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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
LOUISIANA ENERGY SERVICES, L.P.	)	Docket No. 70-3103
(National Enrichment Facility)	)	

NMED'S ANSWERS TO NRC STAFF'S
FIRST SET OF INTERROGATORIES TO NMED

Pursuant to 10 CFR § 2.706, the New Mexico Environment Department (NMED) answers the First Set of Interrogatories from the Nuclear Regulatory Commission (NRC) Staff as follows:

INTERROGATORY NO. 1:

Identify each person who was consulted and/or who supplied information in preparing the NMED contention admitted in this proceeding. Identify all documents, reports, texts, literature or other matters reviewed by such persons in preparing the admitted contention.

NMED ANSWER:

Mr. Stan Fitch, Mr. Bill Floyd and Mr. Mike Ortiz, all of whom are employed in the NMED Radiation Protection Bureau, consulted or supplied information in preparing NMED's contention regarding radiation protection.

The following documents were reviewed in preparing NMED's contention: the application (Application) of Louisiana Energy Services, L.P. (LES) to the Nuclear Regulatory Commission in this matter, 10 CFR § 20, 10 CFR § 70, NUREG-1520, NUREG/CR-3332 (ORNL-5968) and NRC Regulatory Guide 4.16.

INTERROGATORY NO. 2:

Identify each person who was consulted and/or who supplied information in responding to the requests for admission or interrogatories set forth herein. Indicate for which specific requests for admission, or interrogatories, each person was consulted and/or supplied information. For each such person, identify the individual's occupation, training, and qualifications.

Template=SECY-035

SECY-02

NMED ANSWER:

Mr. Stan Fitch was the only person consulted. Mr. Fitch's curriculum vitae, which sets forth his qualifications, is attached.

INTERROGATORY NO. 3:

Identify any person you will use as a witness in this proceeding to testify regarding the admitted NMED contention. If you rely on any such person as an expert witness, state the details of each witness's education, professional qualifications, and employment history; state the subject matter on which each of the witnesses is expected to testify at the hearing; describe the facts and opinions to which each witness is expected to testify, including a summary of the grounds for each opinion; and identify all documents, data, or other information which each witness has reviewed and considered or is expected to rely on for his or her testimony.

NMED ANSWER:

NMED intends to call Mr. Stan Fitch as an expert witness regarding NMED's contention that the Application fails to set forth an adequate radiation protection program.

It is Mr. Fitch's opinion that the Application does not comply with the requirements of 10 CFR § 20.1101 because it fails to provide sufficient information to demonstrate the establishment of an adequate radiation protection program. Specifically, the Application is deficient in providing the technical bases for monitoring and assessing effluent discharge, and in estimating occupational and public radiation doses.

Radiation dose quantities are provided, but are not supported by calculation protocols, formulae, or variables (e.g., occupancy factors, seasonal variations, diffusion coefficients). This additional information must be provided in order to verify the information in the Application. The dose quantities provided in the Application are not corroborated with technical factors pertaining to the variables of release, pathways, transport, and intake. As set forth by NURE/CR-3332, these factors will be used in developing scenarios that analyze likely radiation exposures resulting from routine operations and emergencies. The factors are thereby necessary to demonstrate ensured compliance with applicable standards for occupational and public dose.

Part 70 requires that an integrated safety analysis (ISA) be performed to limit the risk of credible high-consequence events resulting in high doses to workers and the public. According to 10 CFR § 70.62(c), the ISA must account for the radiological hazards that would result from such an event. The ISA detailed in Section 3.0 of the LES Safety Analysis Report, pertinent to process failure and protection from accidents, identifies the radiological hazards and provides various scenarios for liquid and gaseous effluents. Calculated radiation doses are provided (see Figures 3.7-1 and 3.7-4), but specific calculation protocols, formulae, and variables (e.g., occupancy factors, seasonal variations, diffusion coefficients) are omitted. There is no evidence that the meteorological factors provided in Section 3.6 of the Environmental Report are correlated in the ISA as would be appropriate to demonstrate that dose to the public would be adequately

minimized in the event of an accident. These correlations would need to support postulated releases, pathways, transports, and public intakes. Given the complexity of the fuel enrichment process, this additional information is necessary for NRC to confirm the degree of hazard and to verify the information in the Application.

