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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 SIXTH SUPPLEMENTAL RESPONSE TO
STATE'S FIRST REQUESTS FOR DISCOVERY**

Applicant Private Fuel Storage L.L.C. ("Applicant" or "PFS") files this Sixth 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.

Template = SECY-035

SECY-02

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 O – Hydrology

<u>Name and Address:</u>	Donald Wayne Lewis Stone & Webster Engineering Corp. 7677 Berry Avenue Denver, Colorado 80111-2137
<u>Profession:</u>	Mechanical Engineer
<u>Employer:</u>	Stone & Webster Engineering Corp.
<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>	June 2000 testimony on Utah R in PFS hearing
<u>Subject Matter of Testimony:</u>	Mr. Lewis will testify regarding project design, operating procedures and philosophy as it relates to Utah Contention O.
<u>Documents reviewed and/or relied upon:</u>	Materials reviewed and relied upon by Mr. Lewis will include the PFS License Application, including the Safety Analysis Report ("SAR") and the Environmental Report ("ER"), responses to Requests for Additional Information and the Draft Environmental Impact Statement ("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.

<u>Name and Address:</u>	Dr. George H.C. Liang Stone & Webster Engineering Corp. 100 Technology Center Drive Stoughton, Massachusetts 02072-4705
<u>Profession:</u>	Environmental Engineer
<u>Employer:</u>	Stone & Webster Engineering Corp.
<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>	None.
<u>Subject matter of testimony:</u>	Dr. Liang will testify concerning ground water and hydrology issues raised by the State in Utah O.
<u>Documents reviewed and/or relied upon:</u>	The documents reviewed and relied upon by Dr. Liang will include the PFS License Application, including the SAR and ER, responses to Requests for Additional Information, and the 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.

Utah AA – Range of Alternatives

<u>Name and Address:</u>	John D. Parkyn Dairyland Power Cooperative 3200 East Avenue South LaCrosse Wisconsin 54601
<u>Profession:</u>	Nuclear Engineer, Chairman
<u>Employer:</u>	Private Fuel Storage, L.L.C
<u>Professional Expertise:</u>	Nuclear Engineering and Management
<u>Educational, Scientific Experience, and Professional Qualifications:</u>	See attached resume.
<u>Publications in the last ten years:</u>	See attached resume.

Testifying experience as expert
in last four years:

Deposition and testimony on contentions Utah E
and Utah S on PFS licensing proceeding.

Subject matter of testimony:

Mr. Parkyn will testify concerning the site selection
process and his role therein.

Documents reviewed and/or
relied upon:

Materials reviewed and relied upon by Mr. Parkyn
will include the PFS License Application, including
the SAR and ER, responses to Requests for
Additional Information, and the DEIS. In addition,
Mr. Parkyn 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:

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

Profession:

Director, Nuclear Asset Management

Employer:

Xcel Energy, Inc.

Professional Expertise:

Nuclear Engineer

Educational, Scientific Experience,
and Professional Qualifications:

See attached resume.

Publications in the last ten years:

See attached resume

Testifying experience as expert
in last four years:

See attached resume

Subject matter of testimony:

Mr. Northard will testify concerning the site
selection process and his role therein.

Documents reviewed and/or
relied upon:

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.

<u>Name and Address:</u>	John Donnell Stone & Webster Engineering Corp. 7677 Berry Avenue Englewood, CO 80111-2137
<u>Profession:</u>	Project Director
<u>Employer:</u>	Private Fuel Storage, L.L.C
<u>Professional Expertise:</u>	Nuclear Engineering and Management
<u>Educational, Scientific Experience, and Professional Qualifications:</u>	See attached resume.
<u>Publications in the last ten years:</u>	None.
<u>Testifying experience as expert in last four years:</u>	Deposition on Utah B in PFS licensing proceeding.
<u>Subject matter of testimony:</u>	Mr. Donnell will testify concerning the site selection process and his role therein.
<u>Documents reviewed and/or relied upon:</u>	Materials reviewed and relied upon by Mr. Donnell will include the PFS License Application, including the SAR and ER, responses to Requests for Additional Information, and the DEIS. In addition, Ms. Donnell 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. Clayton M. White Department of Zoology Brigham Young University Provo, UT 84602
<u>Profession:</u>	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.

