
LONGENECKER and ASSOCIATES

David J. Lechel

EXPERIENCE SUMMARY

More than 30 years experience in preparation and management of multidisciplinary environmental studies, regulatory analysis, and monitoring in support of remedial actions and construction activities, and waste management and disposal. Responsibilities have included:

- Design, conduct, management, and report preparation of comprehensive environmental impact documents of U.S. Department of Energy defense facilities, national laboratories, and radioactive/hazardous waste disposal sites; commercial hazardous/toxic waste sites; and proposed coal mines, power plants, and wastewater treatment facilities.
- Regulatory analysis and strategic planning for compliant disposal of transuranic and mixed transuranic waste, byproduct material, low-level waste, and spent nuclear fuel and high-level radioactive waste at U.S. Department of Energy disposal sites.
- Regulatory analysis, and licensing planning and implementation for closure of U.S. Department of Energy byproduct material and spent nuclear fuel and high-level radioactive waste disposal sites, and for a proposed commercial low-level waste disposal facility.

RELEVANT SKILLS

NEPA compliance and environmental impact analysis; peer review; strategic planning; design and implementation of environmental sampling programs; regulatory analysis and permit acquisition; project management.

DETAILED EXPERIENCE

1992-Present	LECHEL, Inc.
1982-1992	Roy F. Weston, Inc.
1978-1982	Wapora, Inc.
1975-1978	Ichthyological Associates
1973-1975	Michigan State University

National Environmental Policy Act Support, Office of Civilian Radioactive Waste Management, Las Vegas, Nevada, Department of Energy, Technical Consultant (1995-Ongoing). Provided support to Department of Energy (DOE) in the planning, scoping, and preparation of the Yucca Mountain Environmental Impact Statement (EIS), Site Recommendation (SR), Yucca Mountain Supplemental EIS, Supplemental Yucca Mountain Nevada Rail Corridor EIS and Rail Alignment EIS, and an Environmental Analysis Report. Support required preparing Notices of Intent to prepare the EISs, participating in the planning and execution of agency consultations, preparing plans for and participating in the public scoping and public comment processes, assisting in developing the proposed action and implementing alternatives, and identifying and resolving environmental issues such as those associated accident scenarios for the waste handling facilities and transportation casks.

Also, participated in the development and review of environmental files and environmental baseline files, and reviewing working drafts of the EISs. In addition, provided technical requirements for the development of the Internet-based comment-response database, and led the development of the responses to public comments on the Draft Yucca Mountain EIS, and

prepared the Record of Decision to select a mode of transportation and a corridor in which to determine a rail alignment for the construction and operation of a rail line.

As part of this project, ensured integration between the Yucca Mountain EIS and SR, reviewed preliminary drafts of repository waste acceptance criteria, reviewed and commented on related DOE EISs, provided support in the development of radioactive waste management order 435.1, participated in ongoing compliance activities regarding RCRA-related spent nuclear fuel and high-level radioactive waste, and provided legislative analysis of proposed amendments to the Nuclear Waste Policy Act.

Technical and Regulatory Support, Department of Energy Waste Management Programs, Sandia National Laboratories, Technical Consultant (1995-Ongoing). Provides support to DOE's low-level, transuranic, Greater-than-Class-C low level waste, and high-level radioactive waste programs. Representative tasks include initiation of a comprehensive TRU waste disposal plan, preparation of the National TRU Waste Management Plan, management and preparation of a Plutonium-238 TRU waste management document, preparation of the Transuranic Waste Disposal Facility Federal Review Group Manual, and support to privatization projects. The comprehensive disposal plan, originally an outgrowth of provisions of the initial WIPP Land Withdrawal Act, was to evaluate disposal options to address the TRU waste inventory that cannot be disposed of in WIPP because of legal restrictions and agreements with the state of New Mexico. This predecisional report and subsequent evaluations identified a range of disposal options including new and existing geologic repositories, the development of new technologies, and waste treatment leading to disposal. A smaller subset of the more viable disposal options were to be evaluated against various criteria such as environmental and worker and public risk, total system life-cycle cost, and technical and legal viability (task on hold per DOE). Also tasked with supporting (key author) the development of a DOE-wide TRU waste management plan (revisions 0, 1, 2). The management plan optimized waste workoff rates from each site, efficiently using the WIPP's disposal system and waste capacities, and more effectively utilizing TRU waste management funds. Optimization of the TRU waste management system was achieved by modeling the WIPP waste disposal throughput rates relative to waste treatment and throughput rates across the DOE Complex. Various treatment facilities scenarios are developed to optimize waste disposal, and in consideration of total system life-cycle costs and other factors. Lead a team in the use of decision analysis techniques to seek ways in which to more efficiently manage plutonium-238 heat source waste within the DOE complex. These techniques were used to assess several management strategies (e.g., hydrogen gas getters, waste repackaging) in consideration of three performance measures (volume disposed, demand on shipping resources, cost). More recently, assisted in the development of a Project Management Plan, cost and schedule baseline and assumptions document, and acquisitions plans for a privatization project for the fabrication of packaging's for contact-handled and remote-handled TRU waste. This information was prepared in response to audit findings and observations. Also supported preparation of guidance under DOE Order 435.1 for the disposal of GCD (Greater Confinement Disposal) waste, and an options analysis for commercial disposal of low-level radioactive waste.

