responsible for conducting numerous EPA Pre-Remedial Site Investigations. He has conducted over 100 Preliminary Assessments and Screening Site Inspections for government agencies and enforcers. He has authored dozens of site specific Health and Safety Plans to be used by investigation team members. He has also developed over 90 site specific Sampling Plans. These plans depict areas on or near the site where background, control and source samples were collected.

He has managed the investigation of 23 suspected hazardous sites for the Bureau of Land Management (BLM). The sites were located throughout the western United States. He developed plans, mobilized investigations teams and conducted sampling in accordance with EPA protocols at these sites. Samples were obtained, handled, preserved and transported to EPA approved analytical laboratories.

He was responsible for raw analytical data validation and determined if observed releases of hazardous substances could be attributable to the sites. He then reviewed demographic, climatic and ecosystem data to develop EPA Hazard Ranking System (HRS) Scores for the suspect sites.

Mr. Bailey authored site inspections reports for the sites and described potential threats posed by the sites to human health and the environment. Emergency removals, source containments, provision for additional site security measures were suggested to prevent continued media degradation and reduce danger to local residents. Several of the mine sites and former landfills exhibited elevated HRS scores and are now candidates for the National Priorities List (NPL) of the nation's worst sites.

Mr. Bailey directed a major state Superfund contract, where he developed over 90 site specific Health and Safety Plans and Sampling Plans. That client awarded add-ons and a new contract was won, tasking his hazardous waste department to perform 34 new site investigations in less than 9 weeks.

Under his direction his department has filled, preserved and handled over 16,000 specialized site media and waste sample containers in strict accordance with EPA enforcement protocols. Sample acquisition, transport and custody records have been meticulously documented by his field crews.

90 Screening Site Inspection reports have been directed by him, with HRS scoring packages. After reviewing and reducing chemical content data from site samples, determinations were made as to whether the suspect sites could be documented as having released hazardous substances into the environment.

Mr. Bailey has also been responsible for performing underground tank assessments and leaking tank removals. Over 150 Environmental Site Assessments' (ESAs) have also been performed under his direction. These studies involved title search, site visit, review of air photos, contacting enforcement agencies, etc. to depict the past site usage.

Specific Past Projects include, but are not limited to Remedial Investigations and Feasibility Studies conducted at:

- **Dover Air Force Base, Delaware**
- **Narcolite Corporation, New Jersey**
- **U.S.S. Navy Facilities, Washington D.C.**
- **Limestone Road Toxic Dump, Maryland**
- **Spectron Corporation, Maryland**
- **Bausch & Lomb, Diecraft Plant, Maryland**
- **US Fish & Wildlife Service National Training Center, WV**

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

David H. Adams, II, P.E.
Geotechnical Division Manger

b. Project assignment:

Assistant Project Manager

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 18

e. Education: Degree(s)/Year/Specialization:

B.S./1970/Civil Engineering
M.S./1973/Business Administration

f. Active registration: Year first Registered/Discipline:
1976/Professional Engineer

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **Managed and directed over 1,000 geotechnical and environmental investigations and consulted on soil-related problems during design, construction and operation.**
- **Conducted and supervised preliminary environmental site assessments (ESAs).**
- **Conducted and directed site characterization investigations and remediation design and construction for petroleum contaminated sites.**
- **Performed analysis and design of foundations, embankments, reservoirs and slopes.**
- **Supervised and directed construction observation and material testing on various projects such as airports, floodways, buildings, and roadways.**
- **Managed and performed geotechnical studies on numerous transportation projects including roadways, airports and light rail mass transit.**

EXPERIENCE AND QUALIFICATIONS

Mr. Adams has 19 years of diversified experience in geotechnical and environmental engineering, construction monitoring and materials testing. His prominent areas of expertise include foundation investigations, street and airport pavement design and rehabilitation, water resource projects, ESAs, underground storage tank remediation, materials testing and evaluation of distressed structures. He is responsible for coordination of operations including staffing, budgeting, forecasting, invoicing and technical review.

He has managed numerous geotechnical investigations for a variety of projects including high-rise buildings, educational facilities, hospitals, water and wastewater treatment plants, earth dams, bridges, storage tanks, office buildings and warehouses. He is knowledgeable in the problem areas of expansive and collapsible soils and their effect on foundations.

Mr. Adams was Project Manager for Trinity Place, a 54-story high-rise building planned, but presently on hold, for downtown Denver, CO. He served as Project Engineer for the Pikes Peak Community College located in Colorado Spgs, CO. This site involved highly expansive soils with swelling pressures up to 50,000 psf. He also managed a geotechnical investigation for a 4-story hotel with 3 levels of subterranean parking in Hermosa Beach, CA. The site was on the beach front and had difficult property constraints as well as significant construction and permanent dewatering considerations.