Testifying experience as expert
in last four years:

See attached resume.

Subject matter of testimony:

Dr. White will testify concerning potential environmental impacts of the PFSF and Intermodal Transfer Point (ITP) on the peregrine falcon[s] at Timpie Springs.

Documents reviewed and/or
relied upon:

Materials reviewed and relied upon by Dr. White will include the PFS License Application, including the ER, responses to Requests for Additional Information, and the DEIS. In addition, Dr. White 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:

Dr. Ronald J. Kass
270 East 1230 North
Springville, UT 84663

Profession:

Biologist and botanist.

Employer:

Intermountain Ecosystems, L.C.

Professional Expertise:

See attached resume.

Educational, Scientific Experience,
and Professional Qualifications:

See attached resume.

Publications in the last ten years:

See attached resume.

Testifying experience as expert
in last four years:

See attached resume

Subject matter of testimony:

Dr. Kass will testify concerning potential environmental impacts of the PFSF on Pohl's milkvetch and small spring Parsley.

Documents reviewed and/or
relied upon:

Materials reviewed and relied upon by Dr. Kass. will include the PFS License Application, including the ER, and responses to Requests for Additional Information, and the DEIS. In addition, Dr. Kass 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.

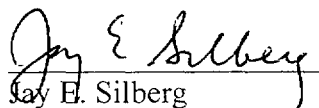
§ 2.740(e).

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: February 16, 2001

Counsel for Private Fuel Storage L.L.C.

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

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

CERTIFICATE OF SERVICE

I hereby certify that copies of Applicant's Sixth 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 16th day of February 2001.

G. Paul Bollwerk III, Esq., Chairman
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: GPB@nrc.gov

Dr. Jerry R. Kline
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: JRK2@nrc.gov; kjerry@erols.com

Dr. Peter S. Lam
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: PSL@nrc.gov

* 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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Sherwin E. Turk, Esq.
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Mail Stop O-15 B18
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
e-mail: pfscase@nrc.gov

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Confederated Tribes of the Goshute
Reservation and David Pete
1385 Yale Avenue
Salt Lake City, Utah 84105
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Diane Curran, Esq.
Harmon, Curran, Spielberg &
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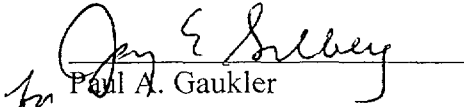
Richard E. Condit, Esq.
Land and Water Fund of the Rockies
2260 Baseline Road, Suite 200
Boulder, CO 80302

Denise Chancellor, Esq.
Assistant Attorney General
Utah Attorney General's Office
160 East 300 South, 5th Floor
P.O. Box 140873
Salt Lake City, Utah 84114-0873
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Joro Walker, Esq.
Land and Water Fund of the Rockies
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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* By U.S. mail only


for Paul A. Gaukler

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board


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

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 Sixth 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 February 16, 2001.



Paul A. Gaukler

RESUME OF
DONALD WAYNE LEWIS

May 1999

LEWIS, DONALD WAYNE

**LEAD ENGINEER
MECHANICAL DIVISION**

EDUCATION

Montana State University - Bachelor of Science, Civil Engineering - 1980
Daniel International Corp. - Course in ASME Section III - 1982
Daniel International Corp. - Course in Welding - 1983

REGISTRATIONS

Professional Engineer - New York (1988)
Colorado (1997)

EXPERIENCE SUMMARY

Mr. Lewis has 17 years of engineering experience in the power generation industry, and has participated in all phases of power plant engineering from design through construction, pre-operational testing to on-line modifications.