Based on Regulatory Guide 4.16, the Application contains insufficient information on postulated concentrations and quantities of radionuclides in liquid and gaseous effluents for NRC staff to adequately evaluate environmental impact, estimate the potential annual radiation doses to the public, ascertain whether regulatory requirements have been met and that concentrations will be kept ALARA and evaluate the adequacy and performance of effluent controls. Examples of how the Application lacks sufficient information include: Section 4.12.2 of the Environmental Report specifies that less than 10 grams of uranium will be discharged annually via air emission; however, no proof is provided to verify this representation, while Tables 4.12-1 and 4.12-2 in the Environmental Report provide occupancy factors and population data, they are not directly correlated by calculation protocols, formulae, seasonal variations, or diffusion coefficients to arrive at the expected doses to the public listed in associated tables at the back of Section 4.12 of the Environmental Report. Further, Section 4.0 of the Safety and Analysis Report entitled "Radiation Protection" focuses exclusively on occupational safety. It provides no anticipated airborne concentrations to estimate occupational radiation doses, only a representation by the applicant to comply with NRC regulations and to utilize applicable NRC guidance.

INTERROGATORY NO. 4:

Do you intend to rely on any evidence or testimony presented in a previous proceeding relating to the licensing of a uranium enrichment facility? If so, identify the proceeding and state the nature of the evidence or testimony, including citations to the portions of any transcripts you intend to rely on.

NMED ANSWER:

At this time NMED does not intend to rely on evidence presented in a previous proceeding.

INTERROGATORY NO. 5 (Radiation Protection Program):

The regulation cited in your contention (10 CFR 20.1101) imposes requirements on a "licensee," as opposed to a license applicant. State all bases supporting your claim that the type of detailed information you reference (e.g., technical bases for monitoring and assessing effluent discharge, and for estimating occupational and public radiation doses) must be provided as part of the LES license application.

NMED ANSWER:

Sections 4.1, 4.3, and 4.4.2.1 of NUREG-1520.

INTERROGATORY NO. 6 (Radiation Protection Program):

Identify the technical bases you believe would be adequate for monitoring and assessing effluent discharge at the NEF.

NMED ANSWER:

The bases and standards identified by the American National Standards Institute and those of NRC.

INTERROGATORY NO. 7 (Radiation Protection Program):

Identify the technical bases you believe would be adequate for estimating occupational and public radiation doses at the NEF.

NMED ANSWER:

The bases and standards identified by NRC.

INTERROGATORY NO. 8 (Radiation Protection Program):

Identify all bases you rely on in claiming that NRC Regulatory Guide 4.14 is applicable to the evaluation of the LES license application.

NMED ANSWER:

Certain technical criteria of Regulatory Guide 4.14 are broadly applicable to uranium enrichment facilities. However, the criteria contained Regulatory Guide 4.16 are more appropriate to the proposed facility.

INTERROGATORY NO. 9 (Radiation Protection Program):

In amended section 4.12.2.1 of the LES Environmental Report, LES describes its protocol for calculating public doses that would be generated from routine gaseous and liquid effluents at the NEF, and identifies the underlying regulatory guidance documents it used to calculate the public doses. Do you agree with the protocol described in amended section 4.12.2.1 of the LES Environmental Report? If not, identify the protocol which you contend LES should have used.

NMED ANSWER:

NMED does not agree or disagree with the protocol used to calculate public doses in section 4.12.2.1. In NMED's view, the Application does not set forth sufficient information to verify the data conclusions reached in Section 4.12.2.1.

INTERROGATORY NO. 10 (Radiation Protection Program):

State all facts that support your contention that the license application fails to demonstrate an adequate radiation protection program, specifying each and every shortcoming you allege exists in the radiation protection program LES proposes to use.

NMED ANSWER:

The Application does not comply with the requirements of 10 CFR § 20.1101 because it fails to provide sufficient information to demonstrate the establishment of an adequate radiation protection program. Specifically, the Application is deficient in providing the technical bases for monitoring and assessing effluent discharge, and in estimating occupational and public radiation doses.

Radiation dose quantities are provided, but are not supported by calculation protocols, formulae, or variables (e.g., occupancy factors, seasonal variations, diffusion coefficients). This additional information must be provided in order to verify the information in the application. The dose quantities provided in the Application are not corroborated with technical factors pertaining to the variables of release, pathways, transport, and intake. As set forth by NURE/CR-3332, these factors will be used in developing scenarios that analyze likely radiation exposures resulting from routine operations and emergencies. The factors are thereby necessary to demonstrate ensured compliance with applicable standards for occupational and public dose.