Mr. Adams has performed and managed over 50 geoenvironmental/hazardous waste investigations involving contamination from underground storage tanks and associated piping. Studies have ranged from contamination assessments to investigation and remediation design in accordance with CERCLA< RECLA and NEPA. He has designed, constructed and monitored vapor extraction systems for petroleum contamination in the Vadose zone. One of these systems installed in Tucson, AZ extended to a depth of 100'. He has also performed over 40 ESAs including both Level I and II studies. Level II studies have investigated the presence of pesticides, heavy metals, PCB's, and volatile and semi-volatile organics.

Mr. Adams has also managed many transportation projects ranging from roadways to transit systems and airports. For 10 years he performed geotechnical studies for the Regional Transportation District's proposed light rail system for the metro Denver area. Geotechnical studies have included the South Santa Fe, Southeast and Metro Area Connection (MAC) corridors. Roadway projects have included geotechnical, geoenvironmental and hazardous waste studies and construction materials testing for city and rural streets, interstate highways and mine haul roads. Airport projects included design of new facilities, runways and aprons and expansion, rehabilitation and strengthening of existing runway pavements. He managed the geotechnical design and construction of the Front Range Airport east of Denver. This airport included 5 million cubic yards of earthwork and 70,000 tons of asphalt concrete. He has also managed quality control testing for Airport Boulevard at the new Denver International Airport (DIA).

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Gary C. Archer
Hazardous Waste Technician

b. Project assignment:

Asbestos Section Manager

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 22

e. Education: Degree(s)/Year/Specialization:

- **Hazardous Materials Site Safety & Cardiopulmonary Resuscitation**
- **40-Hour OSHA Health and Safety Training**
- **Nuclear Density and Moisture Soils Testing**
- **Asbestos Building Inspection and Management Planner**

f. Active registration: Year first Registered/Discipline:

N/A

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **Troxler Certified**
- **Twenty-Two Years Experience in Geotechnical Field Sampling**
- **Twenty-Two Years Experience in Soil and Rock Drilling and Sampling**
- **RCRA Landfills—Quality Assurance**
- **Plans and Specifications**
- **Cost Estimation**
- **Field Studies and Investigations for Hazardous Waste Contamination**

EXPERIENCE AND QUALIFICATIONS

Mr. Archer offers over 22 years of experience in site remediation and construction-related industries. Specific areas of expertise include:

- **Environmental Sampling**
- **Hazardous Materials and Site Safety.**
- **Construction and Subcontractor Scheduling and Supervision.**
- **Quality Assurance Procedures and Supervision.**
- **Asbestos Inspection and Management Planning**

Mr. Archer has provided the following: 1) QA/QC oversight for projects in hazardous waste environments, such as inspection of synthetic and clay liners for hazardous waste disposal containment cells: 2) Drilling and soil sampling under OSHA safety requirements; 3) Coordination and assistance in sight condition studies; 4) remedial investigations, as well as geotechnical investigations for various constructions; 5) Environmental Assessments, Environmental Impact studies, geotechnical investigations; and 6) Site Assessment and training for asbestos abatement projects.

As a Construction Superintendent for all construction-related projects, he has been responsible for acquiring permits, scheduling and coordinating subcontractors, and providing oversight to adherence of plans and specifications.

Mr. Archer has acted as Quality Assurance Inspector of synthetic liner installation at the Highway 36 Hazardous Waste Storage and Treatment Facility, Last Chance, Colorado, and functioned as Resident Quality Assurance Engineer in the absence of the R.E. to keep the project operational.

Mr. Archer has specific hazardous waste project experience in Arizona, California and Colorado.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

George Cogorno, P.E.
Project Manager

b. Project assignment:

Geotechnical Engineering Manager

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 2 With other firms: 28

e. Education: Degree(s)/Year/Specialization:

M.S./1960/Civil Engineering
B.S./1958/Civil Engineering
950 classroom hours of continuing education seminars in geotechnical and geoenvironmental engineering

f. Active registration: Year first Registered/Discipline:

1968/Civil Engineering
CERTIFICATIONS: 40-Hour OSHA Safety Training/8-Hour OSHA Supervisor Training/Asbestos Abatement- Project Design/Snow Avalanche Safety/Scuba Diver with Professional Experience

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **30-years of experience as a consulting geotechnical engineer on major on-shore and off-shore projects throughout the world**
- **Has been involved in research and state of the art geotechnical analysis since 1966**

EXPERIENCE AND QUALIFICATIONS

Mr. Cogorno has geotechnical engineering experience on a wide variety of projects. Special areas of expertise include expansive soils, construction in soft soil areas, strength gain and settlement analysis, deep foundations, earth pressures, slope stability, in-situ testing and pavement design. A few representative projects are identified below.