Mr. Lewis has experience on several nuclear facilities. Assignments include the design of spent nuclear fuel storage facilities, plant systems design modifications, and on-site engineering of mechanical systems installation. Spent fuel storage facility design involved preparation of the design of mechanical aspects and related licensing of the facilities, including an on-site assignment as project engineer for the client for construction of one of the facilities. Plant systems modification assignments involved resolving system design problems, preparing design changes and supporting analyses, revising drawings and preparing specifications. On-site engineering of mechanical systems installation involved resolving pipe and equipment installation conflicts, reviewing and revising design drawings, ensuring code compliance, procuring system components, and developing start-up procedures.

Mr. Lewis has experience on four coal-fired boiler plants. Assignments included the design of mechanical systems on a flue gas scrubber project, development of system descriptions and operating instructions; and the evaluation of a coal to natural gas conversion design. Work involved design of piping systems, component selection and sizing, preparing calculations and specifications, reviewing proposal submittals, initiating process flow and layout drawings; writing plant operation instructions; and preparing cost analyses.

Mr. Lewis is currently assigned to several projects: the Indian Pt 2 spent fuel conceptual design project where he is Project Engineer, the Maine Yankee Atomic Plant spent fuel storage project where he is Lead Mechanical Engineer, the Private Fuel Storage Project where he is Lead Mechanical Engineer, and the Northern States Power Prairie Island Generating Plant where he is Project Engineer, responsible for overseeing the High Energy Line Break Upgrade Project and spent fuel storage issues.

D. Wayne Lewis

DETAILED EXPERIENCE RECORD
LEWIS, DONALD WAYNE

STONE & WEBSTER ENGINEERING CORPORATION, DENVER, COLORADO

(Apr 1988 - Present)

Appointments:

Lead Engineer, Mechanical Division - Jan 1998

Senior Mechanical Engineer, Mechanical Division - Nov 1990

Mechanical Engineer, Mechanical Division - Jan 1989

Indian Point 2 Nuclear Plant, Buchanan, NY – Consolidated Edison

(January 1999 - Present)

PROJECT ENGINEER

Maine Yankee Atomic Plant, Wiscasset, ME – Maine Yankee Power Company

(November 1998 - Present)

LEAD MECHANICAL ENGINEER

Yucca Mountain Project, Las Vegas, NV - U.S. Department of Energy

(June 1998 - August 1998)

SYSTEMS ENGINEER

Rocky Flats Environ. Tech. Site, Golden, CO - Rocky Flats Engineers & Contractors, L.L.C.

(May 1998 - Sept 1998)

RADIOLOGICAL CONSULTANT

Prairie Island Generating Plant, Red Wing, MN - Northern States Power Company

(Oct 1997 - Present)

PROJECT ENGINEER

National Wind Technology Center, Golden, CO - National Renewable Energy Laboratory

(Oct 1997 - Apr 1998)

SENIOR MECHANICAL ENGINEER

Rocky Flats Environmental Technology Site, Golden, CO - BNFL

(July 1997 - Oct 1997)

SENIOR MECHANICAL ENGINEER

Private Fuel Storage Facility, Goshute Indian Res., UT - Private Fuel Storage

(Oct 1996 - Present)

SENIOR MECHANICAL ENGINEER

Goodhue County ISFSI, Frontenac, MN - Northern States Power Company

(Aug 1995 - Sept 1996)

PROJECT ENGINEER

D. Wayne Lewis

Navajo Generating Station, Page AZ - Salt River Project

(Sept 1993 - Nov 1995)

SENIOR MECHANICAL ENGINEER

Prairie Island Generating Plant, Red Wing, MN - Northern States Power Company

(Jan 1992 - Aug 1993)

SENIOR MECHANICAL ENGINEER

Neil Simpson Station, Gillette, WY - Black Hills Power Company

(Sept 1991 - Dec 1991)

SENIOR MECHANICAL ENGINEER

North Omaha Station, Omaha, NE - Omaha Public Power District

(July 1991 - Aug 1991)

SENIOR MECHANICAL ENGINEER

Fort Calhoun Power Station, Ft Calhoun, NE - Omaha Public Power District

(Apr 1988 - June 1990) (Nov 1990 - Aug 1991)

SENIOR MECHANICAL ENGINEER

Prairie Island Generating Plant-Unit 2, Red Wing, MN - Northern States Power Company

(July 1990 - Oct 1990)

