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DAMES & MOORE A PROFESSIONAL LIMITED PARTNERSHIP
1550 NORTHWEST HIGHWAY, PARK RIDGE, ILLINOIS 60068 (312) 297-6120

July 14, 1987

Mr. Richard Boice
U.S. Environmental Protection Agency
Region 5 (5HE-12)
230 South Dearborn
Chicago, IL 60604

Re: Midco I, II Feasibility Study
Dames & Moore Capabilities and Experience

Dear Mr. Boice:

Per the request of Mr. Roy Ball of ERM-North Central, Inc., enclosed please find some general information on the qualifications of Dames & Moore to perform the subject effort. Also enclosed are the resumes for key personnel.

As you may be aware, Dames & Moore is one of the oldest and largest environmental consulting firms. Since 1938, Dames & Moore has performed over 60,000 assignments for over 15,000 clients, including over 75 percent of major U.S. corporations, most departments of the Federal government and many state and local agencies. Although initially specializing in civil engineering and the applied earth sciences, Dames & Moore has grown and expanded through the addition of environmental engineering, planning, economic and applied environmental services. We believe that our success can be attributed to Dames & Moore's practice of providing high quality and cost-effective technical services responsive to a client's needs.

I look forward to working with you on this project. Should you have any questions or comments, please do not hesitate to contact me.

Very truly yours,

DAMES & MOORE

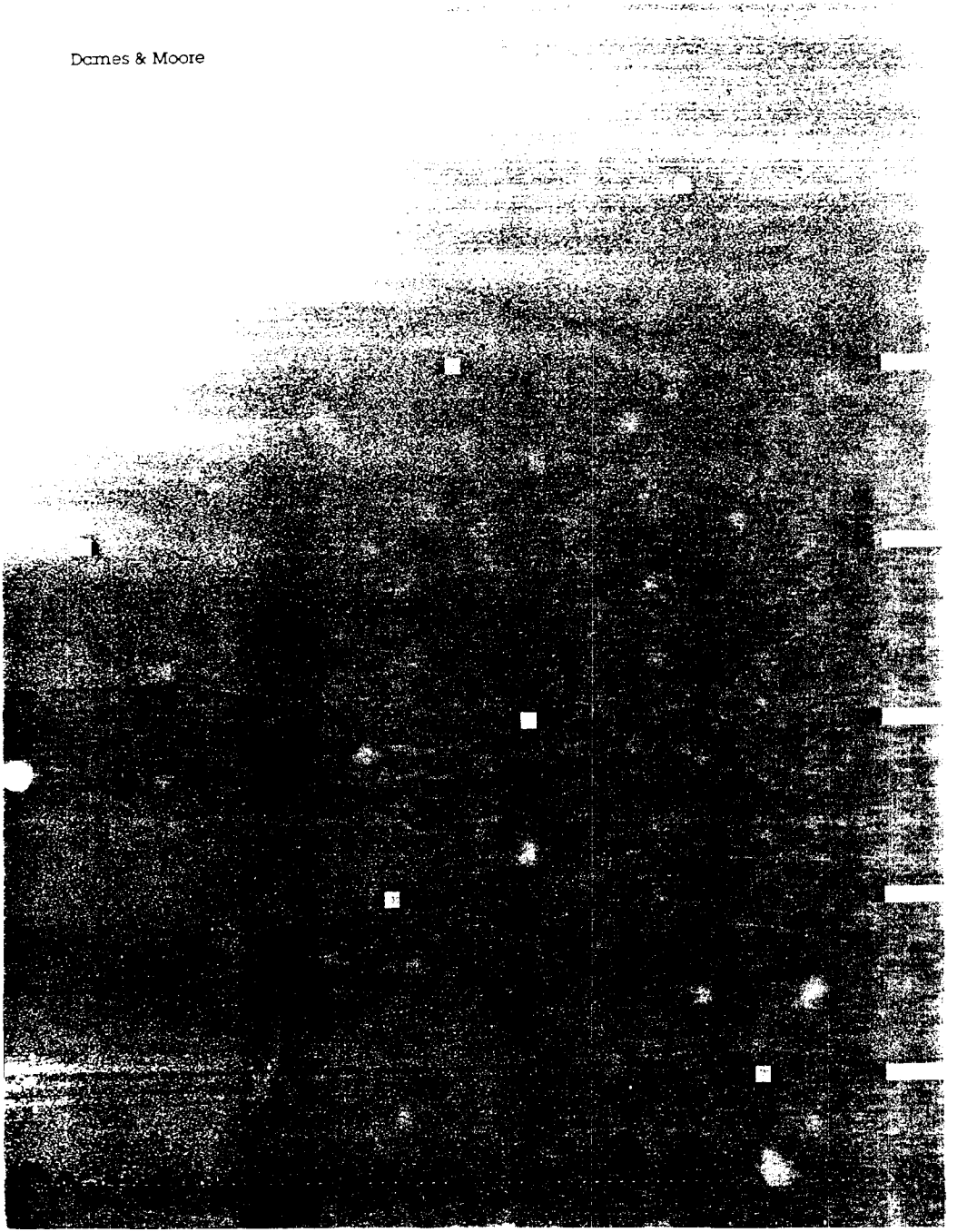
Gary F. Vajda, P.E.
Associate

GFV:gf

Enclosure

cc: Mr. Roy Ball - ERM

Dames & Moore



Dames & Moore is a worldwide professional firm providing consultation in the areas of planning, engineering, the earth and environmental sciences, waste management, design and regulatory assistance. The firm's projects comprise a high degree of diversity, including industrial facilities, commercial buildings, infrastructure, and natural resource development. Clients include businesses and industries in the private sector, public utilities, architect-engineers/constructors, and all levels of government.

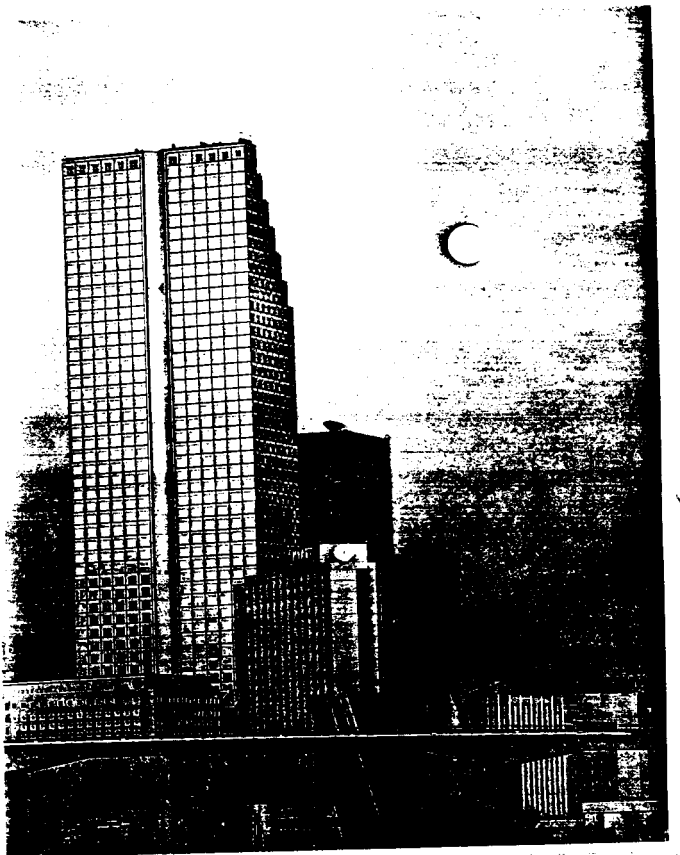
Founded in 1938, the firm is a multinational partnership. The organization is made up of more than 1,200 professional and support staff personnel. The firm is based in Los Angeles and has more than 45 offices spanning the globe. Dames & Moore consultants follow the highest professional standards and the results of their endeavors can be seen in more than 100 countries. Whether your project is large or small, unusually complex or merely routine, Dames & Moore's professionals can work with your organization to outline the precise mix of services that will best accomplish your project goals.

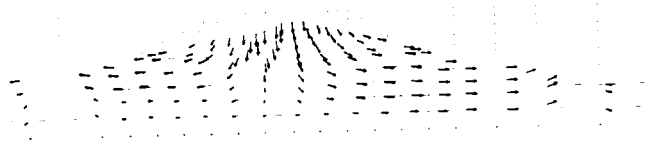
A Powerful Resource

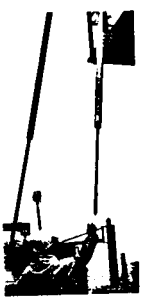
Professional consulting is a powerful resource. The task of planning and implementing projects, be they large or small, requires trained people. It takes people with both broad-based and specialized skills as well as innovative ideas. Most major projects present a challenge, an opportunity for creative problem solving that can be facilitated with the aid of a professional consultant.

Given the complexities often associated with project development, the consultation of experienced professionals is a necessity, not a luxury. Professional consultation can turn seemingly impossible ideas into realities. It can take an already good idea and make it even better. And oftentimes it results in reducing overall project costs. It's a good reason to talk to the consultants at Dames & Moore and learn more about the services that are helping scores of project developers realize their goals all over the world.