- **Offshore facilities—Seven oil production platforms in the northern Aegean Sea; proposed artificial island in the Aegean Sea; the islands which form the transitions between the bridge and tunnel portions of the Chesapeake Bay Bridge-Tunnel crossing.**
- **Underground Construction—The Newtown Creek Pollution Control Project which involved construction of a 10' diameter rock tunnel passing 200' below the East River from Manhattan to Brooklyn; 20 miles of sewer lines in the Denver area and Juanita, WA including tunneling and jacking operations.**
- **Major Excavations—A large oil shale project near Grand Valley, CO involving cuts into sedimentary bedrock ranging up to 100' and similar heights of fill; largest and deepest building excavation in downtown Denver-Tabor Center, 2-square blocks and up to 57' deep.**
- **Commercial and Industrial Facilities—Mid to high rise construction in New York City, Boston and Kansas City; in downtown Denver functioned as project/manager on Republic Plaza (tallest building in CO). Tabor Center, Westin Hotel, Larimer Place, Denver National Bank & Barclay Towers; proposed 1000 MW power plant and related docking facilities near Kingston, NY; nuclear power unit near Columbia, SC; unit 3 of the Chalk Point Power Plant in MD; the entire Benicia Refinery in CA; portions of the refinery facilities in St. Croix & Denver; uranium mill expansion in Fremont County, CO; gas plant in Sweetwater County, WY; various chemical plants in Geismar, LA.**
- **Public Facilities—Central Plant Complex at the new Denver International Airport Site; Denver Northside Sewage Treatment & Moffat Water Treatment expansions; major portions of Airport Boulevard connecting I-70 to the new DIA; Las Americas & DeDiego Expressway in San Juan, Puerto Rico; rehabilitation of many miles of streets in Denver; highway & bridge crossing Hunts Bay in Kingston, Jamaica.**
- **Environmental—project manager on a site assessment for a proposed hazardous waste site in northeast CO; monitoring radon and methane gas concentrations at various locations; testing for the presence of friable asbestos; have completed or presently enrolled in the following seminars.**
  - **Radon and the Indoor Environment**
  - **Sanitary Landfill Design**
  - **Hazardous Waste—Corrective Actions**
  - **Geosynthetic Lining Systems for Landfills**
  - **Environmental Property Assessments**
  - **Corrective Action for Containing and Controlling Ground Water Contamination**
  - **Asbestos Abatement—Project Design**
  - **Critical Issues in UST Management**
  - **Fundamentals of Ground Water and Well Technology**
  - **Principles of Ground Water Hydrology**
  - **Theory and Application of Surface Geophysics to Ground Water Related Investigations**
  - **Theory and Practice of Ground Water Monitoring and Sampling**
  - **Analysis and Design of Aquifer Tests**
  - **Principles of Subsurface Contaminant Fate and Transport Modeling**
  - **Designing In-Situ Waste Recovery Systems**
  - **Treatment Technology for Contaminated Ground Water**

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Ronald E. Hergenrader, CIH, P.E.
Corporate Health and Safety Officer

b. Project assignment:
Industrial Hygienist, Toxicologist
Senior Environmental Engineer

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 23

e. Education: Degree(s)/Year/Specialization:
MPA/1980/Environmental Policy
B.S./1973/Environmental Engineering
Holds a Top Secret Security Clearance
"Q-Clearance" compatible
OSHA-Hazwoper, AHERA and UST Certified

f. Active registration: Year first Registered/Discipline:
1976/Professional Engineer
1980/Certified Industrial Hygienist (Diplomate)
1991/Diplomate American Academy of Environmental Engineers

g. Other experience and qualifications relevant to the proposed project:
BASIS FOR SELECTION

- **Over 23 years of increasing engineering, technical, and management responsibility. Built hundreds of highly rated, successful, environmental engineering, pollution abatement, radiation, and industrial hygiene programs. Always picked to fix the "tough jobs".**
- **Built form scratch the United States Space Command's very successful worldwide environmental and industrial hygiene compliance program. Managed a complex environmental engineering and industrial hygiene program covering all aspects of environmental protection, occupational health, and industrial hygiene engineering.**
- **Directed the United States Space Command's complex Environmental Protection and Industrial Hygiene Engineering programs at the East Coast (Cape Canaveral) and West Coast (Vandenberg AFB) Space Vehicle Launch and Test Range and worldwide Satellite Control and Missile Warning Network.**

EXPERIENCE AND QUALIFICATIONS

Directly responsible for EPA/OSHA compliance at eight Air Force bases; 66 remote operating sites; 45,000+ employees; and 92 technical services contracts (values at $700+ million). Supervised a technical staff of 50+ professionals--participated in a $20+ M operating budget. Corporate Executive Manager for implementing all EPA and OSHA compliance activities; wrote the contracts; qualified the bidders; negotiated with the regulators; conducted pollution evaluations; directed hazardous waste projects; prioritized risk; approved RI/Fss; and conducted EPA/OSHA compliance audits.