Part 70 requires that an integrated safety analysis (ISA) be performed to limit the risk of credible high-consequence events resulting in high doses to workers and the public. According to 10 CFR § 70.62(c), the ISA must account for the radiological hazards that would result from such an event. The ISA detailed in Section 3.0 of the LES Safety Analysis Report, pertinent to process failure and protection from accidents, identifies the radiological hazards and provides various scenarios for liquid and gaseous effluents. Calculated radiation doses are provided (see Figures 3.7-1 and 3.7-4), but specific calculation protocols, formulae, and variables (e.g., occupancy factors, seasonal variations, diffusion coefficients) are omitted. There is no evidence that the meteorological factors provided in Section 3.6 of the Environmental Report are correlated in the ISA as would be appropriate to demonstrate that dose to the public would be adequately minimized in the event of an accident. These correlations would need to support postulated releases, pathways, transports, and public intakes. Given the complexity of the fuel enrichment process, this additional information is necessary for NRC to confirm the degree of hazard and to verify the information in the Application.

Based on Regulatory Guide 4.16, the Application contains insufficient information on postulated concentrations and quantities of radionuclides in liquid and gaseous effluents for NRC staff to: Adequately evaluate environmental impact, estimate the potential annual radiation doses to the public, ascertain whether regulatory requirements have been met and that concentrations will be kept ALARA and evaluate the adequacy and performance of effluent controls. Examples of how the Application lacks sufficient information include: Section 4.12.2 of the Environmental Report specifies that less than 10 grams of uranium will be discharged annually via air emission; however, no proof is provided to verify this representation, while Tables 4.12-1 and 4.12-2 in the Environmental Report provide occupancy factors and population data, they are not directly

correlated by calculation protocols, formulae, seasonal variations, or diffusion coefficients to arrive at the expected doses to the public listed in associated tables at the back of Section 4.12 of the Environmental Report. Further, Section 4.0 of the Safety and Analysis Report entitled "Radiation Protection" focuses exclusively on occupational safety. It provides no anticipated airborne concentrations to estimate occupational radiation doses, only a representation by the applicant to comply with NRC regulations and to utilize applicable NRC guidance.

Pursuant to 10 C.F.R. § 2.706(b)(2), I hereby affirm that the answers provided herein are, to the best of my knowledge, true and correct.

Stanley Fitch

Respectfully submitted,

NEW MEXICO ENVIRONMENT DEPARTMENT

Claybourne Clarke
Assistant General Counsel
Tannis L. Fox
Deputy General Counsel
Office of General Counsel
1190 St. Francis Drive
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-1031
Facsimile (505) 827-1628

Attorneys for NMED

Certificate of Service

I hereby certify that a copy of the foregoing pleading was served by mail and, as indicated by an asterisk (*), by electronic mail on this 20th 23rd day of September, 2004.

Administrative Judge*
Paul Bollwerk
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Mail Stop: T-3F23
Washington, D.C. 20555
Email: gpb@nrc.gov

Administrative Judge*
Charles Kelber
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Mail Stop: T-3F23
Washington, D.C. 20555
Email: cnk@nrc.gov

Administrative Judge*

Office of the Secretary*

Administrative Judge*
Paul Abramson
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Mail Stop: T-3F23
Washington, D.C. 20555
Email: pba@nrc.gov

Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Mail Stop: O-16C1
Washington, D.C. 20555

Patricia A. Madrid, Attorney General*
Glenn Smith, Deputy Attorney General
Stephen R. Farris, Assistant Attorney General
David Pato, Assistant Attorney General
Assistant Santa Fe, New Mexico 87504
Office of the Attorney General
P.O. Box 1508
Santa Fe, New Mexico 87504-1508
Facsimile: 505-827-4440
Email: gsmith@ago.state.nm.us
sfarris@ago.state.nm.us
dpato@ago.state.nm.us

Lisa B. Clark*
Angela B. Coggins
Office of General Counsel
U.S. Nuclear Regulatory Commission
Mail Stop: O 15-D21
Washington, D.C. 20555
Email: lbc@nrc.gov
Abc1@nrc.gov

Office of the Secretary*
Attn: Rulemakings and Adjudication Staff
U.S. Nuclear Regulatory Commission
Mail Stop: O-16C1
Washington, D.C. 20555
Email: hearingdocket@nrc.gov

