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**NRC000054**  
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**Paul E. Bailey**  
**Senior Fellow**

**ICF International**

**EDUCATION**

J.D., Harvard Law School; Greene Scholarship, 1976; admitted to Massachusetts Bar 1977, D.C. Bar 1980

M.P.P., Kennedy School of Government, Harvard University Administration Fellowship, 1976  
 A.B., summa cum laude, Social Studies, Harvard College; Phi Beta Kappa; John Harvard Scholarship; Detur Prize; Whittaker Prize, 1972

**EXPERIENCE**

Mr. Bailey is an ICF Senior Fellow and Distinguished Consultant. He has over 30 years of experience in analyzing liability, financial assurance, and insurance programs; serving as an expert witness; providing case support; and assisting in regulatory development, cost estimation, and reviews of submissions.

Mr. Bailey has special expertise in financial assurance, having analyzed the existing and proposed programs of all U.S. federal safety and environmental agencies in this area: U.S. Environmental Protection Agency (EPA) (petroleum and hazardous substances, solid and hazardous wastes, underground injection, commercial PCB storage, at-sea incineration), U.S. Nuclear Regulatory Commission (NRC) (nuclear reactors and non-reactor licensees, including fuel cycle facilities), Department of Transportation (motor carriers, maritime oil transport, trans-Alaska oil pipeline, and off-shore wells), and Department of the Interior (surface mining of coal and hardrock minerals). Mr. Bailey has contributed to the formulation, implementation, evaluation, and refinement of many of EPA's and NRC's financial assurance programs (regulations and guidance) as well as programs in Alaska, California, Canada, Illinois, Kansas, Massachusetts, New York, Texas, and Washington. Since 1985, Mr. Bailey has directed ICF's multi-year financial assurance support contracts for the NRC to provide technical assistance in financial assurance case reviews, cost estimation, guidance, training, and regulatory development. Mr. Bailey has appeared as an expert witness on financial assurance before state agencies and in judicial proceedings. Mr. Bailey is frequently contacted to answer questions about financial assurance and has given presentations on the topic to diverse groups.

Mr. Bailey also is an expert in cost estimation methods and has written guidance documents and conducted many workshops on full cost accounting. Mr. Bailey has designed cost estimation tools and participated in ASTM's efforts to develop standard practices for estimating the costs of site remediation. Mr. Bailey has supported NASA's development of tools, training, and procedures to improve its recognition and measurement of its environmental remediation liabilities.

Prior to joining ICF, Mr. Bailey was an attorney advisor in the General Counsel's Office of the U.S. Federal Trade Commission. Mr. Bailey's Master's Paper at the Kennedy School of Government analyzed liability and compensation regimes, such as the Price-Anderson Amendments to the U.S. Atomic Energy Act, as models for providing liability standards and financial protection against abnormally dangerous risks posed by liquefied natural gas. At Harvard Law School, Mr. Bailey specialized in administrative law, trade regulation, and constitutional law.

Mr. Bailey's relevant financial assurance experience includes the following organized by client:

**U.S. Environmental Protection Agency (EPA)**

For the Office of Waste Programs Enforcement, Mr. Bailey was involved in the following ICF projects:

- Analytical and Research Assistance in Case Development, Data Collection and Analysis, and Implementation of RCRA Enforcement Policies. ICF provided assistance in developing enforcement

cases and implementing enforcement policies relating to closure, post-closure care, liability coverage, corrective action, and financial assurance.