Managed a multi-site $5+ Million TCE ground water contamination project. Wrote the monitoring protocols; supervised the sampling; approved the RI/FS and selected the remediation contractors. Successfully negotiated the mitigation with California's regulators. Supervised the RI/FS for 127 potential CERCLA sites in California and Florida. Worked the compliance issues and prioritized the sensitive fixes in a five-land-fill, RI/FS relocation/expansion for the Colorado Springs Airport. Worked RCRA--SARA Title III compliance reviews. Approved permits. Built solid regulator dialog and trust. Overhauled the "LUST" RI/FS program.

Validated the risk levels; wrote the sampling protocols; led the clean-up of an emotional Dioxin contaminated, high voltage PCB problem. Developed and successfully managed a worldwide asbestos abatement program. Quantified risk; prioritized abatements; wrote the specifications negotiated the contracts; executed the action plans. Other agencies were impressed enough to implement the asbestos abatement contract and its protocols.

Corporate director for all ionizing and NRC licensed source materials at 74 U.S. Space Command launch, missile warning, and satellite control facilities. Approved NRC permits, range safety procedures, and ionizing radiation dosimetry programs. Not a single violation! Implemented the worldwide Radon assessment and mitigation program. On scene director for a major nuclear material facility. Supervised 200+ technicians, operated critical decontamination activities, responsible for the high-level contamination control, off site releases, and site remediation. Also responsible for all non-ionizing electromagnetic radiation (EMR) investigation at several high energy emitter facilities.

Built and directed U.S. Space Command's SARA Title III "Community Right-to-Know" and OSHA's "HAZCOM" programs. They were adopted throughout the Air Force! Implemented TSCA, SARA, and MSDS requirements. His corporate policy effectively standardized MSDS tracking and risk assessment procedures at 84 facilities. These are now the key programs in waste stream characterization and minimization efforts utilized by the USAF.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:
Russell J. Huffman
Contract Manager

b. Project assignment:

Contract Manager

c. Name of firm with which associated:

Contract Administration

d. Years experience:
Aguirre Engineers, Inc.
With this firm: 1 With other firms: 20

e. Education: Degree(s)/Year/Specialization:
MA/1981/Procurement Management
MBA/Contract Law (Graduate studies in progress)
BS/1977/Business Administration
AA/1968/Physical Science/Geology

f. Active registration: Year first Registered/Discipline:
1977/Business Administration
1968/Physical Science/Geology

Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

National Contract Management Association, Member since 1978
Charter President, Colorado Springs Chapter 1984-1985
Chapter Director, Colorado Springs Chapter 1985-1986
Chapter Member, Colorado Springs and Vandenberg AFB Chapters

EXPERIENCE AND QUALIFICATION

- **Over six years of Top-Level Executive Management experience in small and small disadvantaged business concerns.**
- **Involvement in corporate strategic planning and policy formulation.**
- **Oversight and implementation of contract administration responsibilities, which includes proposal preparation, negotiation, issue resolution, daily operational administration, contract invoicing and contract close-out.**
- **Expert knowledge of the Federal Acquisition Regulations (FAR), the Department of Defense Supplement to the (DFAR), the Code of Federal Regulations, the Department of Energy Acquisition Regulations, (DEAR), and Cost Accounting Standards (CAS).**
- **Oversight and implementation of Cost and Pricing Administration strategy formulation and conduct, which includes review and processing of company accounting data to formulate bidding and performing rates, cost estimating, review and analysis of subcontract and supplier quotations, audit support, internal cost reviews and audit functions, and creation and oversight of cost and pricing policies and procedures.**
- **Knowledge and oversight of Security Administration functions in a company, which includes familiarization with the Defense Industrial Security Program and the Industrial Security Manual (ISM).**
- **Expert knowledge of Government Procurement Ethic Programs, which includes the creation and oversight of two company Ethics Compliance Program policies and procedures.**
- **Familiar with Facility Planning and Administration, which includes facility space forecasting and operational efficiencies.**
- **Expert knowledge of Purchasing Administration, which includes acquisition and delivery of products and services for company utilization, and creation and oversight of purchasing policies and procedures.**
- **Expert knowledge of Configuration/Data Management responsibilities.**
- **Understanding of geologic/physical science aspects of the technical operation of the business.**

