

RELATED CORRESPONDENCE

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**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

| | | |
|---------------------------------|---|---------------------------|
| In the Matter of |) | |
| |) | |
| PRIVATE FUEL STORAGE L.L.C. |) | Docket No. 72-22 |
| |) | |
| (Private Fuel Storage Facility) |) | ASLBP No. 97-732-02-ISFSI |

**APPLICANT'S SEVENTH SUPPLEMENTAL RESPONSE TO
STATE'S FIRST REQUESTS FOR DISCOVERY**

Applicant Private Fuel Storage L.L.C. ("Applicant" or "PFS") files this Seventh Supplemental Response to "State of Utah's First Set of Discovery Requests Directed to the Applicant," dated April 9, 1999 ("State's First Discovery Requests"). The Applicant files this Supplemental Response pursuant to 10 C.F.R. § 2.740(e), to name additional witnesses it may call at hearing. The Applicant's original response to the State's First Discovery Requests noted that it would file such supplemental responses as it identified additional witnesses.¹

I. GENERAL DISCOVERY REQUESTS

A. GENERAL INTERROGATORIES

GENERAL INTERROGATORY NO. 3. For each admitted Utah contention, give the name, address, profession, employer, area of professional expertise, and educational and scientific experience of each person whom PFS expects to call as a witness at the hearing. For purposes of answering this interrogatory, the educational and scientific experience of expected witnesses may be provided by a resume of the person attached to the response.

¹ Applicant's Objections and Non-Proprietary Responses to State's First Requests for Discovery, dated April 21, 1999, at 17.

APPLICANT'S RESPONSE: The Applicant supplements its response to the State's First Discovery Requests by identifying the following additional persons whom the Applicant expects to call as witnesses at the hearing with respect to the State's admitted contentions. The Applicant is still in the process of identifying witnesses that it expects to call at the hearings and will supplement this response in accordance with 10 C.F.R. § 2.740(e).

Utah Contention V – Inadequate Consideration of Transportation- Related Radiological Environmental Impacts

| | |
|---|---|
| <u>Name and Address:</u> | Robert H. Jones Hazardous Materials Systems Los Gatos, CA 95031-1510 |
| <u>Profession:</u> | Mechanical Engineer |
| <u>Employer:</u> | Hazardous Materials Systems |
| <u>Professional Expertise:</u> | See attached resume. |
| <u>Educational, Scientific Experience, and Professional Qualifications:</u> | See attached resume. |
| <u>Publications in the last ten years:</u> | See attached resume. |
| <u>Testifying experience as expert in last four years:</u> | See attached resume. |
| <u>Subject Matter of Testimony:</u> | Mr. Jones will testify regarding the radiological impact of the transportation of spent fuel, as raised by the State in Utah V. |

Documents reviewed and/or relied upon:

Materials reviewed and relied upon by Mr. Jones will include the PFS License Application, including the Safety Analysis Report (“SAR”) and the Environmental Report (“ER”), responses to Requests for Additional Information, the Draft Environmental Impact Statement (“DEIS”) and NRC regulatory materials associated with the potential radiological impacts of transporting spent nuclear fuel. In addition, Mr. Jones may rely upon materials both produced by PFS and by the State and any new information that comes into the possession of PFS.

Utah W – Other Impacts Not Considered

Name and Address:

Dr. George H.C. Liang
Stone & Webster Engineering Corp.
100 Technology Center Drive
Stoughton, Massachusetts 02072-4705

Profession:

Environmental Engineer

Employer:

Stone & Webster Engineering Corp.

Professional Expertise:

See resume attached to Applicant’s Sixth Supplemental Response to State’s First Discovery Requests, February 16, 2001 (“Applicant’s Sixth Supplemental Response”).

Educational, Scientific Experience, and Professional Qualifications:

See resume attached to Applicant’s Sixth Supplemental Response

Publications in the last ten years:

See resume attached to Applicant’s Sixth Supplemental Response

Testifying experience as expert in last four years:

None.

Subject matter of testimony:

Dr. Liang will testify concerning the potential for flooding of the Intermodal Transfer Point and the consideration of possible adverse environmental impacts of such flooding, as raised by the State in Utah W.

Documents reviewed and/or relied upon:

The documents reviewed and relied upon by Dr. Liang will include the PFS License Application, including the Safety Analysis Report (“SAR”) and Environmental Report (“ER”), responses to

Requests for Additional Information, and the Draft Environmental Impact Statement (“DEIS”). In addition, Dr. Liang may rely upon materials both produced by PFS and by the State and any new information that comes into the possession of PFS.

Name and Address: Donald Wayne Lewis
Stone & Webster Engineering Corp.
7677 Berry Avenue
Denver, Colorado 80111-2137

Profession: Mechanical Engineer

Employer: Stone & Webster Engineering Corp.

Professional Expertise: See resume attached to Applicant’s Sixth Supplemental Response

Educational, Scientific Experience, and Professional Qualifications: See resume attached to Applicant’s Sixth Supplemental Response

Publications in the last ten years: See resume attached to Applicant’s Sixth Supplemental Response

Testifying experience as expert in last four years: June 2000 testimony on Utah R in PFS hearing

Subject Matter of Testimony: Mr. Lewis will testify concerning the design and location of the ITP and the consideration of possible adverse environmental impacts of flooding at the ITP, as raised by the State in Utah W.

Documents reviewed and/or relied upon: Materials reviewed and relied upon by Mr. Lewis will include the PFS License Application, including the SAR and the ER, responses to Requests for Additional Information and the DEIS. In addition, Mr. Lewis may rely upon materials both produced by PFS and by the State and any new information that comes into the possession of PFS.

Utah Z – No Action Alternative

Name and Address: Scott Northard
Xcel Energy, Inc.
414 Nicollet Mall, Ren Sq 8
Minneapolis, MN 55401

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|---|---|
| <u>Profession:</u> | Director, Nuclear Asset Management |
| <u>Employer:</u> | Xcel Energy, Inc. |
| <u>Professional Expertise:</u> | Nuclear Engineer |
| <u>Educational, Scientific Experience, and Professional Qualifications:</u> | See resume attached to Applicant's Sixth Supplemental Response |
| <u>Publications in the last ten years:</u> | See resume attached to Applicant's Sixth Supplemental Response |
| <u>Testifying experience as expert in last four years:</u> | See resume attached to Applicant's Sixth Supplemental Response |
| <u>Subject matter of testimony:</u> | Mr. Northard will testify concerning the consideration and discussion of the no action alternative as raised by the State in Utah Z. |
| <u>Documents reviewed and/or relied upon:</u> | Materials reviewed and relied upon by Mr. Northard will include the PFS License Application, including the SAR and ER, responses to Requests for Additional Information, and the DEIS. In addition, Mr. Northard may rely upon materials both produced by PFS and by the State and any new information that comes into the possession of PFS. |

Utah DD – Ecology and Species

| | |
|---|--|
| <u>Name and Address:</u> | Dr. Clyde L. Pritchett Department of Zoology Brigham Young University Provo, UT 84602 |
| <u>Profession:</u> | Emeritus Professor of Zoology |
| <u>Employer:</u> | Brigham Young University |
| <u>Professional Expertise:</u> | See attached resume. |
| <u>Educational, Scientific Experience, and Professional Qualifications:</u> | See attached resume. |
| <u>Publications in the last ten years:</u> | See attached resume. |
| <u>Testifying experience as expert in last four years:</u> | See attached resume. |

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|---|---|
| <u>Subject matter of testimony:</u> | Dr. Pritchett will testify concerning potential environmental impacts of the PFSF on Skull Valley Pocket Gophers, as raised by the State in Utah DD. |
| <u>Documents reviewed and/or relied upon:</u> | Materials reviewed and relied upon by Dr. Pritchett will include the PFS License Application, including the ER, responses to Requests for Additional Information, and the DEIS. In addition, Dr. Pritchett may rely upon materials both produced by PFS and by the State and any new information that comes into the possession of PFS. |
| <u>Name and Address:</u> | Robert J. Hoffman Veterans Affairs Medical Center Salt Lake City, UT 84148-0002 |
| <u>Profession:</u> | Health Physicist |
| <u>Employer:</u> | Veterans Affairs Medical Center |
| <u>Professional Expertise:</u> | See attached resume. |
| <u>Educational, Scientific Experience, and Professional Qualifications:</u> | See attached resume. |
| <u>Publications in the last ten years:</u> | See attached resume. |
| <u>Testifying experience as expert in last four years:</u> | See attached resume |
| <u>Subject matter of testimony:</u> | Mr. Hoffman will testify concerning potential environmental impacts of the PFSF on private domestic animal (livestock) and domestic plant (produce) species in the area and the lack of impact of radiation on the food chain, as raised by the State in Utah DD. |
| <u>Documents reviewed and/or relied upon:</u> | Materials reviewed and relied upon by Mr. Hoffman will include the PFS License Application, including the ER, and responses to Requests for Additional Information, and the DEIS. In addition, Mr. Hoffman may rely upon materials both produced by PFS and the State and any new information that comes into the possession of PFS. |

GENERAL INTERROGATORY NO. 4. For each admitted Utah contention, identify the qualifications of each expert witness whom PFS expects to call at the hearing, including but not limited to a list of all publications authored by the witness within the preceding ten years and a listing of any other cases in which the witness has testified as an expert at a trial, hearing or by deposition within the preceding four years.