LEAD MECHANICAL ENGINEER

EG&G Rocky Flats Inc., Golden, CO - U. S. Department of Energy

(July 1990)

MECHANICAL ENGINEER

U. S. Department of Energy, Hanford, WA

(June 1990)

MECHANICAL ENGINEER

STONE & WEBSTER ENGINEERING CORP., CHERRY HILL, NEW JERSEY

(Sept 1983 - Mar 1988)

Appointments:

Engineer, Mechanical Division - Aug 1987

Construction Engineer - Oct 1985

Senior Field Engineer - Oct 1984

Field Engineer - Sept 1983

Nine Mile Point Nuclear Station, Unit 2, Lycoming, NY - Niagara Mohawk Power Corporation

(Sept 1983 - Mar 1988)

ENGINEER, Mechanical Division (Aug 1987 - Mar 1988)

ENGINEER, Construction Division (Sept 1983 - July 1987)

D. Wayne Lewis

Oswego Steam Station Units 5 & 6, Oswego, NY - Niagara Mohawk Power Corporation
(Dec 1986)

CONSTRUCTION ENGINEER

DANIEL INTERNATIONAL CORPORATION, GREENVILLE, SOUTH CAROLINA
(June 1982 - Aug 1983)

Wolf Creek Nuclear Plant, New Strawn, KS - Kansas Gas & Electric
CONSTRUCTION ENGINEER II

J.A. JONES CONSTRUCTION COMPANY, CHARLOTTE, NORTH CAROLINA
(Oct 1981 - Apr 1982)

Washington Nuclear Plant No. 1, Handford, WA - Washington Public Power Supply System
FIELD ENGINEER

WRIGHT SCHUCHART HARBOR-BOECON-GERI, RICHLAND, WASHINGTON
(Mar 1981 - Oct 1981)

Washington Nuclear Plant No. 2, Handford, WA - Washington Public Power Supply System
ASSOCIATE STRUCTURAL ENGINEER

MONTANA STATE HIGHWAY DEPARTMENT, HELENA, MONTANA
(July 1979 - Sept 1979, July 1980 - Mar 1981)
CIVIL ENGINEER I (Traffic Division, Jan 1981 - Mar 1981)
ENGINEER AIDE (July 1979 - Sept 1979)

RESUME OF
GEORGE H.C. LIANG

Experience Summary

Dr. Liang is a Senior Principal Environmental Engineer in the Environmental Sciences & Engineering Department. He has over 26 years of experience in siting, environmental assessment, developing and managing environmental protection programs, and licensing of power plants and industrial facilities. He also has extensive experience in mathematical modeling, numerical analysis, and computer applications in environmental engineering/design related problems. He is currently a Program Manager and has previously been a Lead Environmental Engineer on major projects in nuclear/fossil power plants and industrial projects, which involved environmental impact studies, federal/state/local permitting applications, managing engineering/design, procurement and installation of water and wastewater treatment systems, conceptual design of the heat dissipation/chemical discharge system, studies of alternative cooling systems, groundwater dispersion, hydrological analysis of power plant sites and thermal/water quality impact analysis of power plant discharge.

As Supervisor of Water Quality and Hydrology, Dr. Liang has supervised many water quality and hydrology related tasks for power plant projects. He established the technical guideline for flood analysis at power plant sites. He managed the environmental impact assessment of a fluidized bed power plant site and prepared its permit application. He established the exclusion criteria for siting a Low-Level Radioactive Waste disposal facility in Maine, to assure compliance with federal and state requirements. He evaluated existing permit requirements to determine the potential environmental impacts of rerating a nuclear power plant. Dr. Liang completed the conceptual design of a surface run-off detention pond for a proposed NPR site in Idaho, a cooling pond for a proposed power plant site in Florida, a multiport diffuser for a cogen plant in New York and a combined cycle power plant in England, U.K. He has developed the water quality monitoring program and conducted the hydrothermal/water quality modeling for numerous power plant projects.

Dr. Liang has been a lead environmental engineer on major projects in nuclear, fossil, and industrial plants.