- Surveys of the Status of Liability Coverage for TSDFs. ICF collected data on 465 TSDFs, updated this information, and analyzed the results, including special analyses of commercial TSDFs. ICF also surveyed liability coverage requirements in authorized States and compared them to the federal rules. In addition, ICF conducted two surveys of liability coverage variances.
- LOIS Financial Responsibility Certification Support. ICF, together with DPRA, assisted EPA in preparing definitive lists of facilities that certified compliance and those that did not. ICF also analyzed the availability of financial test and potential corporate parent guarantee compliance options using the ICF firm/facility/financial data base.
- Electroplater/Wood Preserver Analysis. In support of an ongoing enforcement action, ICF surveyed EPA Regional Offices and authorized States to determine and evaluate the status of liability coverage for TSDF owners/operators in the wood preserving and electroplating industries.
- Financial Analyses, including:
  - Post and Lumber Preserving Co. -- liquidation and cash flow analysis to determine ability-to-pay for closure and post-closure care
  - Quemetco and RSR Corp. -- use of financial test for liability coverage
  - Koppers Co., Inc. -- use of financial test for closure, post-closure care, and liability coverage
  - Texas Ecologist -- use of financial test for closure, post-closure care, and liability coverage
  - Sparton Technology, Inc. -- economic benefits of noncompliance with financial requirements
  - City of Hollister and County of San Benito -- ability-to-pay analysis for closure
- Alternative Enforcement Mechanisms for Closure, Post-Closure, and Financial Assurance. This report identified and evaluated thirteen financial and legal enforcement tools applicable to firms in poor financial condition.
- Expert Assistance on Liability Insurance. The studies prepared by Mr. Bailey include an examination of the evolution of insurance policies for pollution damages and the applicability of coverage for nonsudden accidental occurrences at incinerators and air emissions from surface impoundments. Other support included review of insurance policies:
  - Texaco Refining and Marketing -- retroactive date issue
  - IT, Inc. -- use of captive insurer for closure coverage
  - Northrop Corp. -- eligibility of captive insurer for liability coverage
  - Mason Metals Co. -- use of excess coverage policy
  - Standard Tank Cleaning Corp. -- use of marine insurance
- Evaluation of the Financial Test for Liability Coverage. Mr. Bailey managed this initial study of the original supporting analysis for the financial test of self-insurance; using the firm/facility/financial database. ICF conducted a new analysis and evaluated the results to present recommendations.
- Development of a Pre-Existing Conditions Exclusions Policy for Liability Coverage Insurance. Mr. Bailey prepared a background analysis, collected data, supported an Agency workgroup, drafted briefing materials, and helped the Agency develop guidance on acceptable exclusions.

- Financial Assurance for Corrective Action §3008(h) Orders. Mr. Bailey directed the development of a proposed approach, categorizing facilities by ability-to-pay and other criteria. ICF prepared draft language for a model provision and specified issues needing resolution.
- Region 2 Financial Assurance Enforcement Support. Mr. Bailey assisted EPA Regional Counsel in two cases relating to environmental insurance, including review and analysis of materials, delivery of expert testimony, and litigation support assistance.
- Region 4 Enforcement Support. Under the CDM TES contract, Mr. Bailey reviewed multiple insurance policies submitted by Universal Fasteners, Inc. and prepared an analysis of levels of coverage, scope of coverage, and timeliness of coverage for this LOIS enforcement case.
- Expert Testimony and Support to DOJ and Region 5. Mr. Bailey reviewed case materials relating to enforcement of financial assurance requirements against Environmental Waste Control Inc. (Four-County Landfill), prepared written testimony, advised the government, and appeared as an expert witness for the government.

Other projects managed by Mr. Bailey for OWPE include:

- Inspection Standards Support. ICF provided technical assistance for the development and documentation of mandatory inspection standards under §3007(e)(7), as added to RCRA by HSWA. In addition to providing workgroup support, ICF helped prepare a draft NPRM preamble and rule language. ICF prepared a draft background document analyzing inspection frequency, inspector certification, recordkeeping and reporting, and how the manner of inspection may affect enforcement actions.
- Small Quantity Generator Enforcement Strategy Support. Using data on the SQG universe, ICF staff identified waste streams of concern, assessed the numbers of SQGs in different industry categories, and evaluated priority sectors for enforcement. ICF also collected data on the use and usefulness of manifest exception reports as an enforcement aid.
- Environmental Priorities Initiative (EPI) Support. ICF provided a variety of support tasks including program analysis, briefing support, and analysis of financial capabilities of owners, including ability-to-pay for the costs of RFAs and corrective action.

Mr. Bailey directed the following ICF projects relating to RCRA liability coverage and financial assurance for closure, post-closure care, and corrective action for hazardous and solid wastes:

Technical and Analytical Support for RCRA Hazardous Waste Financial Responsibility Requirements.

Mr. Bailey directed a large number of projects for the Closure and Financial Responsibility Program of EPA's Office of Solid Waste including: preparation of guidance manuals on financial responsibility, state program authorization, and bankruptcy; data collection; review of financial assurance demonstrations; analysis of liability insurance issues; preparation of agendas, materials and presentations for national conferences; analysis of state financial responsibility and liability insurance requirements; analysis of bankruptcy issues and liability of corporate parents and successor corporations; and development of protocols for evaluating state program performance.

Expert Input to Part 261 Financial Assurance for Conditionally Exempt Recycling. Mr. Bailey provided support in reviewing and commenting on potential design and wording of financial assurance mechanisms that would be valid and effective both during conditionally exempt status and if such status were lost. ICF provided quick response support for proposed Part 261 regulations.