APPLICANT'S RESPONSE: See Response to General Interrogatory 3 above.

The Applicant is still in the process of identifying expert witnesses that it expects to call at the hearings and will supplement this response in accordance with 10 C.F.R.

§ 2.740(e).

GENERAL INTERROGATORY NO. 5. For each admitted Utah contention, describe 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 the documents (including all pertinent pages or parts thereof), data or other information which each witness has reviewed and considered, or is expected to consider or to rely on for his or her testimony.

APPLICANT'S RESPONSE. See Applicant's Response to General Interrogatory No. 3 above. Pursuant to previous discussion and agreement with counsel for the State of Utah, Applicant will identify and/or provide copies of documents relied upon, or expected to be relied upon, by Applicant's experts.

Respectfully submitted,



Jay E. Silberg
Ernest L. Blake, Jr.
Paul A. Gaukler
D. Sean Barnett
SHAW PITTMAN
2300 N Street, N.W.
Washington, DC 20037
(202) 663-8000

Dated: April 3, 2001

Counsel for Private Fuel Storage L.L.C.

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| (Private Fuel Storage Facility) |) | ASLBP No. 97-732-02-ISFSI |

CERTIFICATE OF SERVICE

I hereby certify that copies of Applicant's Seventh Supplemental Response to State's First Requests for Discovery, the attached resumes and declaration of Paul Gaukler were served on the persons listed below (unless otherwise noted) by e-mail with conforming copies by U.S. mail, first class, postage prepaid, this 3rd day of April 2001.

G. Paul Bollwerk III, Esq., Chairman
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
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Dr. Jerry R. Kline
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Dr. Peter S. Lam
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Washington, D.C. 20555-0001
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* Susan F. Shankman
Deputy Director, Licensing & Inspection
Directorate, Spent Fuel Project Office
Office of Nuclear Material Safety &
Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attention: Rulemakings and Adjudications
Staff
e-mail: hearingdocket@nrc.gov
(Original and two copies)

* Adjudicatory File
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

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Washington, D.C. 20555
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1385 Yale Avenue
Salt Lake City, Utah 84105
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Land and Water Fund of the Rockies
2260 Baseline Road, Suite 200
Boulder, CO 80302

* By U.S. mail only

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Assistant Attorney General
Utah Attorney General's Office
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1473 South 1100 East, Suite F
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Danny Quintana, Esq.
Skull Valley Band of Goshute Indians
Danny Quintana & Associates, P.C.
68 South Main Street, Suite 600
Salt Lake City, Utah 84101
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Margene Bullcreek
Ohngo Gaudadeh Devia
P.O. Box 155
Tooele, UT 84074


Paul A. Gaukler

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DECLARATION OF PAUL A. GAUKLER

Paul A. Gaukler states as follows under penalties of perjury:

1. I am with Shaw Pittman in Washington, D.C.
2. I am duly authorized to verify Applicant's Seventh Supplemental Response to State's First Requests for Discovery; specifically, the supplemental response to General Interrogatory Nos. 3-5.
3. I certify that the statements in such responses are true and correct to the best of my personal knowledge and belief.
4. I declare under penalty and perjure that the foregoing is true and correct.

Executed on April 3, 2001.


Paul A. Gaukler

Resume of
Robert H. Jones

ROBERT H. JONES

PROFESSIONAL BIOGRAPHICAL DATA

DATE AND PLACE OF BIRTH: July 7, 1939 Los Angeles, CA

CITIZENSHIP: United States of America

MILITARY SERVICE: United States Marine Corps Reserve
1962 - 1968

EDUCATION: B.S. Mechanical Engineering, 1966
San Jose State University
San Jose, CA

MBA, 1969
Santa Clara University
Santa Clara, CA

PROFESSIONAL CREDENTIALS:

Registered Professional Engineer - Mechanical
State of California, Reg. No. 14846

Registered Professional Engineer - Nuclear
State of California, Reg. No. 0876

State of California Standard Teaching Credential
with a Junior College specialization

SUPPLEMENTARY EDUCATION:

Alpha-Emitting Nuclides Course

GE - Vallecitos Engineering Program

THTD Users Course

GE Professional Business Management Course

Transactional Analysis for Interpersonal Effectiveness

Management Practices Course

Kepner-Tregoe Decision Analysis Course

INDUSTRIAL AND TECHNICAL ORGANIZATIONS:

Member, American Nuclear Society

Member, American Society of Mechanical Engineers

Member, Eagle Alliance

HONORS, AWARDS, AND PATENTS:

Co-Inventor: Radioactive Material Shipping Cask
Patent Application No. 850181, 1969

Co-Inventor: Nuclear Fuel Bundle Packaging Apparatus
Patent No. 5,615,240 March 25, 1997

General Electric/NEBG Candidate for 1969-70 White House Fellows Program

General Electric/NEBG Nominee for the 1978 Gerald L. Phillippe Awards for Distinguished Public Service

General Electric Elfun Society - Outstanding Member for 1978

STANDARDS/INDUSTRIAL COMMITTEES:

ANSI N14.8 Fabrication and Testing of Spent Fuel Shipping Casks

ANSI N14.9 Packaging of Radioactive Wastes for Transportation

ANSI N14.12 Evaluation of Type B Containers

ANSI N552/N14.24 Water Transportation of Radioactive Materials

ASME/NUPACK Main Committee on Cask Containment Design and Construction Rules

TECHNICAL PAPERS AND RELATED ACTIVITIES:

Author, APIO-1073, Summary of the GETR 50 MW Power Ascension Program, September, 1967.

Author, A Uranium Shielded Shipping Cask with Specific Neutron Shielding, ANS Winter Meeting, 1969.

Author, IF300 Cask Design Development, 3rd International Symposium on the Packaging and Transportation of Radioactive Materials, Richland, WA, 1971.

Closing remarks at the Heat Transfer Session on Shipping Casks, ASME Winter Meeting, Washington, D.C., 1971.

Author, NRC Requirements for In-Plant Cask Drop Protection, 4th Materials, International Symposium on the Packaging and Transportation of Radioactive Miami Beach, FL., 1974.

Co-author, Some Unique Fabrication Techniques Employed on the General Electric IF300 Shipping Cask, Ibid.

Co-author, 1984 Fact or Fiction? The Transportation Requirements of the Nuclear Reprocessing Industry, Ibid.

Contributing Author, EPRI-310, Denatured Plutonium; A Study of Deterrent Action, July 1975.

Author, Transportation Q&A Section, General Electric Co., Nuclear Power Reference Document, 1976.

Author, NEDO-10084-1 and -2. IF300 Shipping Cask Design and Analysis Report, 1973 and 1979.

Author, NEDO-21796, BWR Basket Internal Shielding SAR, December 1977.

Co-Chairman, Session on Transportation Forecasting and Logistics, 5th International Symposium on Packaging and Transportation of Radioactive Materials, Las Vegas, NV, 1978.

Advisor, AIF/NESP-014, A Generic Assessment of Barge Transportation of Spent Nuclear Fuel, September 1978.