Dr. Liang has been an expert in mathematical modeling of surface water, groundwater, water quality, hydrological and hydrothermal analysis.

Dr. Liang has been intimately familiar with EPA's National Pollution Discharge Elimination System (NPDES) permit application regulations and the requirements of section 401 of the Water Quality Act (WQA), which amended Clean Water Act (CWA) section 402(1)(2). He has assisted many major utility clients as well as independent power producers in obtaining the NPDES permit.

Dr. Liang has participated in numerous siting studies for various type of power generation projects and Low Level Radioactive Waste disposal facilities. He has designed and supervised many environmental monitoring programs for siting studies, and prepared permit applications and supporting documentations.

As a member of ICE team, Dr. Liang has participated in evaluating DOE's Environmental Restoration and Waste Management Five-Year plan. He has assisted DOE in environmental cleanup activities at Hanford site, and managed environmental studies for the U.S. AMTL research reactor decommissioning project.

Dr. Liang developed a comprehensive environmental protection program at a nuclear power plant construction site. He monitored project construction activities for regulatory compliance in air and water quality, noise, wetlands and wildlife refuge protection, and solid waste disposal. Dr. Liang integrated the environmental protection program with the quality assurance and safety/health programs to measure program performance. He provided the impetus to implement similar programs at other nuclear power plant sites.

Dr. Liang has performed a technical review of the existing environmental operating limit permits and supporting documentation (316a and 316b demonstrations) and assessed the impact of the power uprate on the plant's ultimate heat sink.

In 1994, Dr. Liang managed a consulting services project for improving the technical ability of 22 senior engineers from East China Electric Power Design Institute, dealing with the requirements for a Conventional Island design associated with a nuclear power plant.

Since 1995, Dr. Liang has been working as Lenders' engineer for several fossil power plant projects in China. Working as an Independent Technical Consultant (ITC), he has been responsible for the due diligence effort which includes technical review of engineering/design of the major plant systems, review and evaluation of fuel sources and cost, project performance parameters and guarantees, environmental parameters for compliance with PRC's regulations and World Bank guidelines; construction progress monitoring for funding drawdown certification, start-up/test procedure review, and witnessing the 72-hour and 24-hour test runs, and certification of completion of several fossil power plant projects in China.

Recently Dr. Liang has been in charge of developing EPC cost data base for fossil power plant in China.

Education

Ph.D., Civil Engineering - University of Connecticut, Storrs, Connecticut - 1972
M.S., Civil Engineering - University of Connecticut, Storrs, Connecticut - 1967
National Taiwan University, Taipei, Taiwan, Republic of China

Training

China Forum - since 1995, a lunch-time seminar series, meeting once every other month, covered the topics of information, challenges, strategies, recent development, and successful projects in marketing in China, sponsored by the Office of International Trade & Investment, the Commonwealth of Massachusetts, Foley, Hoag & Eliot LLP, and others.

The Princeton Course/Groundwater Pollution and Hydrology - 1993

Hazardous Materials Management, American Management Association - 1991

Site Selection and Design of Sediment and Detention Basins, Southern New England Environmental Regulation Course, Executive Enterprise, Inc. - 1987

MIT Video Course on Finite Element Methods, Massachusetts Institute of Technology - 1984

Water Resources Lecture Series - Rainfall/Run-off Modeling using HEC-I, Stone & Webster Engineering Corporation - 1982

Sediment Transport in Rivers and Estuaries, University of Southern California - 1974

Licenses, Registrations, and Certifications

Professional Engineer - Connecticut, 09789 - 1975 Active

Professional Affiliations

American Geophysical Union, Member
The Society of the Sigma Xi, Member

Publications

Liang, G.H.C.. "New Technologies in Sulfur Removal in the Refining Process in a Refinery." National Conference for Environmental Managers of Petrochemical Plants, May 1995

Liang, G.H.C., "Use of Groundwater Analytical/Numerical Models for Evaluating Pollution Control Measures at Hazardous Waste Disposal Facilities." New England/Republic of China Technical Exchange Symposium, May 1990.