Financial Responsibility for Municipal Solid Waste Landfills. Mr. Bailey initially directed this effort to add financial responsibility to the criteria for RCRA non-hazardous waste programs. The analysis evaluated options for "self-insurance" by municipalities.

EPA Financial Responsibility Task Force Support. Mr. Bailey developed materials for use by an intra-agency task force whose goal was to share information and approaches in developing financial assurance programs for EPA. Materials included checklists, bibliographies, resource information, glossaries, and a generic guide which can be used in developing financial assurance programs.

UIC Class VI Financial Assurance. Mr. Bailey was retained by EPA to provide support on a quick turnaround basis for webinars related to financial assurance for Class VI wells for CO<sub>2</sub> geosequestration. Mr. Bailey presented information about insurance, self-assurance, and corporate guarantees, and answered in real time questions submitted by webinar participants.

Mr. Bailey played a lead role in many of the liability coverage projects ICF performed for the EPA including:

Analysis of Federal Agency Financial Assurance Requirements. This project summarized and analyzed the financial assurance requirements promulgated under the authority of the Safe Drinking Water Act (underground injection of wastes); the Federal Water Pollution Control Act, Deep Water Port Act, Outer Continental Shelf Lands Act (releases to water of oil and hazardous substances); Trans-Alaska Pipeline Act; Hazardous Materials Transportation Act; Motor Carrier Act; Atomic Energy Act; and Surface Mining Control and Reclamation Act. Topics investigated include type(s) and amount of coverage provided and allowable mechanisms of demonstrating assurance.

Liability, Insurance, and Workers Compensation in Inland Transboundary Response Actions. For the U.S. EPA, Mr. Bailey was asked to research whether (1) a public sector U.S. responder injured during a cross-border response in Canada or Mexico is covered by workers' compensation, (2) will a U.S. responder who injures a person or damages property in Canada or Mexico be subject to personal liability lawsuits, and (3) will response equipment continue to be insured if used in a transboundary response. Mr. Bailey researched and analyzed applicable laws in the U.S., Canada, and Mexico and standard insurance policies to answer the liability and insurance questions.

Asbestos Liability and Financial Assurance Report to Congress. Mr. Bailey directed a major study and survey in support of EPA's Report to Congress on liability and insurance for addressing asbestos remediation in schools. The study evaluated the availability, cost, and coverage of financial assurance; ICF assessed impacts on the national program to control asbestos in schools and identified other impediments to asbestos hazard abatement. ICF's analysis was based on an extensive survey of schools, asbestos contractors and consultants, insurers, and reinsurers.

Adequacy of RCRA Liability Coverage Requirements. Mr. Bailey directed a series of studies to collect and update information on pollution awards, settlements, and claims to determine whether financial responsibility requirements for sudden and non-sudden events are adequate. ICF also assisted EPA in analyzing requests for variances from required amounts of coverage.

Review of Pollution Liability Insurance Policies. Mr. Bailey reviewed insurance policies for conformance to RCRA requirements, including new policy forms and special exclusions and endorsements.

Guidance on Special Exclusions in Insurance Policies Used for RCRA Compliance. Mr. Bailey assisted a workgroup in analyzing and evaluating program options for accepting or rejecting various types of pollution exclusions in policies used to satisfy RCRA. Mr. Bailey helped prepare senior management briefings as well as a guidance document distributed to EPA Regional Offices and authorized states.

RCRA Liability Coverage Requirements Guidance Manual. Mr. Bailey managed the preparation of a detailed guidance manual covering all aspects of the hazardous waste liability coverage requirements.

The manual includes comprehensive checklists for use by program administrators as well as owners/operators.

Corporate Guarantee and Other Mechanisms for RCRA Liability Coverage. Mr. Bailey directed ICF's support to EPA on revising and expanding the liability coverage regulations to include additional mechanisms such as the corporate guarantee, letter of credit, surety bond, and trust fund.

Mr. Bailey managed ICF's extensive support to EPA in evaluating alternative approaches to requiring financial assurance for remediation:

Regulatory Analysis of Corrective Action Financial Responsibility. This project involved the evaluation of regulatory options for financial responsibility requirements for corrective action under the RCRA Groundwater Protection Program. An analytic model was developed to determine the cost-effectiveness, coverage, and equity of regulatory alternatives, including various structures of national funds. Other research support was provided, including the identification of the ultimate owners of land disposal facilities, their financial characteristics, surrounding populations, and expected financial viability.