Developer and Chairman, Session on Application of ASME Code to Radioactive Material Containers, ASME 3rd National Congress on Pressure Vessel and Piping Technology, 1979.

Contributing Author, NEDG-24715, Report on Certain Aspects of the Transportation of Tarapur Spent Fuel from India to the United States, August 1979.

Co-author, NEDE-24821, Thermal Evaluation of the General Electric Model 600 Shipping Package Under Regulatory Conditions, 1980.

Co-author, AGNS-35900-1.4-115, Transportation of Radioactive Material by Water, November 1980.

Co-author, Design Rules for Containment Systems for Nuclear Spent Fuel and High Level Waste Transport Packagings, 6th International Symposium on Packaging and Transportation of Radioactive Materials, Berlin (West), Germany, 1980.

Author, NEDE-24913, Thermal Evaluation of the General Electric Model 100 Shipping Package Under Regulatory Conditions, January 1981.

Co-author, NEDO-24899, GE Model 1500 Shipping Package Heat Test for Thermal Benchmarking, April 1981.

Contributing Author, AGNS-35900-1.4-161, Nuclear Transportation Studies Related to the Use of the Barnwell Nuclear Fuel Plant, Appendix B, November 1981.

Author, NEDE-24914, Thermal Evaluation of the General Electric Model 1500 Shipping Package Under Regulatory Conditions, December 1981.

Co-author, PNL-SA-9872, Transportation Packaging for Processed Transuranic Waste, December 1981. Presented at the 2nd Joint ASME/ANS Nuclear Engineering Conference, Portland, OR, July 25-28, 1982.

Contributing Author, EPRI NP-3365, Review of Proposed Dry Storage Concepts Using Probabilistic Risk Assessment, February 1984.

Contributing Author, SAND85-2072, TTC-0424, A Description of the Reference Transportation System for the Subseabed Disposal of High Level Waste (HLW), October 1985.

Co-author, CWS-001, Private Industry Participation in the Transportation of Spent Fuel and High Level Waste Under the Nuclear Waste Policy Act of 1982, September 1985.

Co-author, ANL/ER-TM-85-2, Preliminary Assessment of Costs and Risks of Transporting Spent Fuel by Barge, December 1985.

Co-author, IAEA-SM-286/59, A Standard for Barge Transport of Type-B Quantities of Radioactive Material, PATRAM '86, June 16-20, 1986, Davos, Switzerland.

Contributing Author, SAND83-0698, TTC-0430, Beneficial Uses Shipping System - Safety Analysis Report for Packaging, Sandia National Laboratories.

Co-author, SAND87-0151, TTC-0713, Feasibility and Incentives for the Consideration of Spent Fuel Operating Histories in the Criticality Analysis of Spent Fuel Shipping Casks, August 1987.

Co-author, ORNL/TM-10811, Transportation Operations Functions of the Federal Waste Management System, Oak Ridge National Laboratory, June 1988.

Author, A Survey of Previous and Current Industry-wide Efforts Regarding Burnup Credit, ANS Tutorial Session, Burnup Credit Issues in Spent Fuel Transportation, Washington, DC, November 2, 1988.

Co-author, ORNL/TM-11232, Transportation Functions of the Federal Waste Management Systems, Oak Ridge National Laboratory, June 1989.

Co-author, EPRI NP-6425, Design Considerations for On-Site Spent Fuel Transfer Systems, June 1989.

Co-author, Design Considerations for an On-Site Spent Fuel Transfer System, PATRAM '89, Washington, DC, June 1989.

Co-author, Transportation Operations Experience Involving Suspected Leaking Cesium Capsules, PATRAM '89, Washington, DC, June 1989.

Co-author, Technical Issues Affecting the Transport of Dual Purpose Casks, PATRAM '89, Washington, DC, June 1989.

Co-author, Final Report on MRS-to-Repository Transportation System Design Characterization and Capacity Study, Roy F. Weston, December 1989.

Co-author, GE-NE-189-34-0691, In-transit Shock and Vibration Measurement and Analysis of the IF-300 Spent Fuel Shipping Cask, General Electric Company, June 14, 1991.

Co-author, OCRWM CSDP - Independent Management Review Group - First Report, Washington, DC, August 24, 1993.

Co-author, Barge and Rail Transport of Slightly Irradiated Fuel in the United States, Presented at the 34th CNA/15th CNS Conference, June 5-8, 1994, Montreal, Canada.

Author, Shoreham Nuclear Fuel Shipping Campaign Lessons Learned Report, Part I, TRW Environmental Safety Systems, Inc., August 1994.

Co-author, The Shoreham to Limerick Fuel Transfer Project, RadWaste Magazine, pgs. 19-26, October 1994.

Author, Shoreham Nuclear Fuel Shipping Campaign Lessons Learned Report, Part II, TRW Environmental Safety Systems, Inc., December 1994.

Author/Speaker, Lessons Learned From the Shoreham Fuel Shipping Experience, 6th Annual International High Level Radioactive Waste Management Conference, May 1995, Las Vegas, NV

Author, EPRI TR-108237, The Technical Basis for the Classification of Failed Fuel in the Back-End of the Fuel Cycle, Electric Power Research Institute, July 1997.

Speaker/Panelist, Nuclear Waste Technical Review Board, November 19 - 20, 1997, Arlington, VA

WORK EXPERIENCE:

1961 - 1963

Lenkurt Electric Company
1105 Old County Rd.
San Carlos, CA

Materials planner for electronic components in the Military Products Department.

Production control dispatcher in final assembly area of Military Products Department.

Production scheduler for several departments producing commercial microwave components.

1966 - 1969

General Electric Company
Vallecitos Nuclear Center
P.O. Box 846
Pleasanton, CA 94566

Manufacturing Engineer:

Developed work-flow plans for machine shop and experiment assembly area.

Nuclear Safety Engineer:

Responsible for the development of analytical models for use in experiment and business hazards evaluation.

Design Engineer:

Task Leader - Coordinated the efforts of three engineers working on the design of sodium-cooled breeder reactor fuel experiments. Responsible for project schedule, cost, and performance.

Experiment Designer - Performed structural, mechanical, and thermohydraulic design on a wide variety of advanced nuclear fuel experiments. This work included supervision of the experiment fabrication as well as the establishment and conduction of in-reactor test and operating procedures.

1969 - 1979

General Electric Company
Nuclear Energy Division
175 Curtner Ave.
San Jose, CA 95125

Product Service and Transportation Engineer:

Conceived, developed, and evaluated new and improved equipment concepts for both light water and breeder reactor fuel shipping.

Provided guidance to vendors and others during detail design and fabrication of equipment. This included QA plan development and vendor auditing.

Worked with reactor plant designers in arriving at site facilities necessary to accommodate fuel shipping equipment.

1969 - 1970

Responsible for the successful execution of spent fuel shipments to the GE Midwest Spent Fuel Storage Facility (MO). This included the preparation of operating procedures, personnel training, and work supervision.

1970 - 1973

Prime contributor to the design, analysis, NRC licensing, pre-fabrication planning, and post-fabrication testing of the initial two IF300 shipping packages. This project was valued in excess of two million dollars.

1973 - 1974

Senior Engineer - Product Service and Transportation:

Supervised the work of other engineers engaged in MO support activities, primarily in the area of radioactive materials handling and transportation.

Provided technical and regulatory support of IF300 cask fabrication and use.

Responsible for budgeting and planning activities associated with the Company's continuing participation in the fuel storage business.

Provided continuing consulting services to the nuclear industry on all aspects of cask design, handling and transportation.