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

James E. Lang, Jr.
Drilling Supervisor

b. Project assignment:

Drilling Supervisor

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 12

e. Education: Degree(s)/Year/Specialization:

Colonel White High School, Dayton, Ohio

f. Active registration: Year first Registered/Discipline:
40-Hour Hazardous Waste

CLEARANCE: Top Secret

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **Lead Driller, Drilling Supervisor and/or Drilling Superintendent for the past 12 years**
- **Experienced soil, rock, mud, rotary and dry driller**
- **Experienced hazardous waste driller**
- **Experienced monitoring well installation driller**
- **Wide experience drilling under Level B, C and D Personnel Protective Equipment (PPE) condition**

EXPERIENCE AND QUALIFICATIONS

Mr. Lang is in charge of the Drilling Department covering both geotechnical, environmental, and hazardous waste drilling. Responsible for personnel and financial performance of department. Responsible for drilling aspects of the Health and Safety Plan (HASP), on applicable projects. Responsible for acquisition decisions, marketing, and drilling rig maintenance program. Responsible for marketing of contract drilling projects.

Drilled on both rotary auger rigs installing monitoring wells, municipal, domestic and irrigations wells. Special emphasis on drill fluid characteristics and trouble shooting. Specialized in drilling operations on hazardous waste sites including monitor well installation.

Established company drilling safety program; conducts monthly safety meetings to address safety issues. Responsible for drilling schedules, maintaining drilling crews, assisting in the preparation of bid packages and marketing. Supervised 3 drilling crews consisting of three man crews per rig at the Rocky Mountain Arsenal, drilling in Level B PPE, for approximately two months.

Have drilling and drilling supervisory experience with geotechnical, geoenvironmental and hazardous waste projects in Colorado, Nevada, Utah, Minnesota and California.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Jose M. Merino, Ph.D.
Senior Project Scientist

b. Project assignment:

Asbestos Inspector, Ecologist

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 17

e. Education: Degree(s)/Year/Specialization:

Ph.D. Ecology/1981/University of California, Riverside & San Diego State University
B.A./1961/Brigham Young University
B.S./1966/Brigham Young University

f. Active registration: Year first Registered/Discipline:
1971/Civil Engineering
AHERA Asbestos Inspection Certification
CERTIFICATIONS: 40-Hour OSHA Training
8-Hour OSHA Supervisor Training

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

Dr. Merino has experience with the following project types as project manager, field team leader or principal investigator:

- **Geotechnical Studies, Design and Reports for:**
  - **RCRA Landfills and Covers**
  - **Foundations**
  - **Earthen Dams**
  - **Underground Excavations**
- **Field Investigations**
  - **Asbestos Sample and Analysis of Suspected Asbestos Containing Materials**
  - **Soil/Rock Drilling and Sampling**
  - **Test Pit Excavation**
  - **Monitor Well Installation and Instrumentation**
  - **Other Designs/Studies**
  - **Waste Solidification**
  - **Ground Water Control and Reinjection**
  - **In-Situ Vapor Extraction**
  - **Site Sampling and Environmental Characterization**
  - **Closures**
  - **NEPA Compliance**
  - **Risk Assessment**

EXPERIENCE AND QUALIFICATIONS

Dr. Jose Merino has over 17 years experience in environmental and engineering consulting and 8 years of CERCLA and RCRA project experience. This includes program design, data collection and analysis, report preparation, project management, regulatory analysis and permit preparation. Dr. Merino has specific hazardous waste experience in Arizona (PCBs, site assessments); California (USTs, CERCLA Endangerment); Colorado (Project Plans, Risk Assessment, Environmental Evaluations, RI/FS); Utah (RI/FS, Environmental Evaluations, RFA, RFI/RI); Nevada (Environmental Evaluations); Wyoming (NEPA). He is also an experienced asbestos investigator and abatement planner.

Representative experience and expertise offered by Dr. Merino includes Multi-disciplinary Project Management; Permit Review and Preparation; NEPA Compliance, including Environmental Assessments/Environmental Impact Statements; Closure/Post-Closure Plans; Reclamation, Ecological and Baseline Environmental Resource Studies; Mitigation Plans including Section 7 Consultation and Biological Assessments; Hazardous Waste Management Including RFAs and RFIs, RI/FS execution and reporting, Underground Storage Tank planning and remediation; Risk Assessment and Environmental Evaluations and Expert Testimony.

Dr. Merino has participated in hazardous waste projects at DOE facilities in Fernald, Ohio, Oak Ridge, Tennessee, Golden, Colorado and Albuquerque, New Mexico, in addition to other non-governmental hazardous waste projects throughout the western states.