Geotechnical
Engineering



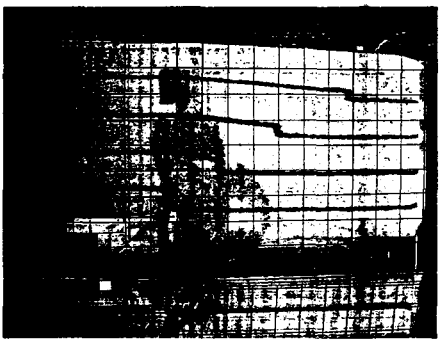




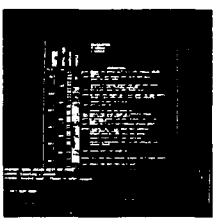
Soil mechanics and foundation engineering have been the backbone of Dames & Moore's consulting practice since the firm's founding in 1938. Complete geotechnical services are available for a wide range of construction, waste management and resource development projects. Services like site selection, Foundation engineering, Land reclamation, Design of dams, waste impoundments, deep excavations, mines, tunnels, canals, levees and coastal and offshore structures. Numerous landmark projects throughout the world are linked with the firm.

When working with Dames & Moore, you can rely on the expertise of a consummate consulting staff that has the diverse capabilities to plan, design and provide permitting assistance for a variety of projects. The geotechnical engineering staff can draw on the expertise of the firm's specialists in many complementary disciplines. Specialists in surface- and ground-water hydrology, Geology, Hydrology, Earthquake engineering, Structural engineering, Specification writing, Cost estimating, Quality assurance.

Our geotechnical engineers can advise you how to make optimum use of a site, how to conserve and protect water resources, reduce project risks, and trim project costs. Our staff uses proven site investigation techniques, field and laboratory testing methods, and a variety of computer modeling techniques.



Centrifuge testing of model structures and earth sections



Computer-aided drafting and design

To facilitate earth structure design projects, Dames & Moore uses a computer-aided drafting and design system. Construction drawings are assembled on the CADD system by skilled designers. With the CADD, design drawings can be generated quickly, efficiently and at a considerable cost savings over manual drafting methods.

All in all Dames & Moore has the capabilities, experience and technology to meet all your geotechnical engineering needs.

Geosciences and Risk Management

Geology is the science of the earth, the materials of which it is composed, the changes it has undergone or is undergoing and the processes that cause those changes. Careful consideration of the geologic environment is an important part of project planning and implementation. Dames & Moore's geoscientists and engineers provide a broad range of services that address the interaction between project needs, characteristics and geologic and seismic conditions. Areas of expertise include engineering geology and environmental assessment. Geologic and seismic hazards assessment. Applied geophysics. Structural and earthquake engineering. Risk evaluation and hazard mitigation planning, design,

Geologic assessment

Our technical staff is comprised of dedicated professionals recognized for technical excellence in their respective fields. Our staff takes pride in developing innovative solutions to difficult problems — solutions that are environmentally compatible as well as cost effective. Dames & Moore personnel have been instrumental in the drafting and implementation of seismic zonation and building codes. We have also provided damage assessments following major earthquakes all over the world.

Members of our geosciences and risk management staff interface with members of the geotechnical engineering, environmental and other professional service groups to form an integrated project team to address your complete project needs.

Typical services include evaluating and characterizing site geologic conditions. Identifying, evaluating and quantifying natural hazards. Developing appropriate design recommendations. Estimating potential loss of life and injuries, damage to structures, building contents, and systems and functions as well as business interruption. Preparing strategic plans for preventative or remedial actions. Designing methods to stabilize or reduce geologic hazards or to strengthen existing or proposed structures. Developing contingency and recovery plans.

Our project experience encompasses high-rise buildings. Manufacturing, industrial and mining complexes. Refineries and cogeneration facilities. Offshore oil production platforms. Data processing and communication facilities. Dams. Hospitals. Schools. Nuclear and fossil fuel power plants. Hazardous and nuclear waste management facilities. Pipelines and transmission lines.

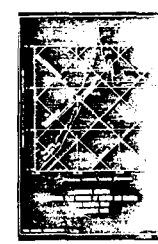
Risk evaluation, mitigation

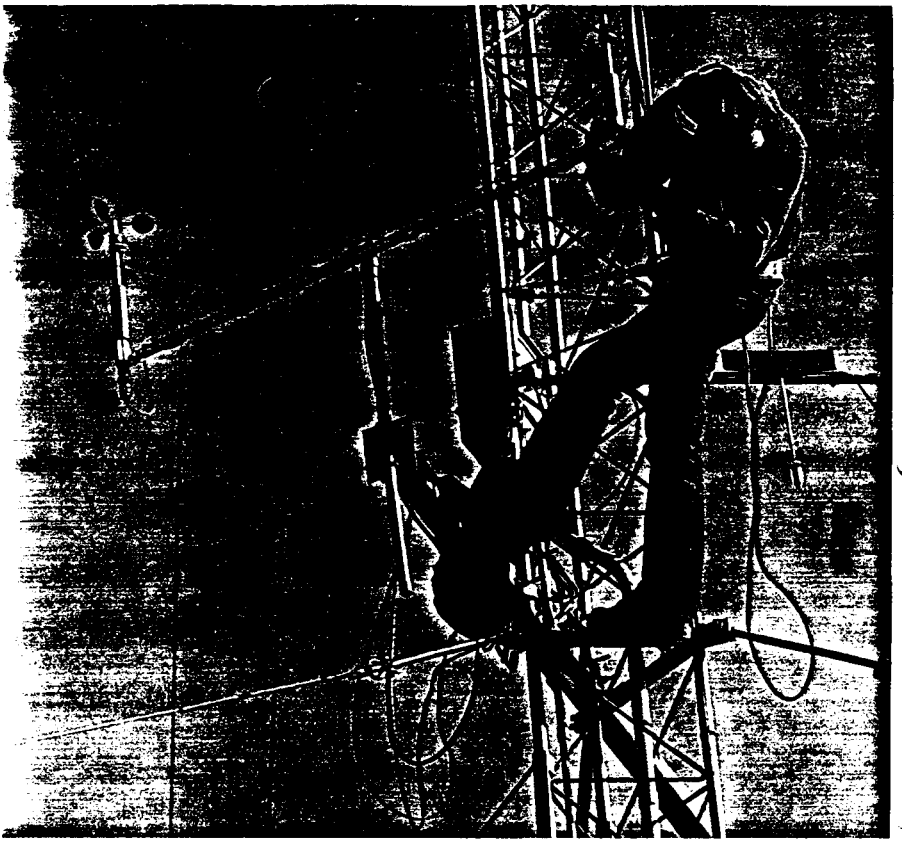
Post-earthquake damage inspection

Seismic hazard assessment

Estimated Property Losses by Structural Type (in millions of dollars)	Northern California Facilities			Southern California Facilities		
	Replacement Cost	Losses M 8.3	Losses M 6.9	Replacement Cost	Losses M 8.3	Losses M 6.9
Steel Frame	285	26	18	310	2	11
Reinforced Concrete	140	16	9	260	5	24
Reinforced Masonry	210	42	23	170	3	17
Unreinforced Masonry	135	29	32	95	18	29
Concrete Tilt-Up	320	64	70	305	24	84
Wood Frame	160	10	8	270	11	43
Total	1,250	187 (15%)	160 (13%)	1,410	63 (4%)	208 (15%)

Earthquake Events
M 8.3 = San Andreas Fault
M 6.9 = Hayward, Newport — Inglewood Faults





Atmospheric services

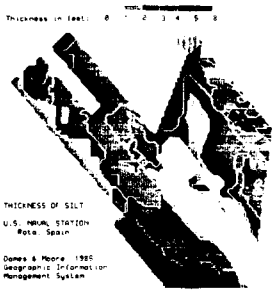
Environmental Planning, Permitting Assistance and Regulatory Compliance

Dames & Moore has extensive experience with environmental planning, permitting assistance and regulatory compliance. The firm offers complete environmental services related to feasibility planning, permit identification, development of permit acquisition strategy, and establishment of regulatory compliance programs. Areas of technical expertise include environmental engineering, Meteorology and air quality. Air toxics. Acoustics. Surface- and ground-water hydrology. Geology. Seismology. Aquatic, marine and terrestrial ecology. Radioecology. Oceanography. Cultural resources. Socioeconomics. Land use. Visual simulation/aesthetics. Traffic. Landscape architecture. Regulatory policy analysis. Public involvement.

An important aspect of Dames & Moore's approach to planning and arranging for permitting is devising practical and cost effective solutions to environmental problems. Oftentimes this means assisting our clients in working out negotiated compromises with regulatory agencies. Developing ways to mitigate environmental impacts. Implementing remedial action programs. Providing expert testimony.

Public involvement programs

Computerized data analysis



Dames & Moore services include developing and implementing monitoring plans, and preparation of permit compliance management programs. Where monitoring requires establishment of onsite equipment, our services include monitoring system design, installation, startup, and operation and maintenance for air quality, meteorology, visibility, surface and ground water, radionuclides, sound, and ecology. The firm also has a large inventory of meteorological, air quality and hydrological monitoring equipment available for lease to clients who may not wish to invest in their own equipment.

Cultural resource assessment

Visual simulation of proposed structures

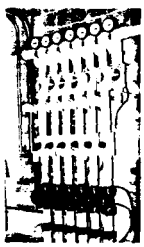
Mathematical modeling and computer-assisted data analysis also are provided for a variety of environmental permitting and regulatory compliance purposes. Modeling applications include assessing air and water quality, and evaluating emission control alternatives. Developing design criteria for hazardous and radioactive waste management facilities. Designing emergency response plans and systems for the accidental release of hazardous contaminants.