1974 - October 1979

Manager - Transportation Systems:

Supervised and assisted two or more engineers or specialists to accomplish the following objectives:

- o Develop and implement plans for Spent Fuel Services Operation (SFSO) for transportation systems. Interface with MO, marketing, and utility customers to obtain data for planning.
- o Plan and schedule intermediate-range fuel shipping/storage campaigns. Support marketing in resolving contractual, scheduling, and operational problems. Work with customers, other cask owner-operators, and carriers to assure the most efficient use of transportation-related resources.
- o Recommend for Department General Manager approval: transportation strategies, business proposals relating to transportation, contractual conditions, and improvement or expansion of the existing business.
- o Perform analyses of transportation systems to determine the quantity and mix of casks required to support the shipping/storage business; initiate action (build, buy, or lease) to acquire said equipment.
- o Conceive and design transportation systems in accordance with business needs and in conformance with NRC regulations, NRC guides, and industry standards. Analyze and evaluate designs by state-of-the-art or advanced techniques to assure safety of the systems and optimization of economics related to fabrication and use. Specify requirements to SFSO Projects, and support Projects during fabrication.

o Document system design and safety analysis, and use documentation to obtain appropriate licenses, certificates, and permits from regulatory agencies. Make decisions during negotiations for these permissions so as to optimize timeliness and cost of system implementation. Provide regulatory services to lessees of systems and customers, as requested.

o Represent the Section on industry committees, task forces, etc., related to the packaging and transportation of radioactive material.

o Represent the Section in negotiations with carriers. In particular, strive for complete acceptance of SFSO transportation systems and commodities as normal, low risk, shipments requiring no special handling.

o Provide consultation on fuel cask applications, design, and operations to functions within GE as well as to outside organizations.

o Perform continuing studies on improving operability of existing equipment through design modifications or changes in procedures.

Specific Consulting as a GE Employee:

o 8/76 - Customer: Sandia National Laboratories

Participated in a formal design review of the Aerojet-designed shipping cask for FFTF/CRBR spent fuel.

o 8/78 - Customer: Portland General Electric

Preparation and presentation of testimony on spent fuel transportation before the Oregon Energy Facility Siting Council re: Pebble Springs Nuclear Plant (proposed).

o 9/78 - Customer: DOE/DuPont

Conceptual study and report on the modification of the GE IF300 cask for the transportation of FFTF/CRBR spent fuel assemblies.

o 6/79 - Customer: Duke Power Company

Preparation and presentation of testimony on spent fuel transportation before the ASLB in the matter of fuel transfers between Oconee and McGuire stations.

o 1977/1979 - Customer: Carolina Power & Light Co.

Provided consultation services in the areas of cask engineering and licensing as part of the GE IF300 cask sale to CP&L.

October 1979 to Present

Robert H. Jones, P.E.
Consultant
Hazardous Material Systems
P.O. Box 1510
Los Gatos, CA 95031-1510

Consultant:

Application of accumulated work experience to the design, analysis, fabrication, licensing, and utilization of hazardous material packages and related systems, with an emphasis on radio- active commodities. Included are economic, logistical, and safety studies and assessments.

Partial list of clients and activities:

- o General Electric Company - Spent fuel cask SARP and QA consulting. Heat transfer work related to certification of spent fuel, waste, and radioisotope casks.
- o Battelle/PNL - Contributor to DOE program on solidification, packaging, transportation, and disposal of processed TRU and HL defense wastes. ASME NuPack Committee work sponsorship.
- o Teledyne Energy Systems - Reviewer and commentor on DOE/TTC sponsored industry survey on cask fabrication capability.
- o Transnuclear, Inc. - General consulting on packaging and regulatory matters.
- o Sandia/TTC - Contributor to water carrier workshop, work- shop on spent fuel accident scenarios, and other packaging and transportation matters.
- o SRI International - Reviewer and commentor on DOE sponsored study of nuclear materials shipping statistics.
- o General Atomic Co. - Performed study of the use of LWR spent fuel shipping casks for the movement of HL Defense Wastes.
- o Allied General Nuclear Services - Performed study of the logistics and economics of shipping spent fuel by barge. Contributed to ANSI N552 Standard on water transportation of spent fuel.
- o Alpha Omega Services - Assisted in the renewal of the Certificate of Compliance for the Model 5979 cask.
- o Ridihalgh, Eggers & Associates - Contributor to the NRC sponsored study of extra-severe accidents, and the subsequent definition of bounding physical tests for Type B and fissile packages.
- o Applied Science & Technology - Shielded waste package licensing and thermal evaluation. Regulatory strategy and interpretation.
- o FMC Corporation - Seminar on shielded package design and regulations.
- o General Atomic Company - Member of the Transuranic Package Transporter (TRUPACT) design team.

- o S. Levy, Inc. - Operational analysis of dry storage systems in support of an EPRI sponsored risk assessment.
- o Brookhaven National Laboratory - Co-authored an assessment of the Brookhaven Waste Shipment Overpack's ability to be recertified under current Federal regulations.
- o Quadrex Corporation - Technical support and field survey of reactor waste packaging and transportation activities for Taiwan Power Company's Chin Shan Units 1 and 2.
- o General Atomic Company - Transportation logistics support of DOE sponsored Test and Evaluation Facility (TEF) project.
- o Carolina Power & Light - Assessment of the IF300 Spent Fuel Shipping Cask for the movement of consolidated PWR assemblies.
- o S. Levy, Inc. - Support for EPRI employee participation in the ASME NUPACK Design Task Group. Design rule editing and distribution.
- o Kaiser Engineers, Inc. - Provided consulting services on transportation and storage casks for the BWIPP Project.
- o C.W.Smith/DOE - Participant in study of industry participation in the implementation of the NWPA.
- o Pacific Nuclear - Consulting on IF300 cask technical and regulatory issues.
- o Carolina Power & Light - Review of proposal to DOE for a licensed at-reactor, dry storage demonstration program.
- o Sandia/TTC - Support for the efforts of the ANSI N14.24 committee on water transportation of radioactive materials.
- o JNT Associates, Inc - Contributor to the SARP for the recertification of the Brookhaven Waste Shipment Overpack.
- o General Electric Company - Co-authored a DOE sponsored study of spent fuel cask-to-reactor facility interfaces.
- o JNT Associates, Inc. - Performed shielding assessments, mechanical design, control/safety system design, and project management in support of a food irradiation plant design effort.
- o GA Technologies, Inc. - Member of the Defense High Level Waste Cask design/analysis team. Project was DOE sponsored and administered by Sandia.
- o Sandia/TTC - Performed technical reviews and authored several sections of the BUSS cask SARP.
- o Radiation Sterilizers, Inc. - Performed fabrication follow-up, authored procedures, constructed QA program, and offered operational consulting on the Model 1500 shipping package.

- o Roy F. Weston, Inc. - Performed various functions in support of the DOE/Office of Civilian Waste Management. Efforts include environmental assessment support, regulatory issue resolution, and cask acquisition support. Member of the MRS Systems Study Peer Review Group.
- o Electric Power Research Institute - Performed studies on various aspects of the storage, transportation and disposal of spent nuclear fuel.
- o S. Levy, Inc. - Participated in litigation document review as part of pre-licensing activities for Houston Light and Power's South Texas Project.
- o Sandia/TTC - Performed various studies related to radioactive material packaging and transportation in support of the Technical Issues Resolution Project for OCRWM.
- o Wildman, Harrold, Allen & Dixon - Litigation support in spent fuel transportation issues.
- o Oak Ridge National Laboratory - Support for the development of the Transportation Operations System for OCRWM.
- o Burns, Doane, Swecker & Mathis - Litigation support in a RAM packaging patent issue.
- o S. Levy, Inc. - Supported EPRI efforts on the ALWR baseline document. Contributed in the area of reactor fueling/defueling.
- o Radiation Sterilizers, Inc.. - Canister design, construction, testing, and operation. Cask modification, certification and testing. In support of the Decatur, GA Cs-137 capsule leak and facility contamination incident.
- o Oak Ridge National Laboratory - Contributing member of the OCRWM Cask Maintenance Facility Peer Review Group.
- o Anatech Research Corporation - Participant in the DOE/Sandia sponsored Spent Fuel Source Term Project.
- o S-TRON - Technical consulting on irradiation facility design and licensing for the testing of FEMA dosimeters.
- o SAIC/Santa Clara - Designed and specified a Type A container for the transportation of a 15 ci cesium source for use in a densitometer.
- o S. Levy, Inc. - Co-developer of a set of design considerations for use in the development of a system for transferring spent fuel between a reactor storage pool and a dry, on-site storage cask. Work sponsored by EPRI.
- o Electric Power Research Institute - Review and comment on an EPRI sponsored conceptual design effort for an on-site spent fuel transfer system.
- o Nuclear Assurance Corporation - Participant in the Near-Site Infrastructure Study.
- o General Electric Company - Member of proposal team for the movement of Shoreham slightly irradiated fuel to Laguna Verde or Nine Mile Point for reinsertion.