Rod Krich, Vice President
Licensing, Safety and Nuclear Engineering
Louisiana Energy Services, L.P.
2600 Virginia Avenue, N.W., Suite 610
Washington, D.C. 20037

Lindsay A. Lovejoy, Jr.*
618 Paseo de Peralta, Unit B
Santa Fe, New Mexico 87501
Email: lindsay@lindsaylovejoy.com

James R. Curtiss*
Winston & Strawn
1400 L Street, N.W.
Washington, D.C. 20005
Email: jcurtiss@winston.com

Tannis L. Fox
Claybourne Clarke
Attorneys for New Mexico Environment Department

CURRICULUM VITAE

STANLEY A. FITCH
89 Kiva Loop, PO Box 913
Sandia Park, NM 87047
Phone: (505)281-4074
E-mail: abqfitch@swcp.com

Bachelor of Science – Radiation Protection
Thomas Edison State College

Associate of Arts
New Mexico State University

Certified by the NRRPT
(National Registry of Radiation Protection Technologists)

Delegate for certification by ABHP
(American Board of Health Physics)

PROFESSIONAL EXPERIENCE

New Mexico Environment Department, Radiation Control Bureau (1998–present)
Health Physicist
U.S. Nuclear Regulatory Commission Qualified Materials Safety Inspector
Statutory and Regulatory Development

Sandia National Laboratories, Radiation Protection Program (1993–1998)
DOE Certified Radiological Control Technician
Team Member – Facilities ES&H Program
Radiation safety and assessments for Facilities maintenance, construction, and custodial services.

Atlantic Richfield Company, Bluewater Uranium Mill (1988–1993)
Health Physics Technician, Lab and Data Supervisor
Extensive Title 2 Uranium Mill Tailings Remediation Action (UMTRA) uranium mill decommissioning and tailings remediation project.
Manager of databases, analytical lab, dosimetry, and bioassay programs.

Chem-Nuclear Systems, Inc., DOE UMTRA Project (1987–1988)
Lead Technician and HP Supervisor
Certified DOE Radiological Control Technician
Title 1 uranium mill decommissioning project.

PROFESSIONAL AFFILIATIONS

Organization of Agreement States, Inc. (OAS)
Chair (2003–present)
Chair-Elect (2002–2003)
Secretary (2001–2002)
Chairman, Incorporation Working Group (2001–2002)

Conference of Radiation Control Program Directors (1998–present)
Member, Part U Working Group for the development of national uranium mill regulations. (2001 to present)

Health Physics Society (HPS), member 1990–present

Rio Grande HPS Chapter, member 1990–present

Co-Chair, NRC's Materials Security Working Group (MSWG), May 2003 to June 2004
The MSWG is charged with devising appropriate measures for safeguarding radioactive materials from terrorist exploitation. The measures are written to be later issued by the Commission under orders. The MSWG is also charged with overseeing the development of guidances, inspection procedures, licensing procedures, and enforcement practices that will accompany the Commission's orders.

EDUCATION, TRAINING, AND CERTIFICATIONS

1. Degrees

The following lists degrees or degree programs I have completed or undertaken:

Year	Institution Name and Degree
1987	New Mexico State University Associates Degree in Government
2002	Thomas Edison State College Trenton, New Jersey Bachelor of Science in Radiation Protection Pursuant to this degree program, I completed credit for courses in nuclear physics, radiation biology, radiation biophysics, radiation dosimetry, radiation protection and control, radiation detection and measurements, applied health physics, and radioactive waste management. Pursuant to the radiation biophysics course, in June 1999 I completed a paper entitled, **"Proposed 1999 Amendment Of The 1990 Radiation Exposure Compensation Act"**. The paper explored the validity of expanding the coverage of the 1990 RECA. Extensive material was drawn from research in lung damage and cellular kinetics for uranium miners. Sources of information also included US Senator Jeff Bingaman of New Mexico, members of the New Mexico Uranium Workers Council, and officials of the Navajo Nation (native American tribe).

2. **Training Courses**

Following is a list with descriptions of training courses I have taken pursuant to my health physics employment:

Year	Course Name and Topic(s)
1988	**Department of Energy (DOE)** **Radiological Control Technician (160 hours)**

Pursuant to: Employment by Chem-Nuclear Systems, Inc. in accordance with DOE requirements. Certified as a DOE Radiological Control Technician (RCT).