Most recently provided support in efforts to recertify (under 40 CFR 194) the WIPP for acceptance of TRU waste, and in licensing activities for disposal of high-level waste and spent nuclear fuel (Yucca Mountain). For the former, evaluated the technical basis for the range and distributions of seven key parameters used in performance assessment, authored a report describing the software and hardware configuration updates for the performance assessment calculation, supported the preparation of a report evaluating changes to key models used in the assessment calculations, prepared sections of the preliminary compliance recertification

application, and supported the preparation of a performance assessment model (EPAUNI) report. For Yucca Mountain, prepared sections of a preliminary performance confirmation plan, reviewed the in-drifts precipitates salt analytic model report, and acted as lead technical reviewer of the physical and chemical environment analytic model report.

National Environmental Policy Act Support, Department of Energy Complex, Battelle Memorial Institute, Technical Consultant (1998-Ongoing). Provided independent review of preliminary environmental assessments and other NEPA reviews prepared by Battelle Memorial Institute. Environmental assessments were prepared for various proposals associated with the Waste Isolation Pilot Plant and the Nevada Test Site, including the disposal of polychlorinated biphenyl-commingled transuranic waste, the development of an alternative energy generation facility, and the conduct of actinide solubility and astrophysics experiments. Responsible for reviewing preliminary assessments to ensure they comport with Council on Environmental Quality and Department of Energy regulations and guidance. Also reviewed the assessments from technical and 'reader-clarity' perspectives.

Most recently provided an independent review of DOE plans for the preparation of a decommissioning and closure EIS for the West Valley Demonstration Project. This quick-turnaround review resulted in technical, policy and management-oriented recommendations to accelerate the preparation of the EIS.

National Environmental Policy Act Support, Department of Energy Office of NEPA Policy and Compliance, Dade Moeller and Associates, Inc., Technical Consultant (2003-Ongoing). The overall scope of this contract is to provide technical and analytical to the Office of NEPA Policy and Compliance including, for example, technical assistance associated with the Office's review of EISs and other NEPA-related documents, and the preparation of policy and guidance. As part of this project to date, reviewed and provided comments on several preliminary draft and final EISs, including the Lawrence Livermore National Laboratory Site wide EIS and the Los Alamos National Laboratory Site wide EIS, and prepared guidance for preparation of supplement analyses, cumulative impacts analyses, preparation of EISs and EAs, and preparation of responses to comments.

Technical and Regulatory Support, Confidential Client, Technical Consultant (2002). Provided technical and regulatory support to evaluate potential remedial alternatives for the cleanup of a former metals and organic compound contaminated site. The client purchased a large tract of land for commercial and residential development. Within this tract is a formerly used recreational site contaminated with lead, and possibly volatile organic compounds. A Remedial Investigation/Feasibility Study (RI/FS) was prepared by another organization to assess the scientific, engineering, regulatory and cost implications of various remedial alternatives. Responsible for independently evaluating the benefits and constraints of the various remedial alternatives, including the regulatory options. The independent evaluation is to assist the client in decisionmaking by identifying the risks and uncertainties inherent to each remedial alternative.

National Environmental Policy Act Support, Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho, Jason Associates, Technical Consultant (2001-2002). Prepared the Summary to the Idaho High-Level Waste and Facilities Disposition Environmental Impact Statement. This EIS analyzed the potential environmental consequences of treating, storing and disposing of high-level radioactive waste calcine and liquid sodium-bearing waste from the Idaho Nuclear Technology and Engineering Center. It also analyzed if

and how existing and proposed high-level radioactive waste management facilities should be closed after their missions have been completed.