Resume of
Clyde L. Pritchett

PROFESSIONAL DOSSIER

Name: Clyde L. Pritchett
Birthdate: April 4, 1926
Address: Department of Zoology
Brigham Young University
Provo, Utah 84602

Title: Emeritus Professor of Zoology
Place of Birth Mt. Pleasant, Utah
603 E. 600 South
Orem, Utah 84097
(801) 765-1160

Academic Record:

| <u>Institution and Location</u> | <u>Degree</u> | <u>Field</u> | <u>Dates attended</u> |
|--|---------------|----------------------|-----------------------|
| Snow College, Ephraim, UT | A.A. (1959) | Biology | 1944-1945 |
| Brigham Young University, Provo, UT | B.S. (1960) | Zoology | 1958-1960 |
| Brigham Young University, Provo, UT | M.S. (1962) | Zoology | 1960-1962 |
| University of Utah, Salt Lake City, UT | NA | Radiation Biology | Summer, 1963 |
| Arizona State University, Tempe, AZ | NA | Desert Biology | Summer, 1965 |
| University of Wyoming, Laramie, WY | Ph.D. (1977) | Ecology | 1968- 1970-1971 |
| U.C. Berkeley, Berkeley, CA | NA | Mammalogy | 1986 |

Awards:

College Teaching Excellence Award, 1989 - College of Biology and Agriculture, Brigham Young University.

Employment Record:

U.S. Army, Medic, 1945-1947
Asst. Manager, Stringham Feed Mill, 1950-1958
Nebo School District, Biology Teacher, 1962-1964
Ricks College, Instructor, Biology Dept. 1964-1967
Brigham Young University, Instructor, 1967-1971
University of Wyoming, Visiting Professor of Ecology, Science Summer Camp, 1969
Brigham Young University, Assistant Professor, 1971-1979
Brigham Young University, Associate Professor, 1979-1991
Retired, December, 1991.
B. Y. U., M. L. B. Life Science Museum, Volunteer Mammal Dept., 1992-present.

Professional Experience:

1. Project 10 with D. E. Beck, 1960-1961.
2. Ecological Studies, Nevada Test Site, Mercury, Nevada with D. E. Beck and Clive Jorgensen, summer 1964.
3. National Reactor Testing Station, Idaho Falls, Idaho with D. M. Allred, summer 1966 and 1967.
4. Visiting Professor. University of Wyoming - Summer 1969.
5. Four Seasons Incorporated, "Impact of Proposed Recreational Construction and Use," 1972-1973.
6. Raft River Environmental Studies. Energy Research and Development Administration, Idaho Operations Office, Idaho Falls, Idaho 83401, 1977-1979.
7. Curator of Mammals, M.L. Bean Museum, Brigham Young University, Provo, Utah 84602, 1976-1994. Emeritus Curator of Mammals, 1994-present.
8. Professional Development Leave, U.C. Berkeley, Berkeley, CA., 1986.

Consultant with:

1. Bureau of Reclamation on the Jensen Unit of the Central Utah Project. 1972.
2. Navajo - Kaiparowits Project, 1973.
3. Bureau of Reclamation on the Bonneville Unit of the Central Unit Project. 1973 to 1975.
4. National Science Foundation In-service Institute for High School Biology Teachers. Drs. A. L. Allen and Marden Broadbent, Directors. 1968-1972.
5. Coon, King, and Knowlton Engineering. "Biotic Assessment of the Proposed West Valley (Salt Lake Co.) Highway." 1975-1978.
6. Utah Power and Light/Vaughn Hansen Associates. "Effect of Reservoir Construction on Terrestrial Vertebrates." 1979.
7. Coastal States Energy Company/Vaughn Hansen Associates. "Impact of Coal Mining and Conveyor Construction on Big Game Behavior." 1979-81.
8. Valley Camp Mining Co./Vaughn Hansen Associates. "Wildlife Assessment of the Valley Camp Mining Properties." 1979.
9. Southern Utah Fuel Co./Coastal States Energy Co. "Wildlife Assessment of the Southern Utah Fuel Company Mining Property and Adjacent Areas, Sevier Co., Utah." 1980.
10. Kaiser Engineers, Oakland, California. "Non-avian Wildlife Assessment in the Environs of the Starpoint Mining and Reclamation Plan." 1980.
11. Natomas-Trail Mountain Coal Company/Vaughn Hansen Associates. "Fish and Wildlife Assessment in the Environs of Trail Mountain, Emery Co., Utah." 1981.
12. Natomas-Trail Mountain Coal Company. "Wildlife Assessments in Air Tunnel Breakout Areas, Trail Mountain Mine." 1981.
13. Natomas-Trail Mountain Coal Company/Vaughn Hansen Associates. "Wildlife Report to Accompany Mining Permit Application and Answers to DOGM's Questions." 1983.
14. U.S. Corp of Engineers/Vaughn Hansen Associates. "Wasatch Front-Central Utah Flood Control Study--Overview of Wildlife." 1984.
15. Coastal States Energy Company. "Wildlife Resource Information, Link Canyon Mining Project, Emery Co., Utah." 1984.
16. Utah Power and Light Co. "Wildlife Assessment for Utah-Nevada Intertie 345 KV Line." 1986.
17. Coastal States Energy Co. "Effect of Subsidence on Wildlife at SUFCo Mine, Convulsion Canyon." 1986.

18. Howard, Needles, Tammen, and Bergendoff. "Upper Provo Canyon SEIS." 1987
19. Fremont Water Users Association. Wildlife Assessment of the Fremont River: Loa to Capital Reef Natl. Park. 1989.
20. Utah Division of Wildlife Resources, 1988 to present.
21. Endangered Plant Species 1990 to present

Research Activities:

1. Brigham Young University. "Vertebrate distribution in relation to certain habitats in Central Kane County Utah." 1960-1962.
2. University of Wyoming. "Variability in populations of the pocket gopher Thomomys talpoides rostralis along an altitudinal transect across the Snowy Range, Wyoming.
3. Cytotaxonomic studies of the Tassel-eared squirrel on the north and south rims of the Grand Canyon, Arizona.
4. The impact of selected native rodents on certain plant species in the cool desert biome.
5. Comparative Vascularity of Appendages in Lagomorphs (with Kent Van De Graaff).
6. Ecological studies of the porcupine Erethizon dorsatum.
7. U. S. Fish and Wildlife Service/Utah Division of Wildlife Resources. "Mourning Dove nesting study." 1979-1980.
8. Habitat utilization by the Lark Bunting in cold deserts. Brigham Young University - Burns and McDonnell Engineering Company.
9. Winter bioenergetics of the porcupine. Brigham Young University--Telonics.
10. Range extension in pigmy rabbits.
11. Genetic variation in the cliff chipmunk.
12. Karyology of pigmy rabbit.
13. Phylogeny in Utah cottontail rabbits.
14. Differential feeding patterns on mule deer and elk antlers.
15. Ultrastructure of hair using scanning electronmicroscopy.
16. Speciation in Peromyscus maniculatus.
17. Ants as prey for Black Bear, Ursus americanus

Current Research:

Publications:

- Speth, R. L., C. L. Pritchett and C. D. Jorgensen. 1968. Reproductive activity of Perognathus parvus. J. Mammal. 49(2): 336-337.
- Allred, D. M., and C. L. Pritchett. 1970. A laboratory Guide for Natural History for Elementary Teachers. Brigham Young University Press, Provo, Utah. 56 pp.
- Allred, D. M., C. L. Pritchett and B. W. Wood. 1973. An Introduction to Natural History - Laboratory workbook. Brigham Young University Press, Provo, Utah. 50 pp.
- Pritchett, C. L. and D. M. Allred. 1974. A Guide to Field Studies in Natural History. Brigham Young University Press, Provo, Utah. 69 pp.