Liang, G.H.C.. "Summary of Hydrographic and Hydrothermal Studies at Millstone Nuclear Power Station, 1969-1985." Millstone Ecological Advisory Committee Meeting, Waterford, Connecticut. 1986.

Liang, G.H.C.; Lee, V.M.; and Torbin, R.; "A Data Acquisition and Analysis Technique for a Sediment Transport Field Study Program." COASTAL ZONE 78, San Francisco, California, 1978.

Liang, G.H.C. and Lin, J.D., "Effect of Pressure Gradient on Wind-waves in a Laboratory Channel." 2nd U.S.National Conference in Wind Engineering Research, Colorado State University, Fort Collins, Colorado, 1975.

Liang, G.H.C., "Wind-generated Waves With and Without Pressure Gradients." University of Connecticut, Storrs, Connecticut, 1972.

Liang, G.H.C. and Lin, J.D., "Laboratory Win-waves Generated With and Without Pressure Gradients." American Geophysical Union Fall Annual Meeting, San Francisco, California, 1972.

Liang, G.H.C., "Numerical Calculation of the Source Term for a Vertical Line Source Under Linearized Free Surface." University of Connecticut, Storrs, Connecticut, 1967.

**Resume of
John Parkyn**

John Parkyn

Position

Chairman of the Board, Private Fuel Storage L.L.C.

Education

University of Wisconsin

Madison, WI

- Bachelor of Science in Nuclear Engineering

United States Army

White Sands Missile Range, NM

- Certified Reactor Operator

Nuclear Facility Licenses

Wisconsin Electric Power Company

Milwaukee, WI

- NRC Licensed Senior Reactor Operator - Point Beach Units 1 & 2

Dairyland Power Cooperative

La Crosse, WI

- NRC Licensed Senior Reactor Operator - La Crosse Boiling Water Reactor

Professional Licenses

- Professional Engineer - Wisconsin
- Professional Nuclear Engineer - California

Publications

Author of numerous papers on nuclear energy and its implementation.

Professional Associations

- Past Member, National Planning Committee, American Nuclear Society
- Past Chairman, Wisconsin Division, American Nuclear Society

Positions Held in Nuclear Facilities

- Relief Shift Supervisor
- Shift Technical Advisor
- Relief Operator
- Operations Engineer
- Technical Assistant
- Assistant Superintendent
- Plant Manager
- Acting Chief Executive Officer for Nuclear Power (CNO)

Resume of Scott Northard

RESUME

SCOTT D. NORTHARD

Xcel Energy, Inc.
414 Nicollet Mall, Ren Sq 8
Minneapolis, MN 55401
scott.d.northard@xcelenergy.com

EDUCATION

University of Wisconsin, Madison
BS Nuclear Engineering – 1977

University of Minnesota
Graduate Coursework in Mechanical Engineering
1978 – 1982

University of Wisconsin
Graduate Coursework in Nuclear Engineering
1986 – 1987

University of Minnesota
Pre-Finance Course – 1989

Northwestern University
Executive Development Program – Graduate 1989

Other various in-company and external professional development courses in business and technical areas – detailed information available on request

WORK EXPERIENCE

1976 – 1976	Student Engineer – Zion Nuclear Power Station Plant Reliability Data Collection, Equipment Inspections Plant Calorimetrics, Flux Mapping, etc.
1977 – 1979	Plant Systems Engineer – Prairie Island Nuclear Plant Systems maintenance, performance monitoring, surveillance Leak rate testing, Troubleshooting, Design changes, etc.
1979 – 1985	Reactor Engineer – Prairie Island Nuclear Plant Reactor refueling, core performance monitoring, SNM, Fuel Handling equipment, Ops Training, S/U Testing