Topics included: radiation fundamentals, radiation protection technology, interaction of charged particles and electromagnetic radiation with matter, surveying and monitoring equipment and operations, counting room equipment and operations, internal and external exposure hazards, dosimetry, external and internal dose estimation, detection, counting statistics, airborne sampling, mitigation of sources of radon and radon progeny, contamination control, respiratory protection, response to radiological incidents and emergencies. Additional focus on uranium decay series constituents found at Uranium Mill Tailings Remedial Action (UMTRA) Program sites.

1990	**Radiation Protection at Uranium Mills (40 hours)** **Paul Steinmeyer, Radiation Safety Associates, Inc.** **Hebron, Connecticut**

Pursuant to: Employment by Atlantic Richfield Company.

Topics included: exposure hazards, internal and external dose estimation, detection, protection, surveying and monitoring equipment and operations, and mitigation of uranium decay series constituents encountered at uranium mills.

1995	**DOE Radiological Control Technician (200 hours)** **Sandia National Laboratories**

Pursuant to: Employment by Sandia National Laboratories in accordance with DOE requirements. Re-certified as a DOE RCT.

Topics included: radiation specifics, in-depth radiation protection technology, interaction of charged particles with matter including living tissue, surveying and monitoring equipment and operations, radiological documentation, hazard communication systems, counting error and statistics, internal and external dosimetry for both particulate and photon radiations, contamination control, airborne sampling methods, respiratory protection, radiological source control, access control and work area setup, requisite personnel protective equipment for various radionuclides and

applications, radiological work coverage, radiological incidents and emergencies, personnel decontamination and chelation techniques, radiological considerations for first aid, radiation survey instrumentation for both particulate and photon radiations, contamination monitoring instrumentation, air sampling equipment, and counting room equipment. Primary focus on radiological constituents found at federal research and defense facilities.

1998 **Radiation Protection at Superfund Sites (24 hours)**
Halliburton Company
Santa Fe, New Mexico

Pursuant to: Employment by the New Mexico Environment Department.

Topics included: examination of various radiological constituents commonly found at Superfund sites, contamination control, airborne sampling methods, radiological source control, access control and work area setup, requisite personnel protective equipment, and basic radiological work coverage.

1998 **Gamma Irradiator Radiation Safety (8 hours)**
MDS Nordion, Inc., sponsored by Ethicon Endo-Surgery at their irradiator facility.
Albuquerque, New Mexico.

Pursuant to: Employment by the New Mexico Environment Department.

Topics included: Radiation safety requirements for megacurie Cobalt-60 irradiators. Focused on conduct of operations for extremely high dose rate gamma irradiators.

1998 **Advanced Transportation of Radioactive Materials (40 hours)**
United States Department of Energy
Albuquerque Training Center

Pursuant to: Employment by the New Mexico Environment Department in accordance with Nuclear Regulatory Commission (NRC) requirements.

Topics included: Highly entailed Department of Transportation and United Nations requirements for the shipment of radioactive materials.

1998 **Inspection Techniques for Radioactive Material Regulators (40 hours)**
ProTechnics Incorporated
Albuquerque, New Mexico

Pursuant to: Employment by the New Mexico Environment Department.

Topics included: Comprehensive methods for compliance inspection of radiography, megacurie irradiators, oil and gas well tracing and logging, portable and stationary gauges, radionuclide production, and transportation of radioactive materials.

1998 **NORM Radiation Safety Training for Oil & Gas Workers (8 hours)**
Mitchell Davis & Associates
Baton Rouge, Louisiana

Pursuant to: Employment by the New Mexico Environment Department.

Topics included: Radiological hazards posed by NORM (naturally occurring radioactive material) constituents in the oil and gas industry. Proper methods for handling, decontamination, and mitigation. Focus on alpha, beta, and gamma radiation hazards posed by NORM contaminants.

1999 **Diagnostic and Therapeutic Nuclear Medicine Course H-304 (40 hours)**
United States Nuclear Regulatory Commission
Houston, Texas

Pursuant to: Employment by the New Mexico Environment Department in accordance with NRC requirements.

Topics included: The science of nuclear medicine. Types of radionuclides used in diagnostic and therapeutic nuclear medicine, and the application for which their radiations (alpha, beta, positron, neutron, gamma, x-ray) are employed in the healing arts.

1999 **Safety Aspects of Industrial Radiography Course H-305 (40 hours)**
United States Nuclear Regulatory Commission
Niantic, Connecticut

Pursuant to: Employment by the New Mexico Environment Department in accordance with NRC requirements.