- Allred, D. M. and C. L. Pritchett. 1975. Laboratory Studies in Natural History. Brigham Young University Press, Provo, Utah. 77 pp.
- Pritchett, C. L. and J. R. Murdock. 1975. The influence of selected native rodents on certain plant species in a Mormon tea - grass community. p. 146, in Stutz (ed.), Proceedings Symposium and Workshop Woodland Shrubs. U.S.F.S., U.S. Dept. Ag.
- Pritchett, C. L. 1978. Ichthyology. Brigham Young University Press, Provo, Utah. 73 pp.
- Attwood, N. D., C. L. Pritchett and R. D. Porter. 1980. Terrestrial Vertebrate Fauna of the Kaiparowitz Plateau. Great Basin Naturalist 40(4): 303-350.
- Pritchett, C. L., H. H. Frost and W. W. Tanner. 1981. Terrestrial Vertebrates in the Environs of Utah Lake. In Utah Lake Monograph, R. L. Heckmann (ed.). Great Basin Naturalist Memoirs Number 5.
- Hess, W. M., C. L. Pritchett., J. T. Flinders and J. V. Allen. 1985. Characterization of hair morphology in the families Tayassuidae and Suidae with scanning electron microscopy. J. Mamm., 66(1): 75-84.
- Smith, H. D., M. C. Oveson, and C. L. Pritchett. 1986. Characteristics of Mule Deer Beds. Great Basin Nat. 46(3): 542-546.
- Pritchett, C. L., J. A. Nilsen, M. P. Coffeen, and H. D. Smith. 1987. Pygmy Rabbits in the Colorado River Drainage. Great Basin Nat. 47(2): 231-233.
- Dobson, M. L., C. L. Pritchett, and J. W. Sites. 1987. Genetic variation and population structure in the cliff chipmunk, Eutamias dorsalis, in the Great Basin of western Utah. Great Basin Nat. 47(4): 551-561.
- Pritchett, C. L. and J. M. Alphonzo. 1988. Red-tailed hawk captured by a Whip snake. J. Raptor Research 22(3): 89.
- Pritchett, C. L. 1990. Nature study methods: Laborator manual and study guide. Burgess International Group Inc., Bellwether Press, Edina, MN, 124 pp.
- Belk, M.C., C.L. Pritchett, H.D. Smith. 1990. Patterns of microhabitat use by Sorex monticolus in summer. Great Basin Nat. 50(4):387-389.
- Pritchett, C.L. 1990. Nature Study Methods: Laboratory and Study Guide. Burgess International Inc. Edina, MN. 124 pp.
- Pritchett, C.L. 1991. Adventures in Nature: Laboratory guide and instructional packet. Burgess International Inc. Edina, MN 129 pp. Revised 1992.
- Rogers, Duke S., Dana J. Shurtleff, and Clyde L Pritchett. 2000. Records of mammals from the East Tavaputs Plateau, Utah.

Published Abstracts:

- Pritchett, C. L. 1977. Karyotypic Analysis of Thomomys talpoides along an altitudinal gradient. Abstracts of papers presented at the 57th Annual Meeting American Society of Mammalogists. Michigan State Univ. East Lansing, Michigan.
- Oveson, M. C. and C. L. Pritchett. 1981. Adaptations of the porcupine to winter stress. Abstract of papers given at the spring meetings Utah Academy Science, Arts and Letters. Encyclia 58: 157.
- Oveson, M. C. and C. L. Pritchett. 1982. Behavioral and metabolic adaptations of porcupines, Erethizon dorsatum, to winter stress. Abstracts of papers presented at annual meeting, Utah Chapter Wildlife Society. Utah State University. Logan, Utah.
- Pritchett, C. L. and M. C. Oveson. 1982. Effect of surgically implanted Transmitters in porcupines, Erethizon dorsatum. Abstracts of papers presented at meeting, American Society of Veterinary Anatomists. Snowbird, Utah.
- Pritchett C. L., M. C. Oveson, and M. C. Shupe. 1984. Techniques of radiotracer implantation in porcupines, Erethizon dorsatum. Abstract of paper presented at spring meeting Utah Academy Science, Arts, and Letters. Encyclia 61.
- Dobson, M. L. and C. L. Pritchett. 1984. Electrophoretic variation in cliff chipmunks, Eutamias dorsalis, in the western Great Basin of Utah. Abstract of paper presented at spring meeting Utah Academy Science, Arts and Letters. Encyclia 61.
- Hess, W. M., C. L. Pritchett, J. T. Flinders, and J. V. Allen. 1984. Characterization of hair morphology in the families Tayassuidae and Suidae with scanning electron microscopy. Abstracts of papers presented at the joint meetings of the Australian Mammal Society and the American Society of Mammalogists. Sydney Australia.
- Pritchett, C. L. and M. L. Dobson. 1985. Genetic variation and population structure in the cliff chipmunk, Eutamias dorsalis, in the Great Basin of western Utah. Abstract of paper presented at the annual meetings of American Society of Mammalogists. University of Maine. Orono, Maine.
- Pritchett, C. L., W. M. Hess, and J. V. Allen. 1987. Characterization of hair morphology in fourteen hystricomorph families using scanning electron microscopy. Proc. Simposio internacional Sobre mastozoologia Latinoamerica. Cancún, Quintana Roo, Mexico.

Unpublished Reports:

- Allred, D. M. et al. 1973. An Ecological study of the Jensen Unit of the Central Utah Project. A report submitted to the Bureau of Reclamation by C.H.E.S., Brigham Young University. Provo, Utah. 112 pp.
- Pritchett, C. L. 1973. Photographic Supplement to the Ecological study of the Central Utah Project. Submitted to the Bureau of Reclamation by C.H.E.S., Brigham Young University. Provo, Utah. 6 pp.

- Wood, B. W. et al. 1974. Kaiparowits short-term Report, prepared for: California Edison Company by C.H.E.S. Brigham Young University, Provo, Utah. July 1974. 124 pp.
- Pritchett, C. L. 1974. Birds and Mammals in the Diamond Fork - Sevier River regions of the Bonneville Unit of the Central Utah Project. 31 pp. In a special report submitted to The Bureau of Reclamation by C.H.E.S. Brigham Young University. Provo, Utah. July 1974. 224 pp.
- Pritchett, C. L. 1974. Birds and Mammals in the Jordanelle, Utah Lake, Jordan River regions of the Bonneville Unit of the Central Utah Project. 48 pp. In a special report to The Bureau of Reclamation by C.H.E.S. Brigham Young University. Provo, Utah. August 1974. 276 pp.
- Pritchett, C. L. 1974. Nature Walks for Elementary Students - Nine "experiments" that can be conducted around the school grounds. 12 pp.
- Pritchett, C. L. 1976. Vertebrates along the proposed West Valley Highway, Salt Lake County, Utah. In environmental Impact Statement. Coon, King and Knowlton, Salt Lake City, Utah.
- Pritchett C. L. 1977. Wildlife Assessment In Vegetative and Wildlife Assessment of the Jordan River Aqueduct extension. Bonneville Unit, Central Utah Project. Final Draft. Rocky Mountain Research, Provo, Utah.
- Jorgensen, C. D., C. M. White and Clyde L. Pritchett. 1978. Annual Report--Raft River Environmental Studies, Energy Research and Development Administration. Idaho Operations Office, Idaho Falls, Idaho.
- Smith, H. D. and C. L. Pritchett. 1978. Biotic assessment of the proposed West Valley (Salt Lake Co.) Highway. Coon, King and Knowlton Engineering. Salt Lake City, Utah.
- Pritchett, C. L. 1979. Impact of coal mining and conveyor construction on big game behavior. Coastal States Energy Co., Houston, Texas.
- Pritchett, C. L. 1979. Impact of Proposed Cottonwood Reservoir on Terrestrial Vertebrates. To B.L.M., Utah Power and Light Co., and Vaughn Hansen Associates.
- Pritchett, C. L. 1979. Impact of Proposed Upper San Raphael Reservoir on Terrestrial Vertebrates. To B.L.M., Utah Power and Light Co., and Vaughn Hansen Associates.
- Pritchett, C. L. 1979. Wildlife Assessment of the Skyline Property and Adjacent Areas, Carbon and Emery Counties, Utah. To Coastal States Energy Co., Houston, TX.
- Pritchett, C. L. and H. D. Smith. 1980. Non-avian wildlife assessment in the environs of the Starpoint mining and reclamation plan. Kaiser Engineers. Oakland, CA.
- Smith, H. D. and C. L. Pritchett. 1980. Wildlife Assessment of the Southern Utah Fuel Company Mining Property and Adjacent Areas, Sevier Co. Utah. To Coastal States Energy Co., Houston, TX.