Technical and Regulatory Support, Department of Energy Albuquerque Operations Office, Albuquerque, New Mexico, Regulatory Specialist (1998-2001). Provided support to DOE in the management of environmental programs, including waste management, environmental restoration, and public and government outreach activities. Responsible for reviewing a variety of draft environmental restoration documents prepared for solid waste management units at Sandia National Laboratories and Los Alamos National Laboratory. The reports cover a gamut of environmental restoration activities such as No Further Action, proposed sampling and analysis plans, RCRA Facility Investigation Reports, and Voluntary Corrective Action Reports.

Technical Support for the Preparation of the JASPER Waste Management Project Plan, Department of Energy, Nevada Operations Office, Las Vegas, Nevada, Technical Consultant (2000). Provided support in the development of the waste management project plan for the Joint Actinide Shock Physics Experimental (JASPER) facility at the Nevada Test Site. The JASPER Waste Management Project Plan was prepared to demonstrate compliance with DOE Order 435.1, *Radioactive Waste Management*, and to ensure that the transuranic waste operations management process would comply with the requirements relevant to the disposal of transuranic waste in the Waste Isolation Pilot Plant. Supported Bechtel Nevada in the development of the plan by providing recommendations for the overall construct and level-of-detail of the plan; reviewing various draft versions in consideration of the requirements and guidance of DOE Order 435.1, and suggesting revisions to the text as appropriate. **Low-Level Waste Disposal Licensing Support, Confidential Client, Technical Consultant (1998-1999).** Provided support to client efforts to license a commercial low-level waste disposal facility. Primarily responsible for preparation of select sections of the license application including the environmental monitoring program, ecological resources including wetlands, and cultural resources. Support required reviews of applicable and relevant regulations, other low-level waste license application materials, and analysis of results from an ongoing environmental monitoring program.

Preparation of the Supplemental Environmental Impact Statement-II, Waste Isolation Pilot Plant, Carlsbad, New Mexico, Pacific Northwest National Laboratories, Technical Consultant, (1995-1997). Provided overall regulatory and technical support as well as prepared sections of SEIS-II. Representative activities included identifying issues ripe for review by project participants and DOE, preparing issue papers to facilitate reviews, establishing a technical baseline to enable consistent and integrated analyses among environmental disciplines, developing the construct of the alternatives and impact assessment approaches, and reviewing all sections for technical adequacy, internal consistency, and consistency with other elements of the overall WIPP program.

Technical and Regulatory Support, Waste Isolation Pilot Plant, Carlsbad, New Mexico, Roy F. Weston, Technical Consultant (1996-1997). Supported compliance activities needed to initiate disposal operations, primarily the Resource Conservation and Recovery Act (RCRA) Part B permit application to operate the WIPP as a storage and disposal facility, and RCRA's Land Disposal Restrictions no-migration variance petition. Identified common issues of concern to both the State of New Mexico and the EPA Office of Solid Waste including (1) the lack of a shaft seal design details/criteria founded in field studies and performance confirmation, (2) the possibility that EPA may require "load management" of TRU waste in the WIPP underground, (3) the general lack of demonstration/substantiation of site geohydrological characteristics

relevant to waste isolation, (4) internally inconsistent and contradictory waste descriptions (e.g., EPA codes, waste matrix code groups) and bases for waste classifications, (5) suspect use of process knowledge, especially regarding future debris wastes from environmental restoration and decontamination and decommissioning wastes, (6) the lack of sampling and analysis methods for remote-handled TRU waste, and (7) the need for a volatile organic compound performance monitoring program.

National Environmental Policy Act Support, Non-Stockpile Chemical Materiel Program, U.S. Department of the Army, Technical Consultant (1995-1996). Provided broad NEPA support including development of the internal scope of the PEIS, and assuring compliance with Council on Environmental Quality regulations that implement NEPA and Army implementing regulations. Support also included developing the proposed action and alternatives recognizing the inherent complexities of analyzing the programmatic impacts of a wide range of chemical materiel in various geographic settings, and identifying analytical methods commensurate with the level-of-detail necessary for a PEIS.

Engineered Alternatives Cost/Benefit Study, Waste Isolation Pilot Plant, Carlsbad, New Mexico, Westinghouse Waste Isolation Division, Technical Consultant (1994-1995). Provided assessment and probabilities of occurrence of potential environmental impacts consequent to each engineered alternative. The cost/benefit analysis focused on identifying and quantifying relevant aspects of environmental risk that may be posed by the engineered alternatives considered. The overall analysis required the evaluation of several waste form modifications and alternative configurations for the repository. The benefits and detriments for which each alternative was assessed included: short- and long-term environmental consequences, ability of the barrier(s) to retard movement of water and radionuclides, risk to workers from the implementation of the barriers, affect on waste retrieval, risk from transportation, uncertainties in resultant compliance analyses, changes in public confidence in the performance of the disposal system, costs, impacts on other waste disposal systems in the DOE complex, and the effects of mitigating the consequences of human initiated processes and events.