Dr. Merino has complete the 40-Hour OSHA Health and Safety Train-

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Thomas R. Morrison
Industrial Hygienist

b. Project assignment:

Environmental Section Assistant Manager

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 4

e. Education: Degree(s)/Year/Specialization:

University of Colorado, B.A., Chemistry

f. Active registration: Year first Registered/Discipline:

- **40-Hour Hazardous Waste**
- **AHERA Asbestos Worker's Training**
- **AHERA Asbestos Supervisor Training**
- **CPR.**

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **RCRA Landfills—Quality Assurance**
- **Soil and Rock Drilling and Sampling**
- **In-Situ Vapor Extraction**
- **Surface and Ground Water Sampling**
- **Site Characterization**
- **Site Safety Planning**
- **Sample Analyses and Data Validation**
- **Data Management**

EXPERIENCE AND QUALIFICATIONS

Mr. Morrison has acted to insure compliance with OSHA, EPA, and state regulations pertaining to hazardous waste. He has provided QA/QC oversight for various hazardous waste projects. He has experience in many aspects of industrial hygiene, including air monitoring, environmental audits, site safety planning development, and enforcement, and employee training. As an Industrial Hygienist, Mr. Morrison has worked under the direct supervision of a Certified Industrial Hygienist. He has experience in all phases of asbestos projects, including site inspection, preparation of management plans and specifications, air monitoring and project management during abatement.

Mr. Morrison has provided data validation on several superfund site projects, and designed and managed data bases for tracking sample information for a CERCLA hazardous waste site. He also organized a NPL administrative record and produced a user's guide for same, and assisted in the preparation and review of site specification QA/QC documents.

Mr. Morrison has acted as a sample management administrator (SMT) responsible for all EPA related paper work associated with environmental samples and their shipment. At a large EPA remediation project in Illinois, he participated in air monitoring, ground water, surface water, soil, and sediment sampling, and various duties associated with acting as a company liaison.

Mr. Morrison was involved in the preparation and analysis of metals and cyanide for the EPA Contract Laboratory Program. Other duties included preparation of data packages for presentation to EPA. He has expertise with the operation and application of the GFAA and ICP methods for chemical analyses, instrumentation, and classical wet chemistry methods.

Mr. Morrison has specific data validation and site assessment in Colorado, Utah and Wyoming.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Romey L. Ross
Head of Department of Project Management

b. Project assignment:

Project Management; Project Control Systems

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 20

e. Education: Degree(s)/Year/Specialization:

B.S./1989/Business Administration

f. Active registration: Year first Registered/Discipline:

Certified Project Management Professional-Project Management Institute (PMI), 1989
Certified Professional Estimator-American Society of Professional Estimators, 1980

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **13 years of computer applications, supporting Project Management solutions to real-world problems. Applications experience include extensive knowledge of: DOS, Norton, PC Tools, Windows 3.0; Lotus 1-2-3; Symphony; QuattroPro; Lucid 3D; Excel; Word Processors including MultiMate 3.3x, Microsoft Word 5.0, Word for Windows; Grammatik IV; PE II (full ASCII editor); Smartcom III; Procomm; PC Anywhere; Cross Talk; Management Support-RFFlow; Decision Pad; Project Controls-Including; Construction Estimating (Bautech 4.40; MC²; Timberline; & Anaheim Bid Analysis); Scheduling (AMS Time Machine v. 3.2x scheduling & graphics; PrimaVera v. 4.x, PrimaVision; Project for Windows-MS); Expedition, other Project Control Logs; Project Planning Modules; Cost Control Systems & Project Accounting.**
- **19 years experience in construction industry, including experience as tradesman, foreman, superintendent, general manager, contractor, chief estimator, chief scheduler, director of project control systems, and senior project manager.**
- **Pragmatic foundation for technically sophisticated management of both design & construction projects.**
- **Full spectrum of experience in project management, including contract administration, planning, scheduling budgeting, estimating, & controlling costs for over 130 projects with aggregate value of $3.2 billion. Project categories span commercial, institutional, transportation, competitive bid, negotiated fee, and design-build.**

EXPERIENCE AND QUALIFICATIONS

Advanced modules in Project Management Seminars including 48 hrs classroom; Sales & Marketing-16 hrs; Scheduling Theory & Techniques advanced modules-40 hrs; Public Speaking for Management Professionals-12 hrs; Achievement Oriented Leadership-40 hrs; Parametric Estimating Methods by AGC-8 hrs; Life Safety in Hotel Design; Plumbing Design & Specs; Claims Management; Contract Writing & Admin.; Fiscal Planning; Bid Market Studies; Superintendent's Role; Time Management; Project Accounting; US Army Corps of Engineers Research Lab Symposium on Artificial Intelligence applications in the construction industry; INTERNET (International counterpart to PMI) seminars on the development & implementation of Project Management worldwide.