1985 – 1987	Senior Consultant - Special Nuclear Programs Various Reports, Industry Liaison, Program Coordination Industry Research, Performance Indicator Trends
1987 – 1990	Manager – Special Nuclear Programs Manage Programs (HLW, LLW, Decommissioning, etc.) Strategic Planning, FERC Testimony, Budget Oversight
1990 – 1991	Director – Electric Utility Human Resources Manage HR Issues (Training, Safety, Personnel, etc.) Critical Issues management, B/U Negotiation, etc.
1991 – 1993	Director – Electric Utility Materials Management Manage Procurement, Warehousing, Transformer Repair, Process Redesign, Inventory Control
1993 – 1997	Manager – Technical Standards – NSP Generation Establish Material and Work Process Standards, Drafting and Document Control, PFS Initiation, MOD Process
1997 – 1999	Manager – Nuclear Projects – NSP Nuclear Generation Manage Design and Projects Engineering, HLW management (including PFS), Programmatic Support
2000 – 2001	Director – Nuclear Asset Management – Xcel Energy, Inc. Administer Nuclear Power Plant agreement with NMC Manage strategic nuclear issues for Xcel Energy Supply including Private Fuel Storage

PROFESSIONAL AFFILIATIONS

American Nuclear Society
Nuclear Energy Institute – Spent Fuel Working Group
North Central Chapter – Health Physics Society
Utah Manufacturers Association
Salt Lake City Chamber of Commerce
Tooele Chamber of Commerce

PROFESSIONAL CERTIFICATIONS

Registered Professional Engineer – Minnesota and Wisconsin
Former NRC Licensed Senior Reactor Operator – 1981 – Prairie Island Nuclear Plant
Formerly Certified Weld Inspector – Level II

COMMUNITY SERVICE

Hastings Area Rotary Club – Current President-Elect, Community Service Chair
Dakota Area Resources and Transportation for Seniors – Board, Current Vice-Chair
United Negro College Fund – Volunteer, Fundraiser, Walkathon Chairman
Hastings School District – Science Fair Judge
Dakota Citizens Forum - Former Member
Boy Scouts of America – Current Asst Scoutmaster, Friends of Scouting Comm. Chair

PUBLICATIONS

Natural Resources Journal – *Rebuttal to Natural Resources Journal Environmental Ethics Manuscript by Noah Sachs* - New Mexico School of Law – Fall 1996 Volume 36 No. 4

Radwaste Solutions – Private Fuel Storage: Finding Real Solutions for Centralized Fuel Storage – January/February 2000

RESUME OF
JOHN L. DONNELL

JOHN L. DONNELL

Project Manager

EXPERIENCE SUMMARY

Mr. Donnell has 21 years of experience in nuclear project management and engineering. Currently, he is Project Manager for the Private Fuel Storage Facility project. The project is sponsored by a consortium of eleven utilities to develop a central interim storage facility for commercial spent nuclear fuel. In addition, he is the Project Manager for plant modifications work at the Prairie Island Nuclear Generating Plant for Northern States Power Company. His duties as Project Manager includes overall project direction, estimating, contract administration, controlling project costs, and scope change control.

He is also coordinating the corporate Stone and Webster Spent Independent Spent Fuel Storage Installation (ISFSI) Program and supporting all initiatives in this focus area of the power sector. In this capacity, he is responsible for project scoping, staffing, providing estimates, recommending spent fuel storage technology selection, and interfacing with client staff as well as state and federal agencies to support corporate goals for all spent fuel storage projects.

RELEVANT PROJECT EXPERIENCE

Private Fuel Storage LLC, Private Fuel Storage Facility - As Project Manager, responsible for the engineering, design, budget and schedule control for the project. Project scope includes production of all necessary federal licensing documents for submission to the NRC for this first of a kind private fuel storage facility supporting multiple nuclear utilities. The effort also includes site selection and characterization, preliminary facility engineering and design, and related facility and transportation infrastructures. The licensing documents are in compliance with the requirements of 10 CFR Part 72. Detailed engineering and design will follow the licensing effort for the storage facility, support buildings, and transportation system.

Northern States Power Goodhue County ISFSI, Prairie Island Nuclear Generating Plant - As Project Manager, responsible for overall project direction to support the site characterization study, engineering and design, and licensing for this offsite ISFSI. The licensing documents are in compliance with the requirements of 10 CFR Part 72. Duties included:

- Providing support and attending the public forum meetings.
- Participating in the site selection process and ISFSI conceptual design.
- Supervising the development of a storage technology assessment.
- Supervising the development of a storage technology bid specification.
- Supervising the development of the Minnesota State Application for Site Certificate.