Dames & Moore's environmental audits are conducted in the strictest confidence and with the direct involvement of the client's legal, environmental, and operating management. At the same time, the audits are thorough and independent. Our methodology has been demonstrated to be effective when subjected to regulatory agency review.

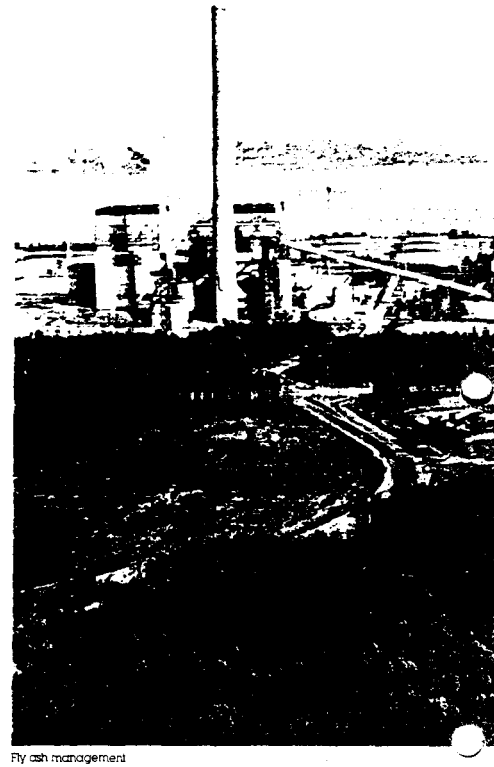
Hazardous and Toxic Waste Management

Dames & Moore's activity in hazardous and toxic waste management is a natural one given our in-depth knowledge of hydrogeologic conditions. Also our broad-based capabilities in earth structures design are directly applicable to the design of waste management facilities like impoundments and landfills. Importantly, Dames & Moore handles all aspects of hazardous and toxic waste management. Waste management planning. Waste stream inventory preparation. Facility site selection and engineering. Hydrogeologic assessment. Ground-water monitoring. Toxicology, industrial hygiene and public health impact assessment. Facility design and construction management. Permitting assistance. Remedial actions. Facility closure.

Dames & Moore has one of the most comprehensive experience portfolios in the waste management industry. Projects dealing with hazardous and toxic waste have been completed throughout the United States as well as Europe, the Mideast, Australia and the Pacific Basin.



Ground-water treatment systems

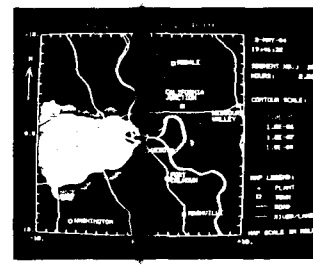


Fly ash management

We recognize the most effective way to minimize hazardous waste-related problems is to reduce or eliminate the waste at its source. Dames & Moore assists clients in this area by recommending process or waste treatment designs and modifications.

Through our continuing contact with regulatory agency personnel, we stay abreast of the latest regulatory requirements and governmental procedures. We can advise you on the best way to achieve regulatory compliance or, when appropriate, provide assistance with obtaining a variance. In addition to preparing permit applications, our waste management specialists provide expert testimony and assist with public involvement programs.

In cases where remedial actions are required, Dames & Moore can both design and implement a wide array of cleanup programs. Typical remedial actions include the detection, removal and safe disposal of abandoned or contaminated wastes. Our staff specializes in the containment of waste contamination and in-situ treatment programs such as the design and operation of ground-water recovery, treatment and recharge systems. Alternately, we can advise on the type and size of appropriate high-temperature treatment or incineration techniques for the destruction or volume reduction of hazardous wastes.



Emergency response systems

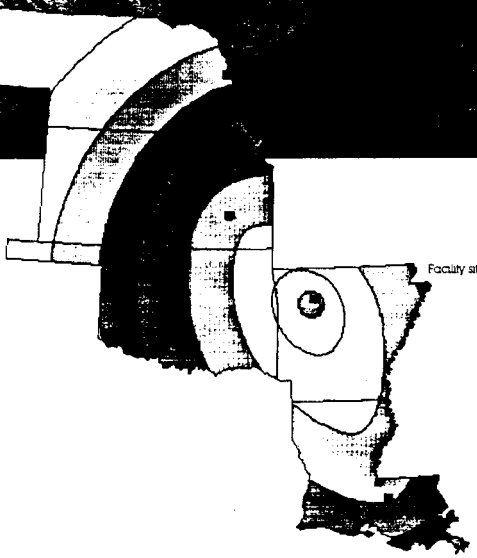
Site and water monitoring

Remedial programs

When it is time to close a waste facility, Dames & Moore can assist with the selection of an optimal closure scheme and oversee closure operations on your behalf.

Quality assurance is an important part of every hazardous waste project at Dames & Moore. We also maintain a formal health and safety program for personnel working at hazardous waste sites.

Remedial actions



Facility site selection and layout

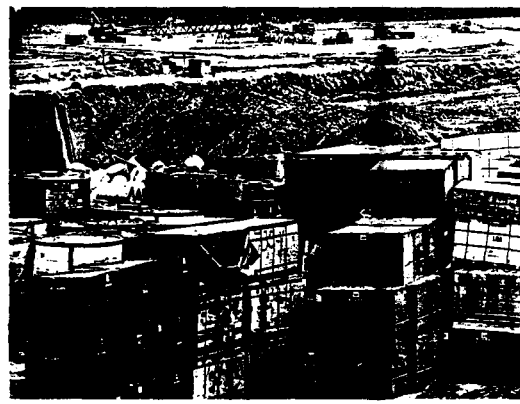
Radioactive Waste Management

Dames & Moore's integrated systems approach brings together the many specialized engineering, earth sciences and environmental capabilities that are critical to effective radioactive waste management. Complete geotechnical exploration, sampling and analysis. Hydrogeological investigation. Surface- and ground-water modeling. Disposal facility siting and design. Radiological and environmental assessment. Health physics. Risk mitigation. Environmental loss control. Regulatory analysis. Health and safety plan development. Quality assurance. Expert testimony. Public involvement. Personnel training.

Facility closure

Dames & Moore is experienced in all aspects of low-level and high-level radioactive waste management. Project experience encompasses management of radioactive waste from nuclear power plants, nuclear fuel cycle facilities, industry, phosphate and uranium mines, nuclear medicine, research activities and other sources.

The firm's services address all the steps of the waste management process, from generation through disposal. Services include waste characterization. Selection of appropriate treatment and disposal technologies. Waste transport planning. Facility site selection and layout. Disposal facility design. Site licensing assistance. Ground-water monitoring. Remedial action. And facility closure.



Design of trench caps and liner systems

Hydrogeological investigations

In addition to providing services for the development and operation of new facilities, complete remedial action services are available for correcting virtually any type of radioactive waste management problem.

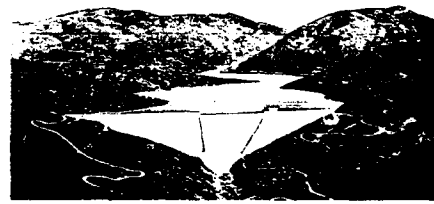
Remedial action capabilities include the design and operation of ground-water recovery, treatment and recharge systems. Implementation of leachate collection, control and treatment systems. Planning and supervision of decommissioning and decontamination of sites and structures. Design and implementation of radon emission control/mitigation projects.

Water supply development

Water Resources Development

The hydrologic, environmental, engineering and specialized civil design services offered by Dames & Moore are applicable to a wide range of water resources projects worldwide. Our staff is experienced in all aspects of water resources planning, development and management for both developed and developing countries.

Areas of expertise include water supply development for industry, municipalities/government, and agriculture. Water quality evaluation. Ground-water contamination remediation. Wastewater treatment. Hydroelectric and pumped storage projects. River basin planning. Flood control/damage reduction. Soil and water conservation. Irrigation. Desalination.



Water resources planning, development and management

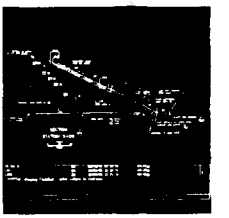
Hydrometeorological monitoring networks

Design and construction management services are available for a wide range of water resources projects. Dams. Reservoirs. Water intake/outfall structures. Canals. Levees. Wellfields. Ground-water recharge systems. Land reclamation. Dewatering schemes. Wastewater impoundments.

Our staff can design, install and operate a network of meteorologic, surface-water and ground-water monitoring points, and perform exploratory studies. Computer modeling and mapping are available as is computer-aided drafting and design support.

Flood control, damage reduction

Dames & Moore is experienced in every stage of water resource project development from feasibility assessment through planning, engineering, design, and construction management. Our staff provides advice on the most appropriate technology and concepts for a project. We have extensive experience working on projects funded by international lending agencies and other financial institutions. We provide advice to clients requiring project financing



Dam design

Why Dames & Moore?

Superior Performance

Dames & Moore has many years' experience in providing consistently high-quality consultation for a broad range of projects. The firm has completed more than 50,000 projects in over 100 countries since its founding in 1938. The firm's performance is further underscored by its consistently high ranking in Engineering News-Record's annual roster of the Top 500 Design Firms. Dames & Moore has been named among the front-runners for more than a decade. As proud as we are of how we rank among other firms, we are even prouder of how we rank with our clients year in and year out.