- Pritchett, C. L. and H. D. Smith. 1981. Baseline Data Report on Presence and Utilization of Eccles Canyon by Elk, Mule Deer and Moose. To Coastal States Energy Co., Houston, TX.
- Pritchett, C. L. and H. D. Smith. 1981. Fish and wildlife assessment in the environs of Trail Mountain, Emery Co., Utah. Natomas-Trail Mountain Coal Company, Colorado.
- Pritchett, C. L. and H. D. Smith. 1983. Wildlife report to accompany mining permit application and answers to DOGM's questions. Natomas-Trail Mountain Coal Company/Division of Oil, Gas, and Mining. Colorado-Salt Lake City, UT.
- Pritchett, C. L. and H. D. Smith. 1984. Wasatch Front - Central Utah flood control study -- overview of Wildlife. U. S. Corp. of Engineers/Vaughn Hansen Associates, Salt Lake City, UT.
- Pritchett, C. L. and H. D. Smith. 1984. Wildlife resource information, Link Canyon mining project. Coastal States Energy Company. Houston TX.
- Smith, H. D. and C. L. Pritchett. 1986. Wildlife assessment report for Utah-Nevada intertie 345 KV line. Utah Power and Light Co. 57 pp.
- Pritchett, C. L. and H. D. Smith. 1986. Potential impact on raptorial birds from subsidence of SUFCo. mining property, Sevier Co., Utah. 4 pp.
- Smith, H. D., C. L. Pritchett, C. M. White, and R. W. Baumann. 1986. Faunal studies: draft environmental impact statement, Upper Provo Canyon. 75 pp.
- Smith, H. D. and C. L. Pritchett. 1987. Wildlife assessment supplementary report for Utah-Nevada intertie 345 KV line, Newcastle to Central segment.
- Pritchett, C. L., 1988. Mammals of the "West Tavaputs Plateau:" Community Structure. Final Report Utah Division of wildlife Resources NERO. Grant 619649.
- Smith, H. D. and C. L. Pritchett. 1989. Technical Report: Faunal Resources of the Proposed Provo Canyon Highway and Environs. Howard, Needles, Tammen, and Bergendoff. 600 108th Ave., N.E. Suite 405, Bellevue, WA 98004.
- Smith, H. D. and C. L. Pritchett. 1989. wildlife Section, Supplemental Environmental Impact Statement: U. S. Highway 189, Utah Valley to Heber City, Utah. Howard, Needles, Tammen, and Bergendoff. 600 108th Ave., N.E. Suite 405, Bellevue, WA 98004.
- Pritchett, C.L. 1990. Mammals of the LaSal Mountains: Community Structure. Final Report, Utah Division of wildlife Resources, SERO. Grant No. 900197. 31 pp.
- Pritchett, C.L. 1991. Mammals of the Uinta Mountains: Alpine Tundra. Final Report, Utah Division of wildlife Resources, NRO. Grant No. 910279. 27 pp.
- Pritchett, C.L. 1992. Status of sensitive mammalian species in Washington Co. Final Report, Utah Division of wildlife Resources, SWRO. Grant No. 913190. 33 pp.

Pritchett, C.L. 1993. Small mammals associated with selected marshes in west central Utah. Final Report Division of Wildlife Resources, CRO. Grant No. 913190 (appended). 30 pp.

Professional Meetings:

- 1972- International Academy of Cytology - Tutorial on Human Chromosomes and Chromatin. Chicago, Illinois.
- 1976- American Society of Mammalogists. Texas Tech University. Lubbock, Texas.
- 1976- Presented Paper at Symposium and Workshop Wildland Shrubs Brigham Young University, Provo, Utah.
- 1977- Presented Paper at Annual Meeting of American Society of Mammalogists, East Lansing, Michigan.
- 1978- American Society of Mammalogists. Athens, Georgia.
- 1978- Symposium Elk Management and Control. Laramie, Wyoming.
- 1978- On panel at the Symposium on Tassel-Eared Squirrels. Flagstaff, Arizona.
- 1980- American Society of Mammalogists. Kingston, Rhode Island.
- 1980- Symposium on Endangered Species. Logan, Utah.
- 1981- American Society of Mammalogists. Oxford, Ohio.
- 1981- Coauthored a paper presented at Utah Academy of Science Meetings. Provo, Utah.
- 1982- Hosted Annual meetings of the American Society of Mammalogists. Snowbird, Utah. Coauthored a paper presented at these meetings.
- 1982- Presented paper at the meetings of American Society of Veterinary Anatomists. Snowbird, Utah.
- 1982- Presented a paper at the annual meetings of the Utah Chapter of the Wildlife Society. Logan, Utah.
- 1982- International Cat Symposium. Kingsville, Texas. Reviewer of papers published in the proceedings.
- 1983- American Society of Mammalogy. Gainesville, Florida.
- 1984- American Society of Mammalogists. Arcadia, CA.
- 1984- Presented paper at spring meetings Utah Academy of Science, Arts and Letters, Salt Lake City, UT.
- 1984- Presented poster at the annual meetings of the Australian Mammal Society. University of New South Wales, Sidney Australia.
- 1984- Mountain Lion Workshop, Zions National Park, Utah.
- 1985- Presented a paper at the annual meetings of American Society of Mammalogists, University of Maine, Orono, Maine.
- 1986- American Society of Mammalogists, Univ. of Wisconsin, Madison, WI.
- 1986- Bay Area Association of Systematics. U. C. San Francisco, S.F., CA.
- 1987- Presented a paper at the Simposio Internacional Sobre Mastozoologia Latinoamericana, Cancún, Quintana Roo, Mexico.
- 1988- Regional Meetings, The Wildlife Society, Snow College, Ephraim, Utah.
- 1989- Utah Chapter Meeting, The Wildlife Society, Provo, Utah.
- 1989- Annual Meetings of American Society of Mammalogists, University of Alaska, Fairbanks, Alaska.
- 1990- Presented a poster at the annual meetings of American Society of Mammalogists. Frostburg State Univ., Frostburg, Maryland.
- 1992- Annual Meetings of American Society of Mammalogists. Univ. of Utah, Salt Lake City, Utah.
- 1993- Utah Chapter Meeting, The Wildlife Society, St. George, Utah
- 1993- Annual Meetings of American Society of Mammalogists, Western Washington Univ. Burminham, WA

Professional Exposure:

- 1971- Professional Development Leave in the Laboratory of T.C. Hsu - M.D. Anderson Hospital, Houston, Texas.
1986- Professional Development leave, Museum Vertebrate Zoology, U.C. Berkeley, Berkeley, CA.

Professional Memberships and Positions:

| <u>Society</u> | <u>Position</u> |
|---|-----------------|
| American Society of Mammalogists | Reviewer |
| Sigma Xi | None |
| The Wildlife Society | Reviewer |
| Utah Zoological Society | None |
| American Association for the Advancement of Science | None |

Committee Activities:

| | |
|---|-----------|
| College Media Committee (Chairman) | 1968-1970 |
| College Teaching Assistant Committee | 1973-1976 |
| College G.E. Committee | 1976-1979 |
| College Preprofessional Committee | 1977-1979 |
| University Pre-Medical Committee | 1979-1982 |
| wildlife Collecting and Importing Committee | 1979-1983 |
| Zoology Dept. Faculty Search Committee (Chairman) | 1981-1982 |
| University Studies Committee | 1983-1987 |
| Museum Exc. Committee | 1984-1986 |
| Zoology Dept. Faculty Search Committee | 1985-1986 |
| Museum Exc. Committee | 1987-1992 |
| Wildlife Collecting and Importing Committee | 1988-1991 |

Resume of
Robert James Hoffman

PERSONAL RÉSUMÉ

Robert James Hoffman
2291 Four Woods Cir.
Salt Lake County, Utah 84109
(801)-272-6059

Education

B. S. Physics, Math Minor, University of Utah - 71
M. S. Physics [Medical Radiation], University of Utah - 73

Professional Positions

University of Utah, Salt Lake City, Utah - 7/75 to 4/78, Health Physicist

Varied health physics responsibilities in support of an NRC license of broad scope, responsible for all analytical x-ray safety and surveys, responsible for medical x-ray surveys at the VAMC.