Milestone Assignments Include:

Project Manager for Sedgwick County Adult Local Detention Facility, Sedgwick County, KS--Medium/maximum security facility for incarceration of pretrial & sentenced inmates. 202,459 SF, 418 single-cells plus 12 medical patient rooms, expandable to 552 cells.

Director of Project Control Systems, responsible for managing 34 people performing Planning, Scheduling & Cost Engineering Services for all Division projects. Annual budget $3.924 million. Typical Benefit-to-Cost ratios of 30:1 (3,000% ROI).

Team Leader for research, selection, and implementation of next generation estimating system. Developed specifications for multi-level assemblies to improve detail backup, & digitizing to speed Quantity Take Off. Cornerstone of integrated Project Controls Software.

Project Management Controls Supervisor for a very tight timeline to prepare all documents for release in a Design/Build proposal package ($500M) for the E470 Highway.

Director of Recovery Scheduling required to bring control to a design effort (AZ Dept. of Trans.-$100M) within acceptable performance limits. Developed effective Discipline Manager checklists to feed forward Earned Value updates through the scheduling software.

Cherry Creek School District #5 building programs encompassed $156 million and 38 separate projects: Responsibilities included budgeting, cost modeling, Schematics through Final Drawings Quantity Take Off estimating, change order estimating, scheduling, & cost control accounting (1978-1986 including: Elementary Schools (#18 through #27; High Schools renovations of existing, plus new Eagle Crest High $30M).

Additional Projects: Public Service Company of CO computer center at 990 Bannock, Denver ($14M); Mountain Bell Headquarters, Salt Lake City, UT (high rise $32M); Kootenai Memorial Hospital, Coeur d'Alene, ID ($22M); Carver-Hawkeye Sports Arena, Iowa City, IA ($21M); Transportation projects for Arizona, Colorado and Illinois ($100M< $500M, $100M).

RECOGNITION/ACHIEVEMENTS

Authored "Saving Construction Money During Design", Facilities Management, Operations, & Engineering, journal of the American Institute of Plant Engineers. Bronze Quill Award-Outstanding Business Journalism.

Colorado Springs chapter of the Construction Specifications excellent ratings for day-long presentation of Project Management & Control Systems.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Cheryl Wagner Smith, P.E.
Project Engineer

b. Project assignment:

Geotechnical Project Engineer

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 11

e. Education: Degree(s)/Year/Specialization:

B.S.C.E./1980/Civil Engineering

f. Active registration: Year first Registered/Discipline:
1985/Professional Engineer

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **Over 10 years experience in the design, preparation of plans and specifications, construction inspection and safety inspection of earth structures.**
- **Performed and/or directed over 20 preliminary and final geotechnical studies which included field testing and sampling, laboratory testing, design analysis, and report preparation.**
- **Performed or participated in the analysis and design of foundations, foundation improvement, slope stabilization, retaining walls, and embankment dams.**
- **Analyzed and/or directed over 20 field investigation programs including soil borings, test pit excavations and various instrumentation such as piezometers, observation wells, and settlement/deflection markers.**

EXPERIENCE AND QUALIFICATIONS

Ms. Smith has over 10 years experience in geotechnical engineering and project management. Duties have included performing supervising, directing field investigations, laboratory testing of collected soils samples, plan and specification preparation, construction inspection and monitoring, safety inspection, and engineering analysis. She is also familiar with the geotechnical components of static and dynamic slope stability, embankment seepage, slope protection, and foundation improvement. Her projects include borrow area investigations, large industrial and municipal building foundations, mechanically stabilized earth retaining walls, underground water storage tanks, and embankment dams.

Responsible for day-to-day administration and evaluation of specific projects. Plans field exploration, laboratory testing, performs the necessary calculations, and prepares report drafts.

Civil Engineer/Geotechnical Specialist, U.S. Fish and Wildlife Service—Responsible for oversight of Architect-Engineer firms involved in inspection, evaluation, design, and construction inspection of dams. Reviewed and evaluated field exploration, laboratory testing programs, analyses, and plans and specifications for dams, fish hatcheries, and research facilities.

Inspector, Safety Evaluation of Existing Dams, U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service—Inspected, evaluated, analyzed, and reported on more than 80 dams between 6 and 300 feet in height. These inspections included an assessment of the condition of the embankment and/or concrete structure, spillway, outlet works, and other related structures. Studies and analysis included review of construction records, instrumentation data, structure performance, and projected future performance. Made recommendations for future studies, modifications, and repairs.