National Environmental Policy Act Support, Office of Civilian Radioactive Waste Management, Washington, D.C., U.S. Department of Energy, Technical Consultant (1994-1995). Provided independent review of DOE and contractor prepared position papers to ascertain whether a Programmatic Environmental Impact Statement (PEIS) should be prepared to address the development of the nuclear waste management system. The DOE had announced in early 1994 that it would prepare multiple environmental impact statements (EISs) for its Proposed Program Approach to dispose of high-level waste and commercial spent nuclear fuel at the Yucca Mountain, Nevada site. EISs were to be prepared for the multi-purpose canister, the suitability of Yucca Mountain as a repository site, the proposed rail spur, and possibly a monitored retrievable storage facility. The State of Nevada requested that DOE prepare a Programmatic Environmental Impact Statement (PEIS) because: (1) the multiple EISs will evaluate connected actions, which depend upon a larger action; and (2) the Proposed Program Approach represents but one of many alternatives to the development of the nuclear waste management system. Assessed various topical position papers, and reviewed DOE and the Council of Environmental Quality regulations that implement NEPA and other relevant NEPA compliance approaches within DOE. Recommended that DOE prepare multiple and generally expansive EISs that: (1) clearly articulate the types and timing of DOE decisions; (2) ensure that the many actions assessed in the early EISs do not limit future alternatives of subsequent EISs; and (3) build upon the previously established NEPA record as new information becomes available.

Technical Support, Idaho National Engineering Laboratory, Idaho Falls, Idaho, U.S. Department of Energy, Technical Consultant (1993-1995). Prepared Summary and Record of Decision for, and provided independent technical review of, DOE's Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Management Programs Environmental Impact Statement (EIS). This two volume EIS evaluated programmatic approaches to management of spent nuclear fuel across the DOE complex, and considers site-specific approaches to the future direction of environmental restoration and waste management programs at INEEL. The programmatic EIS evaluated five alternatives to manage existing and projected quantities of spent nuclear fuel, until the year 2035. The analyses focused on impacts to worker safety, public health and the environment, and socioeconomic factors related to transportation, receipt, stabilization and storage of DOE and Naval reactor spent nuclear fuel, as well as special-case commercial fuel. Siting locations for fuel stabilization, and research and development were also assessed. The site-specific EIS addressed five alternatives for management of environmental restoration, waste management, and spent nuclear fuel activities, until the year 2005, at INEEL. Potential impacts from facility operations and environmental restoration, including decontamination and decommissioning activities that would contribute to waste streams and their storage, treatment and disposal were included in the evaluations.

Technical and Management Support, Waste Isolation Pilot Plant, Albuquerque, New Mexico, U.S. Department of Energy, Technical Consultant (1992-1995). Provided broad support including planning for the disposal phase supplement EIS, preparation of the Remote Handled Transuranic Waste Disposal Strategy, management and preparation of the WIPP-specific Regulatory Compliance Strategy and Management Plan, peer review of plans to comply with provisions of the WIPP Land Withdrawal Act, and technical peer review of elements of the WIPP regulatory compliance and experimental programs. Authored internal planning recommendations for the scope of the next supplemental EIS, including technical and regulatory content, schedule, and cost reduction. Provided peer review of DOE's Compliance Status Report and Project Technical Baseline, and EPA's working draft implementing criteria at 40 CFR 194. Managed the preparation of the Regulatory Compliance Strategy and Management Plan which provided the strategy by which WIPP Program elements are integrated to comply with selected regulations including 40 CFR 191, Environmental Radiation Protection Standards for Management and Disposal of Spent Fuel, High-Level and Transuranic Radioactive Wastes, and RCRA including 40 CFR 264 Subparts G and X and 268 Subparts C and D. Peer-reviewed plans and documents resulting from provisions of the Land Withdrawal Act including the transportation assessment, and the test phase and waste retrieval plans. Provided independent technical review of performance assessment reports for compliance with 40 CFR 191, technical and regulatory reports prepared by Sandia National Laboratories, and other test plans and management plans for radioactive waste tests.

EDUCATION

M.S., Fisheries Biology -- Michigan State University (1974)

B.S., Fisheries Biology -- Michigan State University (1972)