Recognized Quality

In our experience we have found that one good idea leads to another. This is reflected in the many awards the firm has won for its project work. Recent examples include several Engineering Excellence Awards from the American Consulting Engineers Council and its member state organizations. These awards recognized the firm's development of remote testing methods for radioactive wastes, engineering guidelines for the use of fly ash as structural fill, and foundation designs for transmission line poles located on marginal lands. The innovative solutions devised for these projects are typical of Dames & Moore's approach to its consulting assignments.

Appropriate Technology

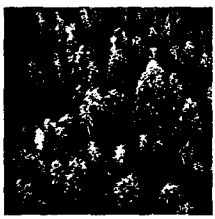
Over the years, Dames & Moore has pioneered many testing techniques and come to manufacture much of the sophisticated testing and monitoring equipment used in its project work. The firm also maintains a number of fully equipped laboratories throughout its network of international offices and offers some of the best available geotechnical, atmospheric, environmental, and hazardous waste testing and monitoring services. When critical project decisions are being made, there is no substitute for the firm's advanced testing techniques and long experience in interpreting complex test results.

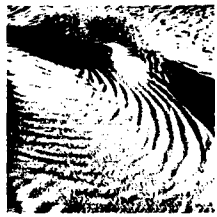
Qualified Staff

Dames & Moore prides itself on attracting some of the best-skilled and most energetic people in the consulting profession. Our people are dedicated to their professions and their work. It shows in their single-minded commitment to high-quality consultation and client service. The performance of Dames & Moore's staff is further enhanced by the interaction that takes place between the firm's many disciplines. We believe this leads to an uncommon level of innovation and productivity for our clients.

Skilled Project Management

The success of every assignment depends on skilled project management. Our project managers are chosen for their abilities to manage people, control schedules and costs, and provide meaningful advice based on their technical expertise. Their only mission is to make sure every project is completed to the satisfaction of the client and in accordance with Dames & Moore's high standards of quality. The firm has a computerized project scheduling and management system to facilitate unusually large or complex assignments as well as track performance on routine assignments.





Client-Oriented Service

At Dames & Moore we have a simple philosophy: "The client comes first." Our style of client service goes beyond completing your project on time and within budget, to making sure every aspect of the project is taken care of in the "best possible way." This dedication to client service is evident in every level of our organization, from the consulting staff to the technical and support people working behind the scenes. When our clients tell us that they have received even more than they expected, we're not surprised. We think that is what good service is all about.

Comprehensive Capabilities

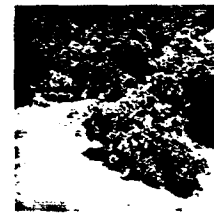
Our integrated services can be provided for every stage of project development from conceptual planning through engineering, design, permitting, construction and operation, so as to ensure the continuity so important in successful project development. Or, when desirable, Dames & Moore services can be used for a particular project need, perhaps to round out the capabilities of your staff.

An Organization in Step with Your Needs

Dames & Moore is continually seeking new ways to serve our clients. Sometimes that means developing strategies for implementing a unique project. Other times it is mobilizing a complete project team, and all the necessary equipment needed at a remote project site, or even placing our professionals in our client's office to work with their in-house staff for a protracted length of time. These are just some of the ways we're prepared to provide the services you need when and where you need them.

International Networking

Regardless of whether your project is nearby or halfway around the world, chances are we know the local conditions, customs and regulatory practices that are likely to affect your project. Dames & Moore maintains a network of offices in key cities throughout the world. Every one of our offices functions as part of the local community. Our offices regularly exchange personnel, information and ideas to meet project needs. So the diversified professional resources and expertise of the entire firm are available through each office.



U.S. Offices
Anchorage
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Baton Rouge, Louisiana
Boca Raton, Florida
Chicago (in Park Ridge)
Cincinnati
Cranford, New Jersey
Denver (in Golden)
Honolulu
Houston
Los Angeles
Madison, Wisconsin
New York (in Pearl River)
Philadelphia (in Horsham)
Phoenix
Portland, Oregon
Sacramento, California
Salt Lake City
San Diego
San Francisco
Santa Barbara
Seattle
Syracuse, New York (in Baldwinsville)
Tampa
Tucson, Arizona
Washington (in Bethesda)

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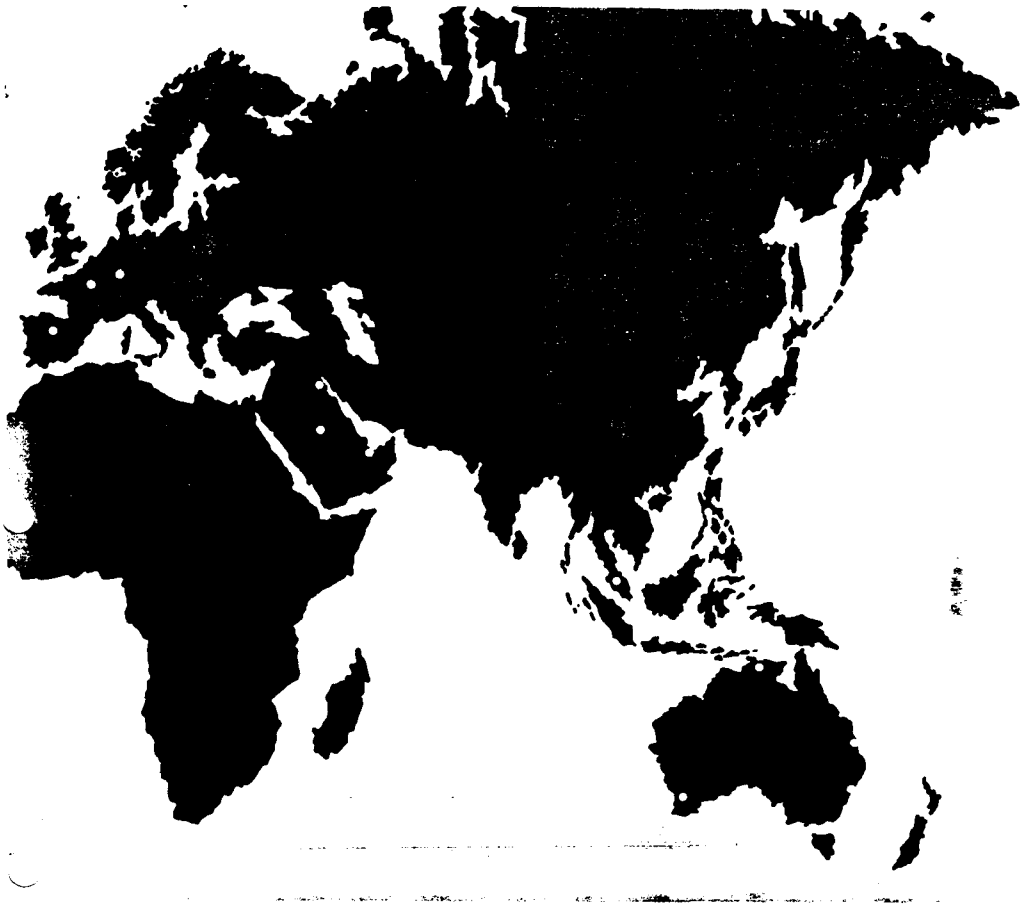

Subsidiaries and Affiliates

Jakarta, Indonesia
P.T. Environment Nusa Geotechnica

Kuala Lumpur
Dames & Moore Malaysia Sdn. Bhd.

Madrid
Dames & Moore Iberia, S.A.

Manila
Dames & Moore Philippines

Perth and Brisbane
Groundwater Resource Consultants

Riyadh
Saudi Arabian Dames & Moore

Sainte-Foy, Quebec
Fournier Paquin

Santiago
Dames & Moore Consulting Engineers Chile, Ltd.

Tokyo
Chiyoda Dames & Moore Co., Ltd.

Whitby, England
Geostore Ltd.