Topics included: The science of nondestructive testing of industrial components utilizing gamma radiation. Focus on conduct of operations pertaining to radiation safety and regulatory requirements.

1999 **Safety Aspects of Well Logging Course H-314 (40 hours)**

United States Nuclear Regulatory Commission
Houston, Texas

Pursuant to: Employment by the New Mexico Environment Department in accordance with NRC requirements.

Topics included: The science of well logging and tracer studies. The types of radionuclides used in well studies and how their radiations (alpha, beta, positron, neutron, proton, gamma, x-ray) are effected in underground materials analysis.

2000 **Inspection Procedures G-108 (40 hours)**
United States Nuclear Regulatory Commission
Chattanooga, Tennessee

Pursuant to: Employment by the New Mexico Environment Department in accordance with NRC requirements.

Topics included: Procedures for regulators to inspect radioactive material licensees. Focus on acceptable techniques for examining the processes of industrial, academic, medical, and power generation licensees.

2000 **Inspecting for Performance – Materials Version G-304 (40 hours)**
United States Nuclear Regulatory Commission
Orlando, Florida

Pursuant to: Employment by the New Mexico Environment Department in accordance with NRC requirements.

Topics included: Procedures for regulators to inspect radioactive material licensees. Focus on techniques for inspecting performance-based compliance programs.

3. Certifications

The following is a list of certifications completed pursuant to health physics employment:

Year	Certification Name
1988	Department of Energy Radiological Control Technician, UMTRA
1995	Department of Energy Radiological Control Technician, Sandia National Laboratories
1995	National Registry of Radiation Protection Technologists (NRRPT)

2003	Passed ABHP Certification Exam Part One (American Board of Health Physics)
2004	Completed ABHP Certification Exam Part Two (exam results due November 2004)

PROFESSIONAL SUMMARY

This section discusses my professional history as it pertains to health physics employment and professional societies. The following details duties I performed for my employers and highlights my health physics experience. The following topics are discussed:

A. Title 1 and Title 2 UMTRA Projects
B. Sandia National Laboratories
C. New Mexico Radiation Control Bureau

I have been employed in the health physics profession for 17+ years. I started in health physics as a technician on Title 1 and Title 2 uranium mill tailings reclamation projects (UMTRA) performing occupational and environmental health physics on both Department of Energy (DOE) and commercial sites. Next I was employed by the Sandia National Laboratories (a DOE laboratory) performing operational health physics in defense and energy research applications. Currently I am a health physicist for the New Mexico Radiation Control Bureau serving as a regulator over users of radioactive materials and radiation machines.

A. TITLE 1 AND TITLE 2 UMTRA PROJECTS

1. Health Physics Supervisor and Lead Technician

Chem-Nuclear Systems, Inc.
Ambrosia Lake Uranium Mill
DOE UMTRA Site

My health physics career started as a health physics technician on this DOE UMTRA site employed by Chem-Nuclear Systems, Inc. in 1987 and 1988. It was here that I received my first health physics training and was certified as a DOE Radiological Control Technician (RCT). I was promoted to the position of Supervisor during the decommissioning stage of the project. Under the Health Physics Manager, I coordinated health physics support for field and laboratory work on this project. My tasks also included:

- Management of the health physics database. Responsible for data quality and integrity.
- Dosimetry and bioassay program implementation.
- Internal and external dose calculations.
- Soil and waste characterizations and correlations.
- Soils verification surveys and control.

- Assisted the site Industrial Hygienist in implementation of the respiratory protection program.
- QA/QC of lab and field activities.
- Air and radon sampling.
- Instrument inventory control.
- Materials release surveys.

2. **Lead Health Physics Technician**
Atlantic Richfield Company
ARCO Bluewater Mill
Grants, New Mexico

From 1988 through 1993 I was a lead health physics technician for the Atlantic Richfield Company (ARCO) on an extensive Title 2 uranium mill restoration project involving hundreds of construction personnel. I also served as technical consultant and assistant to the radiation safety officer (RSO). Additional training provided by ARCO included a 40-hour course taught by Paul Steinmeyer, Radiation Safety Associates, Inc. entitled "Radiation Protection at Uranium Mills" that focused on the hazards and mitigation of radiological constituents at uranium mills.