Continuing Releases Financial Responsibility Requirements. RCRA permits must contain assurances of financial responsibility for corrective action for any solid waste management unit at a facility with a continuing release. Mr. Bailey directed ICF's support to EPA in implementing this mandate by providing technical assistance to an Agency workgroup, by preparing issues and options papers, through briefings summarizing analytical studies, support to the preparation of a proposed rulemaking package, and analysis of comments received on the proposal.

Mr. Bailey has been directly involved in ICF's support to two major financial responsibility programs created under CERCLA: the 108(b) program and the PCLTF.

Technical and Analytic Support for Superfund Financial Responsibility Requirements. Mr. Bailey directed ICF's assistance to EPA in implementing Section 108(b) of Superfund, which authorizes the development of financial responsibility requirements for facilities handling CERCLA hazardous substances. This work initially involved the development of a classification scheme and ranking of classes of facilities for inclusion in a Federal Register notice. A variety of legal and policy issue papers (e.g., scope of coverage, definition of facility, available data) were prepared and other regulatory development support was provided, including development of timetables and procedures. ICF subsequently provided further 108(b) support in analyzing data sources for classifying facilities by risk.

Support for Development of CERCLA 108(b) Financial Assurance Requirements for Classes of Facilities. Mr. Bailey has been managing this work, including a broad range of data collection and analysis tasks relating to current federal and state financial assurance programs applicable to potential classes of 108(b) facilities. Mr. Bailey provided quality control for detailed reviews of state financial assurance laws and financial assurance assessments for five hardrock mine case studies.

Report to Congress on the Adequacy of the Post-Closure Liability Trust Fund (PCLTF). Mr. Bailey developed the conceptual design of a Monte Carlo simulation model to estimate whether the PCLTF would be adequately funded to meet claims for third-party liabilities and response costs, under conditions of great uncertainty. The model estimated dollar values of claims, taking into account a range of potential events, their consequences, resulting claims, and varying legal regimes. Mr. Bailey played a lead role in the analysis of legal and policy issues relating to the PCLTF, including types of liabilities, claims processes, options for program design, and coordination with RCRA financial responsibility requirements.

For EPA's Office of Underground Storage Tanks (OUST), Mr. Bailey has been actively involved in the following projects:

State UST Fund Soundness. Mr. Bailey managed this project to develop indicators of the solvency and adequacy of state UST funds. Mr. Bailey collected audit reports and other relevant information to understand the issues and challenges faced by state funds. Working closely with EPA and state

representatives, ICF created a variety of tools including a spreadsheet-based soundness model, instructions on how to use and modify the model, and data forms with instructions.

Financial Assurance Rules for Underground Storage Tanks. Mr. Bailey directed research and regulatory support activities relating to financial assurance for third-party compensation and corrective action for underground storage tanks containing petroleum and/or hazardous substances. Key issues included setting appropriate levels of coverage per occurrence and in the aggregate, availability of insurance, other mechanisms, and establishment of state funds. ICF assisted EPA to prepare several rulemaking packages with all required accompanying documents.

State Fund Handbook for Financing Corrective Action and Third-Party Compensation. Mr. Bailey directed the preparation of this document to aid states in understanding their financial assurance options and in evaluating alternative forms of state funds. The handbook provides guidance on designing a state program, funding and administration, and UST loan programs.

Outreach Brochure on Proposed Financial Assurance Requirements. Mr. Bailey worked closely with OUST to prepare a "plain English" brochure explaining the statutory mandate and proposed program. Tens of thousands of copies of the brochure were distributed across the country.

Liability and Insurance Issues Relating to Leaks from Underground Storage Tanks of Petroleum Fuel. Mr. Bailey directed an analysis of tort claims, liability awards, and out-of-court settlements for damages resulting from leaks of petroleum fuels stored underground. This involved an extensive literature review and data collection. In addition, Mr. Bailey directed an analysis of insurance coverage of such leaks under Comprehensive General Liability (CGL) and Environmental Impairment Liability (EIL) policies, including costs, availability, and terms of coverage. Last, service station owners and jobbers were surveyed regarding their experiences with underground leaks and their perceived incentives for control measures.

Comprehensive Reference Manual on Financial Assurance for Underground Storage Tanks. Mr. Bailey researched and wrote this comprehensive handbook that covers all types of financial assurance mechanisms available for clean-up and compensation of third-party liabilities. A major portion of the document analyzes available types of insurance (both comprehensive and "environmental") as of late 1999 and describes which products can be used for underground storage tank financial responsibility and which types of insurers are eligible providers. EPA's WAM wrote: "You have taken an incredibly complicated issue and provided a very useful guide."