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Robinson Dames & Moore

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TWX 910-380-3067
Answerback: DAMES-MOORE
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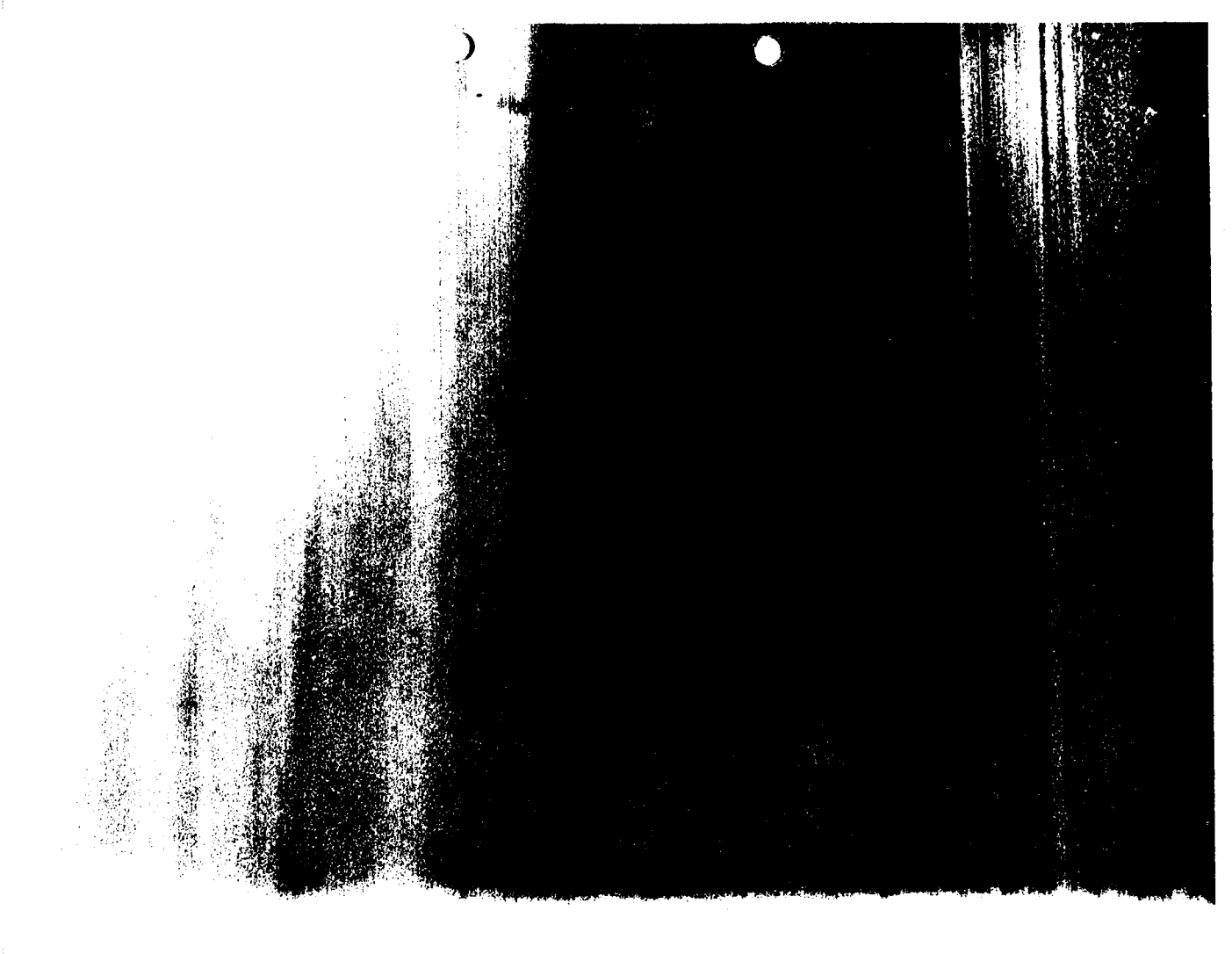
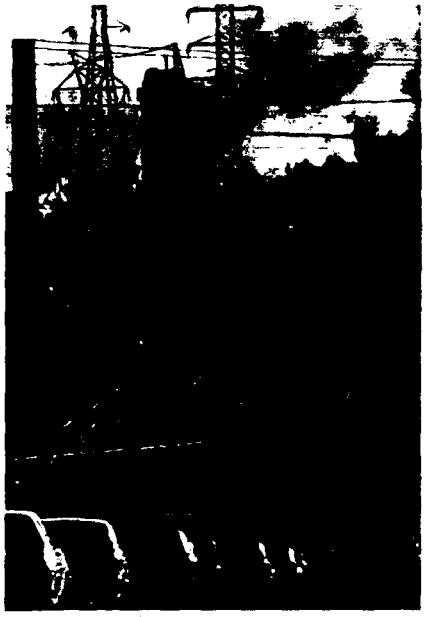


Dames & Moore

Environmental Engineering Consultants

Environmental Engineering Capabilities



AIR POLLUTION CONTROL
Process Design and Engineering
Permitting
Ambient Air Sampling
System Troubleshooting
Emission Modeling
Continuous Emission Modeling

WATER TREATMENT
Process Design and Engineering
Sampling

WASTEWATER TREATMENT
Process Design and Engineering
Permitting

SITE ASSESSMENTS
Risk Analyses
Environmental Auditing
Regulatory Compliance Plans

Gary F. Vajda, P.E.
Associate
Manager, Environmental Engineering

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A PROFESSIONAL LIMITED PARTNERSHIP

Dames & Moore

Business A firm of consultants specializing in the engineering and applied earth sciences, planning, economics and environmental studies; owned and operated by 68 partners; founded in 1938 by Trent R. Dames and William W. Moore, Sr.

Management George D. Leal is the Chief Executive Officer.

Locations *U.S. Offices*—Anchorage, Atlanta, Austin (TX), Baton Rouge (LA), Boca Raton (FL), Chicago, Cincinnati, Cranford (NJ), Denver, Honolulu, Houston, Los Angeles, Madison (WI), Pearl River (NY), Philadelphia (PA), Phoenix, Portland (OR), Salt Lake City, San Diego, San Francisco, Santa Barbara (CA), Seattle, Syracuse (NY), Tampa (FL), Tucson (AZ), Washington, D.C.

International Offices—Abu Dhabi, Darwin, Hong Kong, Jakarta, Kuwait, London, Madrid, Malaysia, Manila, Paris, Perth, Riyadh, Santiago, Singapore, Sydney, and Tokyo. Affiliated offices in Calgary and Vancouver. Representatives in Thailand and Taiwan.

Size *Volume*—$88 million annually
Projects Completed—56,000 since founding
Clients Served—15,000 since founding
Staff—1,100 including more than 600 professionals

Principal Clients Oil, gas and petrochemical companies; public and private utilities; mining companies; commercial and industrial concerns; local, state, provincial and national governments.

Typical Projects Petroleum refineries, storage and handling facilities; offshore drilling platforms; gas storage and processing facilities; nuclear, hydroelectric and fossil-fuel power plants; transmission lines and pipelines; slurry pipelines; hazardous and solid waste facilities; mining and milling facilities, and tailings dams; mined-land reclamation; manufacturing plants and industrial complexes; computer centers; dams; hospitals and schools; airports, highways and bridges; rapid transit; tunnels and underground openings; military installations; ports, harbors and marinas; other coastal and offshore facilities; water resource development projects; industrial and municipal water supply systems; flood control facilities; commercial and residential buildings; high-rise structures; recreational developments.

Services Offered Soils and foundation engineering; geotechnical investigations; earthquake engineering and seismic risk analyses; earth structures design; structural engineering; hydrology studies; site and route selection studies; environmental baseline studies; feasibility studies; environmental reports; safety analysis reports; water quality analyses; hazardous and solid waste management; mineral resource evaluations, mine design and engineering; slope stability analyses; revegetation studies; flood control studies; construction management; environmental and ecological monitoring programs; meteorology and air quality analyses; natural hazards surveys; land use and economic planning; fish and wildlife management programs; archaeological and cultural assessment; visual impact assessment; remote sensing and photogrammetry; materials testing; mathematical and physical modeling; quality assurance quality control; licensing and permitting assistance; public involvement; expert testimony.

Professional Disciplines *Environmental Sciences*—Meteorology and climatology; aquatic, marine and terrestrial biology; acoustics; radioecology; oceanography.

Earth Sciences—Geology; geophysics; seismology; hydrology; soil and rock mechanics and soil dynamics.

Planning Sciences—Land use planning; data management/computer technology; demography; geography; sociology; economic geology; economics.

Engineering Sciences—Civil; foundation; sanitary; systems; structural; coastal and offshore; nuclear; mining, earthquake.

* * *

Services

WASTE MANAGEMENT

Existing and pending regulations at the state and federal levels governing solid and hazardous waste management will lead to significant changes in current waste management practices. Regulations recently promulgated by the USEPA pursuant to the Resource Conservation and Recovery Act of 1976 (RCRA) attempt to control waste management practices by defining specific criteria applicable to waste management activities. Because of the potentially far-reaching effects and impact on costs, many organizations are reevaluating their waste management practices and disposal facilities relative to the USEPA's requirements.

Dames & Moore provides a variety of technical and consulting services applicable to the selection, design, modification, construction, monitoring, and operation of solid and hazardous waste storage, treatment, and disposal facilities. The types of services currently being provided to clients include:

- Waste Management Planning;
- Compliance Evaluations of Existing Disposal Facilities;
- Disposal Facility Site Selection;
- Site Development;
- Environmental Impact Assessments;
- Facility Closure and Reclamation; and
- Permitting Assistance.

The interrelationships of these services to the permitting process are shown in the attached figure. Dames & Moore can provide support during each phase of a project based on a client's needs, or can provide a completely integrated service from the start of a project through its completion.