In addition to acting as assistant to the RSO, my tasks at ARCO included:

- Health physics surveillance.
- Management of the health physics databases, analytical lab, dosimetry and bioassay programs, and historical reconstructions.
- Devised protocols and an extensive database for tracking and reporting internal and external occupational radiation dosimetry. This project incorporated the approach referenced in ICRP 26 and ICRP 30, and as implemented in 10CFR§20.
- Technical procedure writer responsible for developing environmental and occupational health physics procedures.
- Primary staff member responsible for field and laboratory characterization of soil and wastes, and correlation of radiometric data to action limits to verify restoration criteria.
- Devised and implemented a database for mapping and tracking field measurements and sample data for environmental restoration.
- Radiation detection instrument maintenance and calibration.
- Radioactive materials shipping and receiving in compliance with Department of Transportation regulations.
- Radioactive waste characterization and disposal, including identification of mixed waste due to RCRA hazardous constituents.
- Successfully devised soil verification protocols for tracking, mapping, and analysis of uranium mill tailings remediation.
- Developed protocols for statistical analysis of environmental radioactivity.

B. SANDIA NATIONAL LABORATORIES

1993-1998 **Facilities Radiation Protection Coordinator**
Radiological Control Technician

Sandia National Laboratories.
Albuquerque, NM

My principal duty at Sandia Labs was to provide the primary radiation protection support and consultation for the Facilities maintenance, construction, and custodial departments. My coverage involved 1,000+ personnel. The associated tasks included:

- Radiation protection research and response on Facilities programs.
- Characterization and assessment of, and protection from radiological hazards at defense and research facilities involving the use of radionuclides with atomic numbers ranging from 1 to 102, and particle accelerators involving the use of high energy protons, electrons, and other heavy particulate.
- Developed and wrote the radiological procedure for the SNL Building Modification and Hazards Assessment program. This procedure is still in use as the primary method for determining radiological hazards affecting SNL Facilities workers. The procedure is used for Facilities projects as the primary method to communicate radiological hazards, and primary methods to control and mitigate those hazards.
- Radiation safety training for Facilities workers.
- Review and implementation of health and safety plans (HASP).
- Guidance on implementation of applicable Federal regulations (10CFR§835 and DOE Orders 5480.11 and 5400.5).
- Technical procedure writer.

C. LICENSING AND REGULATION OF RADIOACTIVE MATERIALS AND RADIATION

1998 to Present **Health Physicist**
Radiation Control Bureau
New Mexico Environment Department
Santa Fe, NM

My duty for New Mexico Environment Department is to provide regulatory oversight of the radiological activities of our licensees and registrants. The Bureau controls radioactive materials under the NRC Agreement State program. In addition, the Bureau controls the use of most radiation machines (accelerators and x-ray machines) under the statutory authority of the Environment Department. I am tasked with assuring that the radiation protection programs of our licensees and registrants are in compliance with the New Mexico Radiation Protection Regulations, applicable Federal regulations, and in accordance with proper health physics practices. This involves the oversight of the uses of radioactive material and radiation in industry, the healing arts, research, radionuclide production, waste, and transportation. Tasks include:

- Inspections and enforcement of over 1,800 licensees and registrants possessing radioactive material and radiation generating devices throughout the State.
- Review of applications for licensing and registration of radioactive material licenses and radiation generating machines.

- Interface with State attorneys and members of the New Mexico Radiation Technical Advisory Committee (RTAC) regarding regulatory issues affecting the uses of radioactive materials and radiation.
- Advise and consult licensees and registrants on technical radiation issues.
- Development and implementation of the technical qualifications criteria for registering people who provide radiological and radiation protection services in the State of New Mexico.
- Review, and amend as necessary the New Mexico Radiation Protection Regulations to maintain the effectiveness and applicability.
- Review, and amend as necessary the New Mexico Radiation Protection Regulations to maintain compatibility with the regulations of the NRC.
- Assist State and Federal agencies in determining necessary levels of response to emergencies involving radioactive material and radiation.
- Terrorist response interface with NRC, DOE, FBI, New Mexico Department of Public Safety, and the National Guard.
- Respond to queries of the citizens of New Mexico to provide information and guidance on acceptable uses of radioactive materials and radiation.

EXPERT TESTIMONY (1994-2004)

Depositions made at hearings before the New Mexico Environmental Improvement Board (EIB) in April 2002 and August 2004, to testify on behalf of amendments then proposed to the New Mexico Radiation Protection Regulations (20.3 NMAC). The testimony focused on the reasons for, and the criteria used in the development of, the amendments.