Expert Assistance. Mr. Bailey has served as an expert resource on financial assurance issues for OUST. Specific questions have covered a variety of FR instruments and issues. In many instances, Mr. Bailey provided quick turnaround responses. Examples include the following:

- bond ratings frequencies and implications for municipalities
- insurance deductible set at limit of liability
- individual's use of Alt. II of self-test
- rescission of insurance policy
- implication for state funds of definition of "aggregate"
- Worldcom bankruptcy filing and its financial test of self-insurance
- letter of credit custody needs
- implication of certain wording of corporate guarantees
- logistics of self-insurance and mergers
- refunded bonds under local government bond rating test
- identity of insurer
- conditional coverage in insurance
- memoranda of insurance vs. certificate
- release from FR scenarios

Mr. Bailey typically prepared an email memo responding to each query, which often first required clarifying discussion(s) with EPA and research. EPA feedback on Mr. Bailey's memos included: "Information you provided was very helpful." "Clear and helpful as usual." "Thanks for the quick turnaround." "This is exactly what I needed." "This is extremely helpful." "Thank-you for the prompt and thorough response."

## **States**

Mr. Bailey has played an active role in the following ICF financial assurance projects for state agencies:

Environment Insurance Compliance Support for Sunflower Ammunition Site. Mr. Bailey was retained by the Kansas Department of Health & the Environment (KDHE) to provide expert advice regarding financial assurance for corrective action through insurance policies. Mr. Bailey reviewed multiple iterations of remediation cost cap and (post-cleanup) pollution liability and "finite" insurance policies, usually on a quick turnaround basis. The policies were evaluated in terms of scope of coverage, amount of coverage, and certainty of coverage. Mr. Bailey reviewed and commented on various policies from both AIG and from Quanta. Close support was required by KDHE due to the schedule for the U.S. Army to transfer the Sunflower site.

Financial Assurance for Land Use Controls. Mr. Bailey's provided expert review and comments to the Kansas Department of Health & the Environment in preparing its guidelines for demonstrating financial assurance for environmental use controls. Mr. Bailey helped KDHE to provide a comprehensive document that describes the various financial assurance mechanisms available; assists applicants in understanding and selecting an appropriate financial assurance mechanism for their site; and ultimately protects the state of Kansas from future financial liability associated with sites using environmental use controls. Subsequently, Kansas tasked Mr. Bailey to deliver a one-day workshop on financial assurance.

Design and Implementation of a Closure/Post-Closure Fund for Solid Waste Disposal Facilities in California. Mr. Bailey directed ICF's study for the California Waste Management Board of a funding program to address groundwater contamination, methane gas migration, and other environmental risks associated with solid waste disposal facilities. The study focused on program development and implementation issues, including fund design and procedural operations.

Development of Financial Assurance Regulations for Solid Waste Landfills in California. This study evaluated alternative financial mechanisms for public and private operators of solid waste landfills in California to demonstrate financial responsibility for closure and post-closure care and operating liability claims. In addition, ICF prepared draft regulatory language and supporting documentation.

White Paper on Future of State Fund. For the Pennsylvania Underground Storage Tank Insurance Fund, Mr. Bailey prepared a white paper on issues to consider in sunseting the fund and relying on commercial insurance instead.

Analysis of Methods of Guaranteeing Liability Coverage, Pre-Closure, Closure, Post-Closure Care, and Remedial Activities at New York State Hazardous Waste Facilities. ICF developed recommendations concerning use of an alternate financial test based on an analysis of the strengths and weaknesses of the federal RCRA financial test. In addition, ICF evaluated the appropriateness of the other mechanisms, including an assessment of the desirability of promulgating financial assurance requirements for pre-closure care and remedial activities. Waste handling facilities regulated in New York but not subject to federal RCRA requirements were included in the scope of the study. Finally, an analysis of the necessity for minimum standards of financial viability was completed to support appropriate recommendations. Model financial instruments also were developed for the Department.

Financial Assurance Requirements for Transport and Disposal of Low-Level Radioactive Waste in New York State. This project required the development and refinement of risk assessment tools to establish required amounts of liability coverage. In addition, ICF crafted the structure and operating procedures for

innovative state funds to cover claims for third-party liability, corrective action, closure, and long-term care.

Assessment of the Potential for Bodily Injury, Property Damage, and Environmental Impairment Associated with Radioactive Materials and Low-Level Radioactive Waste in Washington. Mr. Bailey directed ICF's data collection and analysis efforts in this quick-turnaround study requiring likelihood estimations as well as the monetization of potential impacts. This project entailed a site risk assessment of the U.S. Ecology low-level radioactive waste disposal facilities in Hanford, Washington. The goal was to develop inputs for the development of financial responsibility requirements.