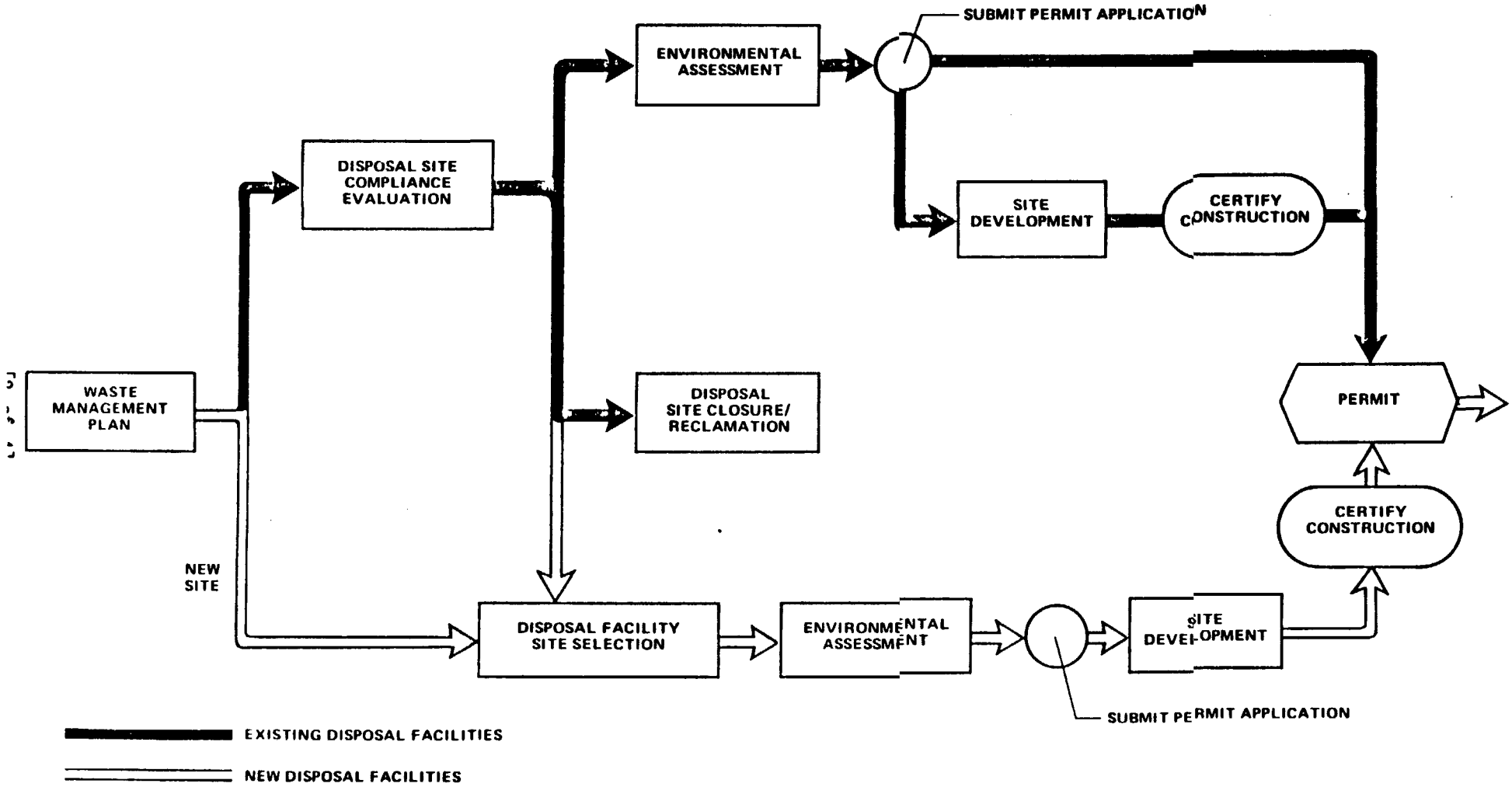
Further descriptions of the firm's services listed above are presented below.

WASTE MANAGEMENT PLANNING

Development of comprehensive plans that address the operating, environmental, economic, and regulatory issues related to the management and ultimate disposal of solid and hazardous waste materials. Plans include:

- Identification of waste management needs;
- Definition of current and prospective regulatory framework;
- Assessment of current waste management practices and opportunities for resource recovery;
- Evaluation of alternative practices and processes considering inter-media impacts and total residuals management; and
- Environmental and economic impact analyses of alternatives.

WASTE MANAGEMENT SERVICE PACKAGES



Services

COMPLIANCE EVALUATIONS OF EXISTING DISPOSAL FACILITIES

Assessments of the engineering (or physical) integrity, environmental adequacy, and regulatory compliance of existing facilities used for the disposal of solid and hazardous waste materials. These evaluations include:

- o Review of current practices and characterization of waste inventories;
- o Definition of site-specific hydrogeologic conditions;
- o Definition of applicable regulatory criteria;
- o Development and implementation of field surveillance programs;
- o Identification of potential ground water contamination problems;
- o Definition of remedial actions to bring facility into compliance considering alternative practices and site-specific conditions;
- o Development of site-specific waste management, operating, and monitoring plans;
- o Preparation of permit application and supporting data; and
- o Presentation of expert testimony at regulatory proceedings.

DISPOSAL FACILITY SITE SELECTION

Selection of sites for solid and hazardous waste disposal facilities considering needs, engineering feasibility, environmental impact, and economics of alternative sites. Such studies include:

- o Definition of facility needs and site selection criteria;
- o Evaluation of regional and on-site characteristics;
- o Collection or measurement of baseline environmental data;
- o Comparative analyses of alternative sites considering social factors, economics, regulations, environmental impact;
- o Preparation of site selection reports; and
- o Presentation of expert testimony at regulatory proceedings.

ENVIRONMENTAL IMPACT ASSESSMENTS

Assessments of the environmental impact of solid or hazardous waste disposal facility siting and operation. These assessments are prepared in support of a permit application and include:

- o Determination of potential contaminant source considerations;
- o Quantification and evaluation of potential contaminant pathways to biota and man and attenuation of sources along these pathways over time;
- o Determination of health and environmental impacts from potential contaminants under normal and abnormal operating conditions;

- o Design and implementation of field programs to monitor disposal facility performance;
- o Preparation of environmental assessment reports; and
- o Presentation of expert testimony at regulatory proceedings.

SITE DEVELOPMENT SERVICES

Provide technical support during planning and construction of new solid and hazardous waste disposal facilities or modifications to existing facilities. These services include:

- o Master planning of site-related facilities;
- o Definition of site-specific and surrounding area hydrogeologic conditions;
- o Definition and installation of ground water and leachate monitoring systems;
- o Assessments of water resources and analyses of potential contamination pathways;
- o Design of surface impoundments (ponds, pits, lagoons), sanitary landfills, and secured chemical landfills; and
- o Inspection services during site construction.

DISPOSAL FACILITY CLOSURE AND RECLAMATION

Design and implement programs for disposal facility closure and site reclamation, including:

- o Evaluation of alternative closure approaches considering regulatory requirements, feasibility, economics, and potential for land reuse;
- o Site-specific surveys to quantify pre-closure conditions in underlying soils and other contaminant transfer media;
- o Analysis of waste reclamation alternatives considering environmental and regulatory requirements;
- o Establishment of monitoring and inspection programs for closure and reclamation operations;
- o Design of stabilization covers and post-closure monitoring programs;
- o Management of on-site operations for facility closure and land reclamation; and
- o Preparation of regulatory submittals for facility permit modifications.

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Projects

REPRESENTATIVE LISTING
ONGOING WASTE MANAGEMENT-RELATED PROJECTS

- Confidential Client -- Abandoned landfill contamination/leachate migration assessment near Ashtabula, Ohio. Investigations focused on impacts resulting from landfilling of 4000 fiber drums containing polymercaptan residues at the site in the 1960s.
- Confidential Client -- Ground water contamination assessment resulting from gray water spray irrigation field operations at a paper finishing plant in west-central Ohio.
- Confidential Client -- PCP soils and ground water contamination assessment at a wood treatment plant in Wisconsin.
- Confidential Client -- PCB contamination assessment at abandoned landfill site in northeastern Ohio.
- Waste Management, Inc. -- Consultation on design, operation, and maintenance of leachate collection system in eastern Pennsylvania.
- Land and Lakes -- Process and engineering design for an Illinois commercial liquid waste treatment facility.
- Confidential Client -- Soils and hydrogeological investigation for potential subsurface contamination at an Illinois chemical plant.
- Hardage/Criner -- Technical consultation and feasibility assessment at Superfund site in Oklahoma.
- Confidential Client -- Testing, assessment of underground tank facilities at six sites for property transfers nationwide.
- Confidential Client -- Underground tank risk assessment at 56 sites nationwide for more than 250 tanks containing 18 different products.
- Waste Management, Inc. -- Ground water monitoring consultation, Rumble No. 1 sanitary landfill.
- Confidential Client -- Seepage contamination assessment at wastewater lagoon.
- Shell Oil -- Closure plan and ACL demonstrations for surface impoundment, Wood River, Illinois.
- Park Plating -- Closure plan/site remediations, Rockford, Illinois.
- Confidential Client -- PCB/waste oil contamination remediation investigation, Chicago, Illinois.
- U.S. Department of Commerce -- Preparation of closure and post-closure plans for an abandoned landfill, Chicago, Illinois.