Civil Engineer, Division of Dam Design, U.S. Bureau of Reclamation—Participated in the design of new dams and dam rehabilitations and modifications. Prepared design documents on river diversion for construction, foundation cutoff alternatives, foundation grouting, embankment zoning, and embankment stability. Spent total of 6 months inspecting construction of dam in western Colorado. Inspected construction of large concrete dam. Duties included inspection of embankment placement, concrete placement, and grouting operations, and performing field laboratory and surveying activities.

7. Brief resume of key persons, specialists, and individual consultants anticipated for this project.

a. Name and Title:

Timothy J. Woster, P.E.
Project Engineer

b. Project assignment:

Geotechnical Project Engineer

c. Name of firm with which associated:

Aguirre Engineers, Inc.

d. Years experience:

With this firm: 1 With other firms: 14

e. Education: Degree(s)/Year/Specialization:

B.S.C.E./1975/Civil Engineering
M.S.C.E./1976/Civil Engineering

f. Active registration: Year first Registered/Discipline:
1981/Professional Engineer

g. Other experience and qualifications relevant to the proposed project:

BASIS FOR SELECTION

- **12 years of experience as a consulting geotechnical and geoenvironmental engineer**
- **1 year experience in environmental and hazardous waste site investigations**
- **5 years experience in Quality Assurance/Quality Control (QA/QC) aspects of geotechnical & geoenvironmental projects**
- **3 years in contract administration for highway construction projects**

EXPERIENCE AND QUALIFICATIONS

Mr. Woster has 15 years of experience in geotechnical engineering and contract administration. Duties have included performing and directing field investigations, laboratory testing programs, engineering analyses, and development recommendations for the design and construction of geotechnical projects. He has fulfilled these responsibilities on projects relating to shallow and deep foundation systems for buildings, transmission lines, bridges, pipelines, towers, and earth structures including dams for water storage and mine tailings, and retention ponds for sewage treatment. In addition, he has fulfilled these duties on projects relating to pavement systems including airport runways, taxiways and aprons, highways, and local streets.

Past projects on which Mr. Woster served a Geotechnical Engineer include the Anchorage - Fairbanks Power Interline Project; The Alaskan Earth Station and Communications Facilities in Galena, Alaska; Foundation Systems for Wind Turbine Power Generation Systems on Medicine Row, Wyoming; The RAA Automated Flight Service Station in Fairbanks, Alaska; foundation systems for numerous schools throughout Alaska; various facilities at Eielsm Air Force Base in Fairbanks, and Aduk Naval base in Aduk, Alaska; oil field access roads in Wyoming various highway projects in Alaska including pavement systems and bridges, foundation systems for nine facilities for coal and uranium mines in Wyoming; embankments for water storage in Douglas, Wyoming, and for sewage treatment in Alaska and in Wyoming. Tailing ponds for the Grant Gold Mine in Alaska and for uranium mines in Wyoming; and the expansion of Fairbanks International Airport including runways, taxiways, float ponds and a railroad spur.

In addition, Mr. Woster has experience on construction projects ranging from materials testing to contract administration. He has performed and directed construction monitoring for foundation construction, embankment construction projects for dams and lagoons, and site development projects for mine development. He has performed as Resident Engineer for construction contract administration for several highway projects in Fairbanks, Alaska.

PRICING

AGUIRRE ENGINEERS, INCORPORATED
FEE AND COST SCHEDULE
ENVIRONMENTAL SERVICES

- Engineering/Scientific Support and Report Preparation

Position	Rate Schedule/Hour
Principal Engineer	$ 100.00
Principal Scientist	90.00
Project Manager	70.00
Senior Staff Engineer/Scientist	60.00
Staff Engineer/Scientist	50.00
Technician	35.00
Draftsperson/Clerical	30.00

- Vehicle Mileage = Reimbursable @ $ 0.30/mile

- Atmospheric Monitoring/Detection Equipment Costs

Instrument	Rental Fee/Day
Photoionization Detector	$100.00
Combustible Gas Indicator	$ 30.00
Alpha, Beta, Gamma, X-Ray Detector	$ 30.00

- Other Direct Costs at Cost + 20%

Expendable Field Equipment and Supplies.
Expendable/Rental Sampling Equipment.
Expendable/Rental Decontamination Equipment/Supplies.
Purchased Site Data (i.e. aerial photographs, Sanborn Maps, Topographic Maps, Haz Mat Incident Reports, Fire Department Reports, UST Reports, etc.)
Subcontracted Services (i.e. drilling, geophysical, analytical lab, etc.)