Proposed Closure, Post-Closure, and Financial Assurance Requirements for Non-Hazardous Waste Disposal Facilities in Illinois. Mr. Bailey prepared a written report analyzing the regulatory proposal and testified as an expert at two public hearings.

Permit Hearing for Hazardous Waste Surface Facility and Injection Well in the State of Texas. Mr. Bailey testified as an expert witness on financial assurance and reviewed permit application and draft permit materials for a private client.

Financial Assurance for Oil Barge Operators in Alaska. Mr. Bailey analyzed data on costs and availability of compliance alternatives in this review of Alaska's financial assurance program for oil barge transport.

### **U.S. Nuclear Regulatory Commission (NRC)**

Assessment of NRC Financial Assurance Regulatory Framework for Materials Licensees. Mr. Bailey directed this contract to evaluate the financial assurance program for all fuel cycle and materials licensees under the authority of the Atomic Energy Act, the Nuclear Waste Policy Act, and the Uranium Mill Tailings Control and Reclamation Act. The study encompassed existing, proposed, and potential requirements for closure, decommissioning and decontamination, stabilization, reclamation, long-term care, and response to accidental releases. The multi-year contract included the following tasks:

- Evaluation of adequacy of the financial assurance regulatory framework, including coordination with states and other federal agencies.
- Review of financial assurance mechanisms, including types allowed/disallowed, wording, and effectiveness.
- Evaluation of adequacy of amounts of coverage, including cost estimation methodologies.
- Implementation assistance, such as development of guidance documents, reference manuals, information system design, and rulemaking assistance.

NRC Financial Assurance, Cost Estimation, and Case Support for Materials Licensees. Mr. Bailey subsequently has directed a series of contracts with the Nuclear Regulatory Commission to provide technical assistance in financial assurance case reviews for materials licensees. This has entailed review of certifications of financial assurance for decommissioning as well as review of decommissioning funding plans. Mr. Bailey typically provides QA reviews for these services. In addition, for several years, Mr. Bailey participated in case support activities relating to Sequoyah Fuels Corporation, General Atomics, Molycorp, Atlas Corporation, and Shieldalloy decommissioning financial assurance issues. In addition, under these contracts, Mr. Bailey has directed ICF support to NRC in the areas of guidance development, training, and regulatory development for financial assurance programs.

Analysis of Corporate Structure and Financial Condition of the "USR Companies." Mr. Bailey researched the status of five companies that, together with the Safety Light Corporation, emerged from the 1980 reorganization of United States Radium Corp. Research included information from Dun & Bradstreet (D&B), SEC, Moodys, and the Pennsylvania Departments of State. ICF compiled financial information



about the companies. Mr. Bailey evaluated the available financial data to assess the financial condition of these companies. Our analysis indicated much less net worth than estimated by D&B.

Analysis of Complex Corporate Organization. Mr. Bailey analyzed the relationships between thirteen corporate entities to determine the source(s) of finances for construction of a new nuclear power plant. Mr. Bailey researched and analyzed published financial reports including all pertinent notes and related agreements. Based on his findings, Mr. Bailey drafted potential "Requests for Additional Information" that would fill gaps in the application and clarify ambiguities and inconsistencies identified by Mr. Bailey, such as which corporate entity would be providing the financing for construction.

Review and Revision of Financial Assurance Guidances. Mr. Bailey directed ICF's support to NRC in revising financial assurance guidances, including NUREG-1199, NUREG-1200, NUREG-1336, NUREG-1337, Regulatory Guide 3.66, Regulatory Guide DG-3014, NUREG-1727, *Decommissioning Standard Review Plan*; and *Technical Position on Financial Assurance for Reclamation, Decommissioning, & Long-Term Surveillance and Control of Uranium Recovery Facilities*.

Mr. Bailey also directs or performs financial assurance studies related to nuclear power reactors. Of special note is Mr. Bailey's role on the following projects:

Insurance Pool for Decommissioning. ICF has been helping the NRC respond to proposals from insurance broker Marsh & McLennan and from NEIL (Nuclear Electric Insurance Limited) to allow an insurance pool to be used to provide financial assurance for nuclear reactor decommissioning. This support included preparing a white paper on likely key issues, reviewing submittals including draft and specimen policies, drafting requests for further information, providing expertise at face-to-face meetings, and developing a guidance document including review and acceptance criteria. Use of captive insurance has been a key issue, along with claims management.