Yale-New Haven Hospital, New Haven , Connecticut - 5/78 to 6/81, Radiation Safety Officer

Responsible for a broad medical radioactive materials program and license, responsible for radiation safety for therapy and diagnostic x-ray units.

Yale University, Department of Radiation Oncology, New Haven , Connecticut - 5/78 to 6/81, Lecturer

Taught health physics and radiation safety to technician and dosimetry students, and Radiation Oncology Residents.

University of Utah, Salt Lake City, Utah - 7/81 to 3/82, Health Physicist

Varied health physics responsibilities in support of an NRC/BRC license of broad scope, responsible for all analytical x-ray safety and surveys, (applies to the next two positions as well).

University of Utah, Salt Lake City, Utah - 4/82 to 11/82, Radiation Safety Officer and Acting Director of Radiological Health

University of Utah, Salt Lake City, Utah - 12/82 to 8/89, Health Physicist

Veterans Affairs Medical Center, Salt Lake City, Utah - 8/89 to present, Radiation Safety Officer

Responsible for all radiation safety support of an NRC medical license of broad scope, responsible for medical x-ray surveys and safety.

Additional Formal Courses or Training

Finished major portion of course work for M.S. in nuclear engineering while working as a campus health physicist.

Breast Exposure Nationwide Trends "BENT" Training Course given by Bureau of Radiological Health - FDA - PHS - U.S. Department of Health, Education, and Welfare, 12/77

Attended the 2nd HPS Summer School on "Ionizing and Non-Ionizing Radiation in Medicine", 7/79

Completed two one week courses sponsored by NIOSH given by the Rocky Mountain Center for Occupational and Environmental Health at the University of Utah

1. "Current issues and trends in controlling occupational exposures to RF/microwave radiation", 2/82
2. "Introduction to industrial hygiene chemistry (NIOSH 590)", 11/83

Certificate for a course given by Professional Management Training Program of Personnel Administration, University of Utah, 1/85

Seminar "Packaging & Transportation of Radioactive Waste Material" given by USEcology, September 23 - 25, 1986

Attended the HPS Summer School on "Practical Statistics for Operational Health Physics", 7/87

Attended the 1993 HPS Summer School on "Hospital Health Physics", 7/93

Attended course titled "X-Ray Mammography" given by the University of Texas, Health Science Center, 10-11 January 1994

Attended a 54 hour course in "Mammography Facility Inspection Techniques" given by The Uniformed Services University of the Health Sciences, September 25-30, 1995

Completed 20 hours of emergency response training as part of the VA Medical Emergency Radiological Response Team (MERRT) - Albuquerque, New Mexico August 13-15, 1996

Completed 36 hour course "R/F System Performance and Compliance Testing For Physicists" given by Radiological Service Training Institute - Cleveland, Ohio September 16-20 1996

Completed 24 hours training on "Medical Management of Radiological Incidents" given by Office of Emergency Medical Preparedness - Veterans Health Administration - Minneapolis, MN - March 20-22, 1997

Completed 15 hours training in "Mammography: A Course for Physicists" presented by Medical Technology Management Institute - San Francisco, CA January 24-25, 1998

Completed 36 hours training in "Radiological Accident Command, Control and Coordination Course" given by the Defense Threat Reduction Agency at the Defense Nuclear Weapons School, Kirtland Air Force Base, New Mexico, March 1-5, 1999

Completed "8-Hour Hazardous Materials Awareness Training for Medical Responders" given by DVAMC, Bay Pines, Fl. May 16, 2000

Completed "16-Hour Hazardous Materials Operations Training for Medical Responders" given by DVAMC, Bay Pines, Fl. May 17-18, 2000

Certification

Certified by the American Board of Health Physics-1981
Recertified thru 1989, Recertified thru 1993, Recertified thru 1997, Recertified thru 2001

Utah Radiation Control Board approved as a Mammography Imaging Medical Physicist. Issued June 1, 1997

MQSA Physics authorization by letter from FDA, April 28, 2000

Advisory Appointments

Chairman of Radiation Control Board for the Department of Environmental Quality for the State of Utah - (April 1995 to July 1997)

Appointed as a member of the Radiation Control Board for the Department of Environmental Quality for the State of Utah - (1991 - 1998)

Member of Radiation Technical Advisory Committee to the Bureau of Radiation Control for the State of Utah 1982 to 1986, Re-appointed to five year term in December of 1986.

Radiation Safety Committee and Radioactive Drug Research Committee - University of Utah - 1981 to Present

Health Physics Society Activities

Plenary Member -1975 to Present

Program Committee-Health Physics Society-1985-1988

Annual Meeting Place Committee - Health Physics Society - 1990-1992

HPS Chapter Activities

Treasurer Great Salt Lake Chapter - Health Physics Society -1978

President-elect of Connecticut Chapter - Health Physics Society-1980

President of Great Salt Lake Chapter - Health Physics Society-1986

Local Arrangements Committee for Salt Lake City - 1987

Publications

Hoffman R. J., Nath R., On the Sources of Radiation Exposure of Technologists in a Radiotherapy Center with High Energy X-ray Accelerators. Health Physics 42,525

Hoffman R. J., Report on Methodology of Calibration and Irradiation of Samples with the UDM ¹³⁷Cs Beam Irradiator at the University of Utah.
US-Japan Joint Reassessment of Atomic Bomb Radiation Dosimetry in Hiroshima and Nagasaki FINAL REPORT Volume 2(Appendix to Volume 1) DS86

General Health Physics Consulting & Services

Interwest Health Physics - President - consulting in medical health physics and general radiation safety - diagnostic x-ray unit surveys - evaluation of mammography units for compliance with state and FDA MQSA screening programs - training - license applications -radiological evaluations - instrument calibrations. Below is a partial list of clients.

AgriDyne Technologies Inc.-- Salt Lake City, Utah
Allen Memorial Hospital -- Moab, Utah
Allied Clinical Labs--Salt Lake City, Utah
AMAX Magnesium Corp--Utah
AMOCO Oil--Salt Lake City, Utah
ARUP--Salt Lake City, Utah
Ashley Valley Medical Center--Vernal, Utah
Bannock Regional Medical Center--Pocatello, Idaho
Brigham City Hospital--Brigham City, Utah
Cassia Memorial Hospital--Burley, Idaho
Castleview Hospital--Price, Utah
Davis Hospital & Medical Center--Layton, Utah
Deseret Research--UBTL-Midico-- Salt Lake City, Utah
Design West--Logan, Utah
Duchesne County Hospital--Roosevelt, Utah
Evans and Sutherland Computer Corporation--Salt Lake City, Utah
Envirocare of Utah--Salt Lake City
FHP of Utah--Salt Lake City, Utah
GenMark--Salt Lake City, Utah
Geneva Steel--Orem, Utah
Kennecott Research--Salt Lake City, Utah
Lake View Hospital--Bountiful, Utah

Logan Regional Hospital-- Logan, Utah
McKay Dee Hospital--Ogden, Utah
Mountain View Hospital--Payson, Utah
NPI--Salt Lake City, Utah
Nelson Johnson and Partners--Salt Lake City, Utah
Ogden Clinic--Ogden, Utah
Ogden Regional Medical Center--Ogden, Utah
Osteon Incorporated--Wahiawa, Hawaii
Pioneer Valley Hospital--Salt Lake County, Utah
Pocatello Regional Medical Center-- Pocatello, Idaho
Rogers & Associates Engineering Corporation--Salt Lake City, Utah
San Juan County Hospital -- Monticello, Utah
South Lincoln Medical Center -- Kemmerer, Wyoming
Star Valley Hospital - Afton, Wyoming
Stebbins Engineering --Watertown, New York
Technicare--Hayward, California
Timpangos Regional Hospital - Orem, Utah
Uintah Basin Medical Center - Roosevelt, Utah
United States Bureau of Reclamation--Provo, Utah
Utah Orthopedic Associates--Salt Lake City, Utah
Utah Valley Regional Medical Center - Provo, Utah