Projects

USEPA REGION V SITE REMEDIATION EXPERIENCE

- Park Plating, Illinois -- Soil removal and capping of closed plating waste storage facility; successful negotiation with state eliminated ground water.
- ANR Pipeline, Indiana, Illinois, Wisconsin -- PCB soil and water decontamination.
- Confidential Client, Wisconsin -- Soil contaminated with PCP removed and stored; ground water monitored; negotiated cleanup criteria with state.
- Cleveland Electric, Ohio -- Investigation, remedial action plan preparation and implementation, agency negotiation for PCB-contaminated site.
- Freeman United Coal Mining, Illinois -- Investigation and remediation of PCB-contaminated site; negotiated criteria with state.
- Confidential Client, Michigan -- Investigation and remediation of toluene leak from underground tanks.
- Witco Corporation, Illinois -- Soil remediation as a result of underground tank leak.
- Confidential Client, Ohio -- Investigation, agency negotiation, and remediation of wastewater ditch/lagoon system contaminated with chlorinated hydrocarbons.
- Morton Chemical, Illinois -- Closure of a hazardous waste storage area containing chlorinated hydrocarbons.
- Confidential Client, Ohio -- Remediation of soil and ground water contaminated with chlorinated solvents and alcohols from a resin manufacturing facility.
- Link Properties, Illinois -- Investigation, remedial plan preparation and implementation, agency negotiation for VOC-contaminated site.
- U.S. Department of Commerce -- Preparation of closure and post-closure plans for an abandoned steel mill.
- Firestone Industrial Products Company, Indiana -- Remedial investigation and feasibility study for two closed landfills, Noblesville.

Projects

OTHER RELEVANT EXPERIENCE IN INDIANA

- Environmental Assessment -- ITT, Fort Wayne.
- Air/Solid Waste Permitting -- A.E. Staley, Frankfort.
- Geotechnical Investigation -- Cabot Company, Kokomo.
- Air Permitting/Analysis -- MAPCO Synfuels, Princeton.
- Geotechnical Investigation -- Miles Laboratories, Elkhart.
- Geotechnical Investigation (over 35 Sites) -- Public Service of Indiana.
- Geotechnical Investigation (over 30 Sites) -- U.S. Steel Corporation, Gary.
- Environmental Assessment/Permitting -- National Starch & Chemical, Indianapolis.
- Geotechnical Investigation (3 Sites) -- American Cyanamid, Frankfort.
- Air Permitting -- Southern Indiana Gas & Electric, West Franklin.
- Regulatory Analysis/Permitting -- Indianapolis Power & Light, Patriot.
- Air Permitting -- Eli Lilly Company, Lafayette and Clinton.

Projects

WASTE MANAGEMENT EXPERIENCE IN INDIANA

- RCRA Consultation -- General Motors, Indianapolis.
- Landfill Design/Permitting (4 Projects) -- General Electric, Mount Vernon.
- Ground Water Study (5 Projects) -- IBM, Greencastle.
- Soil Remediation Study -- ITT, Medora.
- Site Hydrogeolgical Investigation -- Ashland Chemical, South Bend.
- RCRA Consultation (2 Projects) -- Mead Johnson, Evansville.
- Wastewater Treatment Investigation -- Cummins Engine, Columbus.
- Hydrogeological Investigation of Landfill -- Cummins Engine, Columbus.
- Hydrogeological Investigation of Potentially Contaminated Site -- ICI-Americas, Charleston.
- PCB Investigation/Cleanup -- ANR Pipeline, various sites.
- Hydrogeological Investigation -- Indianapolis Power & Light, Patriot.
- Geotechnical Investigation -- Amoco Oil, Whiting.
- Geotechnical Investigation -- Northern Indiana Public Service, Baillytown.
- Hydrogeological/Geotechnical Investigation for Multiple Landfill Site -- Advanced Waste Management, Culver City.
- Site Remediation/Wastewater Treatment -- Confidential Client, Churubusco.

Projects

SELECTED DAMES & MOORE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) EXPERIENCE

- Confidential Client -- Assessment of remedial criteria at a radiologically contaminated Superfund site, Denver, Colorado.
- Marlboro Township, New Jersey -- RI/FS for the Burnt Fly Bog site.
- Unidynamics Phoenix, Inc. -- Evaluation of ground water treatment alternative remedial action for the Goodyear site, Phoenix, Arizona.
- Sperry Corporation -- Ground water assessment, closure plans, and remedial action planning and implementation, Joplin, Missouri.
- B.F. Goodrich Chemical Company -- RI/FS, Calvert City, Kentucky.
- Koppers Company, Inc. -- RI/FS, Oroville, California.
- Confidential Client -- RI/FS, western Kentucky.
- Washington State Department of Ecology -- RI/FS for the Frontier Hard Chrome site, Vancouver, Washington.
- New York State Department of Environmental Conservation (NYSDEC) -- RI/FS for the Olean well field site, Olean, New York.
- NYSDEC -- RI/FS for the Kentucky well field site, Horseheads, New York.
- PRP Committee -- RI/FS for the Petro-Processors site, Scotlandville, Louisiana.
- Cadillac Fairview -- RI/FS for the Del Amo site, Torrance, California.
- Mountain Fuel Supply Company -- RI/FS at a coal gasification waste site, Salt Lake City, Utah.
- Confidential Client -- Contamination investigation/assessment and feasibility study for a manufacturing facility, southwestern Washington.
- Confidential Client -- RI/FS for a battery manufacturing facility in the Midwest.
- Texaco, Inc. -- RI/FS for an oil refinery.
- Confidential Client -- RI/FS and implementation of remedial actions at an electronics manufacturing facility.
- Confidential Client -- RI/FS for a former hazardous waste facility, Pacific Northwest.
- Confidential Client -- Remedial action for methylene chloride spill at a manufacturing facility, Endicott, New York.

Projects

- Confidential Client -- Contamination assessment and development of remedial measures for ground water contaminated with gasoline, Rhode Island.
- PRP Committee -- RI/FS, Bowers landfill site, Circleville, Ohio.
- PRP Committee -- RI/FS for a waste reprocessing and recycling site, Carlstadt, New Jersey.
- U.S. Air Force Occupational and Environmental Health Laboratory -- RI/FS for various Air Force facilities throughout the United States.
- U.S. Naval Engineering Center -- RI/FS, Lakehurst, New Jersey.
- Maryland Sand, Gravel and Stone Site -- RI/FS, Cecil County, Maryland.
- Firestone Industrial Products Company -- RI/FS for two closed landfills, Noblesville, Indiana.
- Confidential Client -- Contamination assessment for a plating manufacturing company, Michigan.
- Confidential Client -- RI/FS for a charcoal manufacturing facility, Antrim, Michigan.
- Confidential Client -- RI/FS, East Fishkill, New York.
- Confidential Client -- RI/FS for a pharmaceutical firm, Rensselaer, New York.

Projects

REPRESENTATIVE LISTING
LANDFILLS AND WASTE MANAGEMENT

- City of Phoenix, Arizona -- 7th Street and Salt River Landfill.
- Waste Management, Inc. -- Evergreen Landfill, Toledo, Ohio.
- Chem-Security Systems -- Arlington Landfill, L-13, Arlington, Oregon.
- Chem-Security Systems -- Arlington Landfill, L-12, Arlington, Oregon.
- Montgomery County, Maryland -- Site selection and evaluation study for sanitary landfills.
- SCA Services, Inc. -- Design and permitting for a sanitary landfill, Jefferson County, Colorado.
- CH_2M Hill -- Part B permit application for storage of dioxin-contaminated soil, Times Beach, Missouri.
- Maricopa County, Arizona
- Velsicol Chemical Corporation -- Chemical plant disposal facilities investigation, St. Louis, Michigan.
- Bethlehem Steel -- Baseline hydrological study for a hazardous waste landfill site, Seattle, Washington.
- Amoco Oil Company -- Design of hazardous waste landfill, Mandan, North Dakota.
- Confidential Client -- Hydrogeological and engineering studies for a proposed hazardous waste landfill, Freeport, Texas.
- Getty Oil -- Preparation of closure and post-closure plans for hazardous waste storage facilities, Delaware City, Delaware.
- Maryland Environmental Service -- Environmental effects report for the Hawkins Point hazardous waste landfill, Bethesda, Maryland.
- Alcan Ingot & Recycling -- Residential and contained landfill design and permitting, Sebree, Kentucky.
- NPC Services, Inc. -- Landfill design and closure plan preparation, Baton Rouge, Louisiana.
- Chevron U.S.A., Inc. -- Siting, design, and permitting of a sanitary landfill, southwestern Wyoming.
- U.S. Steel Corporation -- Part B RCRA permitting and detailed design for hazardous waste landfills, Provo, Utah.

Projects

- U.S. Army Toxic and Hazardous Materials Agency -- Site investigation and assessment for the various sites under the Army's Installation Restoration Program, Fort Drum, New York; Sudbury Annex, Massachusetts; and Rocky Mountain Arsenal, Colorado.

- U.S. Air Force -- Site investigation and assessment for the AC&W disposal site at Mather Air Force Base, Sacramento, California.