Report to Congress on Liability and Compensation for Nuclear Accidents. Mr. Bailey was the principal author of the most recent Report to Congress on the renewal of the Price-Anderson Act, which establishes limits of liability and a financial assurance program of liability insurance coverage for power reactors and fuel cycle activities. Mr. Bailey managed ICF's study of the current condition of the nuclear industry, state of knowledge of nuclear safety, scientific knowledge and legal issues concerning proof of causation, and availability of private insurance. He also assisted NRC in developing legislative recommendations.

Liability Coverage Requirements for Nuclear Power Reactors. Mr. Bailey directed ICF's support to prepare an analysis of the costs and benefits of altering required levels of insurance coverage for on-site and off-site liability commensurate with the risk following permanent shutdown of the reactor. The analysis evaluated the consequences of risks associated with spent fuel in the spent fuel pool.

Implementation of Nuclear Power Reactor Financial Assurance Requirements. Mr. Bailey directed ICF's analysis of options for improving the implementation of the decommissioning financial assurance requirements for nuclear power reactors. Among the issues analyzed were: enhanced reporting requirements and investment restrictions on trust funds.

## **U.S. Department of Transportation (DOT) Federal Motor Carrier Safety Administration**

Effectiveness Review of Financial Assurance Program. FMCSA administers several financial assurance programs for motor carriers of freight or passengers, for property brokers, and for freight forwarders. Mr. Bailey was tasked to perform a comprehensive assessment of the regulations effectiveness. Mr. Bailey developed an analytic framework that included quantitative and qualitative components. Mr. Bailey assessed required amounts of coverage by analyzing settlement/award data by collecting data on state requirements, and by reviewing amounts of coverage typically purchased. Mr. Bailey also assessed qualitative issues including applicability, scope of coverage, program rules, terms and conditions of the mechanisms, and eligibility criteria for issuers of mechanisms. ICF paid special attention to FMCSA's self-insurance program. Mr. Bailey managed this entire project and authored many sections of it.

## **Government of Canada**

Analysis of Non-Insurance Financial Responsibility Mechanisms Applicable to Nuclear Liability. For the Canadian government, Mr. Bailey prepared a study of financial responsibility mechanisms potentially applicable under the Nuclear Liability Act in addition to insurance. The study included an evaluation of a variety of financial instruments (including catastrophe bonds), recommendations, and acceptance criteria for recommended instruments. The report concluded with guidelines for administrative mechanisms to oversee financial responsibility arrangements.

Comparative Analysis of Liability and Compensation Regimes. Mr. Bailey performed an analysis for Environment Canada (EC) of liability and compensation regimes, the scope of which was expanded by EC to include more provinces and states. Mr. Bailey researched and compared provisions creating liabilities, mandating financial assurance, and establishing government funds.

## **European Commission**

European Commission (EC) CO<sub>2</sub> Sequestration Financial Responsibility Guidance and Reports. ICF was retained by the EC to develop a set of four guidance documents to help implement its Directive on CO<sub>2</sub> sequestration. Mr. Bailey prepared the document on financial assurance, which took into account EC concerns about state aid and addressed the specific obligations in the Directive. After review and comments, Mr. Bailey finalized the guidance for publication by the EC.

Review of Draft Permits and Applications. The EC retained ICF for assistance in reviewing initial permit applications and draft permits for CO<sub>2</sub> sequestration sites. Mr. Bailey reviewed the materials related to financial assurance. Mr. Bailey provided his observations to the EC, participated in a telecom with the EC, and is preparing the financial assurance input to EC's opinion on the draft permit.

## **SELECTED PAPERS AND PRESENTATIONS**

"Liability and Insurance Aspect of Clean-up of Uncontrolled Hazardous Waste Sites," Paper presented at Third National Conference on Management of Uncontrolled Hazardous Waste Sites (November 1983).

"Liability and Financial Responsibility Aspects Relating to the Settlement of Superfund Actions," presented at seminar on settlement of Superfund actions in Buffalo, New York (February 1984).

"Financial Responsibility and Environmental Regulation," Environmental Analyst (August 1984).

"Financial Assurance," presented at annual meeting of Association of State and Territorial Solid Waste Management Officials in Hartford, Connecticut (September 1985).

"Overview of Financial Assurance and Hazardous Waste Management," presented at professional education course on Management of Hazardous Waste, sponsored by American Society of Mechanical Engineers, in Washington, D.C. (April 1986).

"The RCRA Regulations and Liability Insurance," with Jackie Tenusak, U.S. EPA, presented at Fourth Annual RCRA/HMCRI Conference in Washington, D.C. (March 1987).

"RCRA Financial Responsibility Program," with Matthew Hale, U.S. EPA, presented at 6th Annual Hazardous Substances Insurance Conference in Washington, D.C. (February 1988).

"Risk-Based Financial Assurance for Transport of Low-Level Radioactive Waste," with J.G. Karam, et al. Presented at the '88 Waste Management Symposium, Tucson, Arizona, February 28 - March 3, 1988.

"RCRA Financial Responsibility Program: Available Compliance Options," presented at Hazardous Substances Regulation and Technical Conference: Technical Options for Meeting Compliance Requirements, in Washington, D.C. (May 1988).

"Using Probabilistic Risk Assessment to Derive Financial Assurance Coverage Levels: The Case of Low-Level Radioactive Waste Transportation," with J.G. Karam, et al. Presented at the Institute of Nuclear Materials Management (INMM) 29th Annual Meeting, Las Vegas, Nevada, June 26-29, 1988.

"Risk-Based Financial Assurance for Low-Level Waste Disposal Facilities," with J.G. Karam, et al. Presented at the Institute of Nuclear Materials Management (INMM) 29th Annual Meeting, Las Vegas, Nevada, June 26-29, 1988.

"RCRA Financial Responsibility," with Matthew Hale, U.S. EPA, presented at 7th Annual Hazardous Substances Insurance Conference in New York City (September 1988).

"The RCRA Financial Responsibility Program for Hazardous Waste Facilities: Program Fundamentals and Current Developments," 1 Environmental Claims Journal 219-230 (Winter 1988/89).

"RCRA Financial Responsibility: An Overview" presented at 8th Annual Hazardous Substances Insurance Conference in Washington, D.C. (February 1989).

"RCRA Financial Responsibility: An Overview," presented at 8th Annual Hazardous Substances Insurance Conference in New York City (September 1989).

"Financial Responsibility: New Developments," presented at 9th Annual Hazardous Substances Insurance Conference in Washington, D.C. (February 1991).

"Estimating the Costs of Corrective Action at Land Disposal Facilities," with L. Huffman and J. Karam, 1 Remediation 19 (Winter 1990/91).

"Full Cost Accounting for Life Cycle Costs – A Guide for Engineers and Financial Analysts," 1 Environmental Finance 13 (Spring 1991).

"Life-Cycle Costing and Pollution Prevention," 1 Federal Facilities Environmental Journal 193 (Summer 1991).

"Monetizing the Spectrum of Environmental Liabilities: State of the Art and Examples," with J. Karam and R. Rodensky, presented at Environmental Financing Institute (November 7, 1991).

"Expressing Environmental Liabilities in Dollars and Cents: What Corporations Can Do Now," 1 Environmental Finance Journal (Number 4: Winter 1991/92).

"Risk and Uncertainty in Water Resources: Hazardous and Toxic Wastes," presented at American Water Resources Association National Forum on Water Management Policy (June 1992).

"Quantifying Environmental Exposures for Business Decisions: Approaches to Monetizing Environmental Liabilities." Presented at the 87th Annual Meeting & Exhibition, Air & Waste Management Association (A&WMA), Cincinnati, OH, June 1994. 94-TA31.06.

"Environmental Lifecycle Costing, Environmental Accounting, and Environmental Performance Indicators," presented at 8th Managing the Industrial and Business Environment (MIBE) Forum, International Institute for Management Development, Lausanne, Switzerland (June 9, 1997).

"Monetizing Environmental Liabilities," presented at Environmental Cost Accounting Conference, International Business Communications (November 18, 1997).

"Price-Anderson Act Renewal: NRC Report to Congress," presentation to American Nuclear Insurers Policyholders Meeting (March 5, 1999).

"Valuing Environmental Liabilities," presented at U.S. Internal Revenue Service Nationwide Environmental Issues Conference (May 23, 2000).

"Study to Identify Potential Long-Term Threats and Financial Assurance Mechanisms for Long-Term Postclosure Maintenance and Corrective Action at Solid Waste Landfills," presentation of study conclusions to California Integrated Waste Management Board, December 3, 2007.

"Use of Insurance as a Financial Assurance Mechanism," invited presentation to EPA Environmental Financial Advisory Board (EFAB) workshop on June 17, 2008.

"RCRA Financial Assurance Issues – The Long View," paper prepared for 2008 Air & Waste Management Association Annual Conference publication and presentation on June 26, 2008.