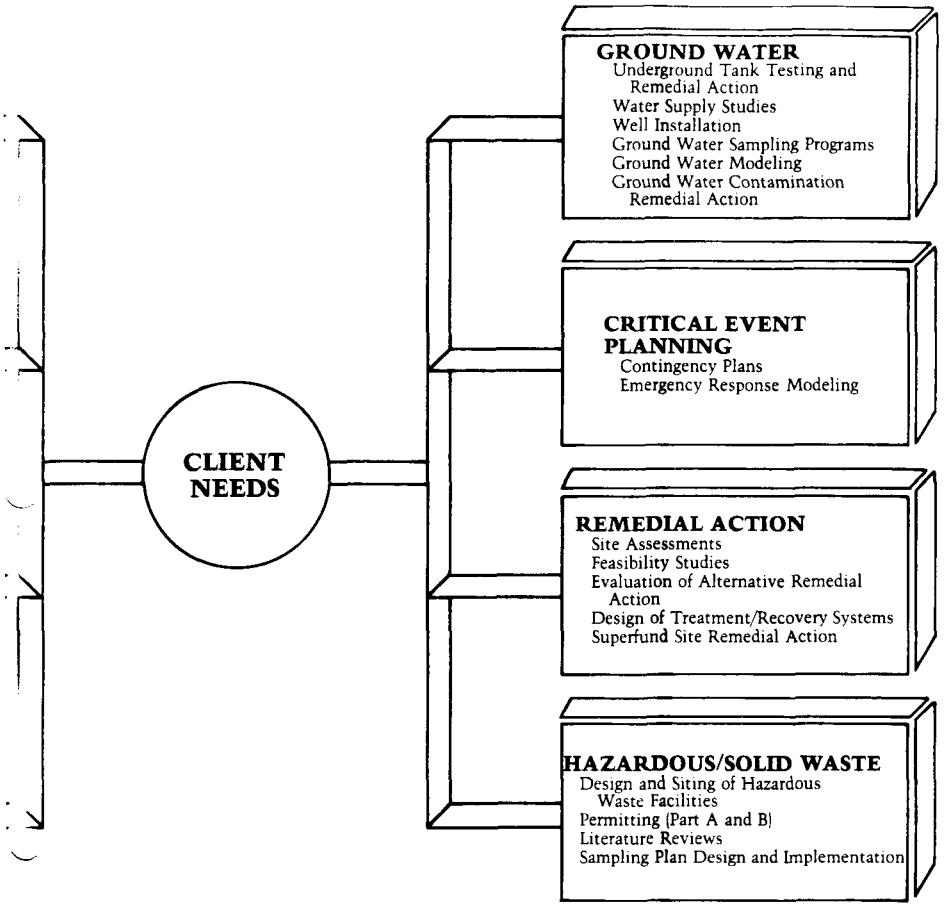
- Confidential Client -- Design and installation of a ground water interceptor and treatment system, Kingston, New York.

- Velsicol Chemical Corporation -- Environmental assessment, radiological analysis, field supervision, and licensing support of decommissioning and site closure, central Michigan.

- Hilton-Davis Chemical Company -- Feasibility study for lagoon closure, Cincinnati, Ohio.

- Confidential Client -- Design of ground water interceptor/collection system for volatile organics and heavy metals migrating from a drug facility, New York.

- Confidential Client -- Development of alternatives for remediating PCB contamination, Florida.



A consultant to industry for more than 40 years.

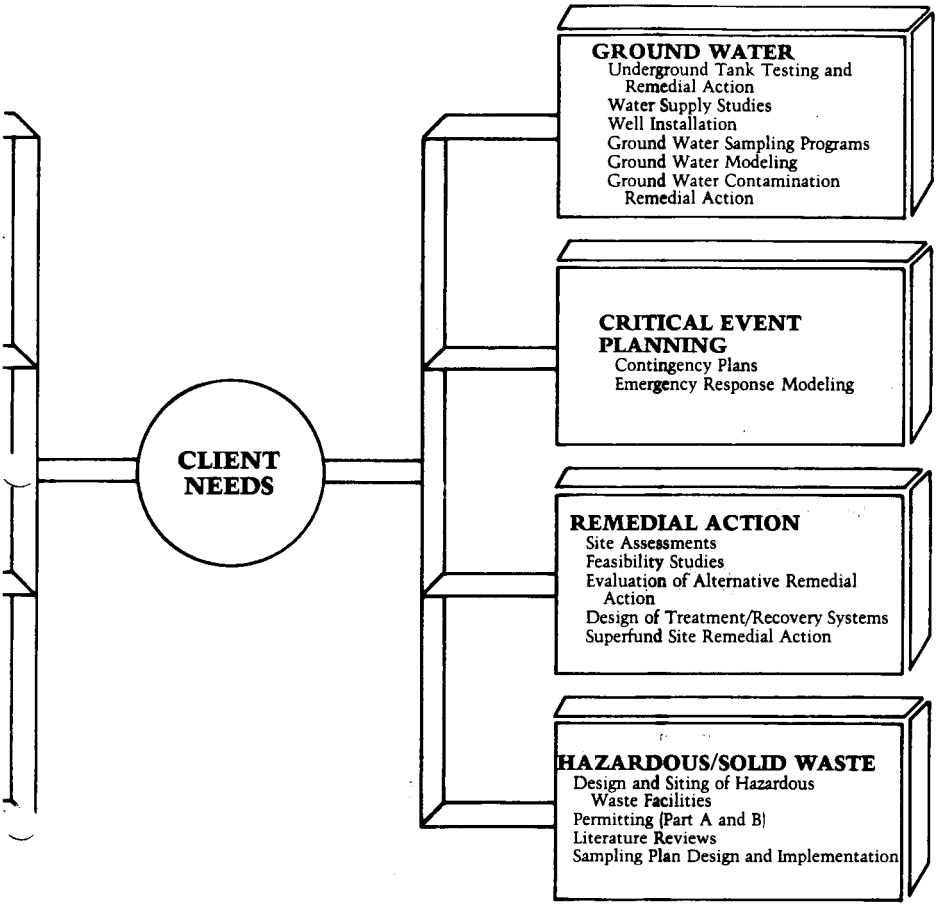
Dames & Moore

EXPERIENCE
WASTE MANAGEMENT SERVICES

INDUSTRIAL CLASSIFICATIONS

	Environmental Studies	Permitting (Part Bs, ACLs and EIRs)	Compliance and Regulation Anaylsis	Construction Management	Design	Hydrogeologic Contamination Investigations	Ground Water Monitoring	Closure	Remedial Measures (including Emergency Response)	Testimony	Consultation Regarding General Hazardous Waste Management	Seminars	Soil Studies	Sampling and Chemical Analysis	Risk Assessment (Environmental Audits and Health Assessments)	Remedial Investigation/ Feasibility Study
Chemical	3	16	13		8	110	45	8	12	4	65	4	2	57	14	10
Government Agency	11	7	1		2	120	11	9	13	5	49		3	20	4	7
General Manufacturing	19	20	28	2	9	123	61	19	15	3	85	4	4	92	22	12
Petroleum and Petrochemical	13	22	19	1	7	119	54	13	10		64	2	8	75	9	1
Primary Metal	1	8	18		5	10	17	3	7	1	9	4	2	18	3	
Utilities	1	2	3		3	35	32		5	1	21		1	35	1	1
Paper, Pulp, and Wood Preservation	6	4	19		1	11	3	1		1	6	1		4	2	
Land Development	1		2		1	8	5		1	1	6	1	3	5	5	
Commercial Waste Management	1	21	1	5	15	36	13	6		3	36			23	1	
Food Products	1					4	1		1		2			1	1	
Transportation	1	1				2	1		3		3		1	3	1	

TIME PERIOD: 9/79 - 6/86


CLIENT NEEDS
GROUND WATER
Underground Tank Testing and Remedial Action
Water Supply Studies
Well Installation
Ground Water Sampling Programs
Ground Water Modeling
Ground Water Contamination Remedial Action
CRITICAL EVENT PLANNING
Contingency Plans
Emergency Response Modeling
REMEDIAL ACTION
Site Assessments
Feasibility Studies
Evaluation of Alternative Remedial Action
Design of Treatment/Recovery Systems
Superfund Site Remedial Action
HAZARDOUS/SOLID WASTE
Design and Siting of Hazardous Waste Facilities
Permitting (Part A and B)
Literature Reviews
Sampling Plan Design and Implementation


A consultant to industry for more than 40 years.

Dames & Moore

- Nationwide network of offices.
- Internal transferring of professionals to any Dames & Moore office to efficiently perform work.
- Widely varied, experienced professional staff including environmental, chemical and civil engineers, hydrologists and environmental scientists.
- Ability to take a job from data acquisition and sampling through to implementation of remedial actions, if required.
- An enviable work record with a diverse set of clients which allows Dames & Moore to bring problem solutions from many industries to bear on a particular problem.

Dames & Moore has the engineering capabilities to perform most environmental work required under today's regulations. Since its founding in 1938, the firm has grown to include some 1,000 employees and partners with offices in principal cities throughout the world. The firm has completed more than 48,000 projects for over 12,500 clients in over 100 countries.

Dames & Moore has a staff of environmental engineers covering water, wastewater, air ground water and chemical/ process design. This staff is supported by a firmwide staff of geohydrologists, hydrologists, geologists, applied earth and environmental scientists, civil engineers, planners and economists.

Our Services

Site and route selection studies ■ Environmental baseline studies ■ Feasibility studies ■ Environmental reports ■ Safety analysis reports ■ Advanced engineering analyses ■ Geotechnical and seismic risk investigations ■ Water quality analyses ■ Hazardous waste management services ■ Mineral resource evaluations ■ Slope stability analyses ■ Revegetation studies ■ Flood control studies ■ Construction management ■ Environmental and ecological monitoring programs ■ Meteorology and air quality analyses ■ Wind and wave analyses ■ Marine weather forecasting ■ Dredging plans ■ Undersea hazards surveys ■ Land use and economic planning ■ Fish and wildlife management programs ■ Acoustical surveys and impact analyses ■ Remote sensing and photogrammetry ■ Materials testing ■ Mathematical and physical modeling ■ Quality assurance/quality control ■ Licensing and permitting assistance ■ Expert testimony

Offices

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Affiliated Offices

Toronto / Vancouver

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