He also supervised the development of the NRC License Application, including the preparation of the Safety Analysis Report (SAR), Environmental Report (ER), Emergency Plan (EP), and Security Plan (SP).

Northern States Power, Prairie Island Nuclear Generating Plant ISFSI - As Project Manager and Project Engineer, he was responsible for this project from the preparation of the license application through site operation. Project scope included:

- Generation of federal licensing documents for submission to the NRC. This effort provided the utility with a draft SAR, ER, technical specifications, and decommissioning plan.
- Engineering and design, including site selection, geotechnical studies, security system, cask monitoring system, radiation monitoring system, perimeter shielding berm, facility support

services, road access, cask transporter design review, and procurement support.

He also supervised the auxiliary building crane trolley upgrade to single-failure-proof. This project replaced the existing crane trolley with a single-failure-proof trolley operation to support the movement of the 125-ton spent fuel storage casks within the plant.

Northern States Power Company, Prairie Island Nuclear Generating Plant - As Project Manager, responsible for the overall day-to-day management of all Stone & Webster project activity at this power plant and interface with the utility management team, including departmental and project team members. Programmatic interfaces to the client project team were developed to utilize the best and most appropriate resources from both organizations. Individual task assignments include the development of more than thirty conceptual engineering studies, execution of the engineering and design for more than seventy-four modification tasks, and the preparation of Design Basis Documents.

Portland General Electric Company, Trojan Nuclear Plant - As Project Manager, responsible for all work performed by Stone & Webster at this power plant. Work included:

- Reviewing the decommissioning plan prior to submission to the NRC.
- Performing a facilities review to establish bid evaluation criteria to be used to select the storage technology vendor for an onsite ISFSI.
- Supporting the vendor selection process.
- Preparing a technical report identifying the available storage technologies, operational characteristics, and the implementation of a risk management program for the spent fuel project.
- Performing an evaluation to develop the strategy necessary to terminate the Part 50 License with the loaded ISFSI onsite.

EDUCATION

B.S., Electrical Engineering - University of Toledo

ASME Short Course Program - ASME Boiler & Pressure Vessel Code: Section III, Divisions 1 & 2, Quality Assurance for Design and Inspection of Nuclear Power Plant Components

LICENSES AND REGISTRATIONS

Professional Engineer - Colorado, Ohio, Minnesota

**Resume of
Clayton M. White**

PROFESSIONAL DOSSIER

(Updated January 2001)

Name:	Clayton M. White	Title:	Professor of Zoology
Birthdate:	April 19, 1936	Place of Birth:	Afton, Wyoming, USA
Address:	Department of Zoology Brigham Young University Provo, Utah 84602 Phone: (801) 378-4860 Fax: (801) 378-7499 email: Clayton.White@BYU.edu		1146 South 300 West Orem, Utah 84058 (801) 225-4320
		Married:	Merle Tanner, 1959 (5 children)

Social Security #:

Academic Record:

<u>Institution and Location</u>	<u>Degree</u>	<u>Scientific Field</u>	<u>Dates Attended</u>
University of Utah, Salt Lake City	B.A.	Zoology	1954-56; 1958-60
University of Utah, Salt Lake City	--	Graduate Work	1961-62
University of Alaska, College		Graduate Work	1962-63
University of Utah, Salt Lake City	Ph.D.	Zoology	1963-65; 1967-68

Employment Record:

University of Utah, Assistant Curator and Teaching Assistant, 1959-1962; 1963-1965.
University of Alaska, Teaching Assistant, Curatorial work at Museum, 1962-1963.
University of Utah, Laboratory and Teaching Assistant and Diener, College of Medicine, Department of Pathology, 1965, 1966-1968.
University of Kansas, Instructor and Acting Curator of Ornithology, 1965-1966.
Cornell University, Instructor and Research Fellow 1968-1970.
Brigham Young University, Assistant Professor, 1970-1974.
Brigham Young University, Associate Professor, Curator of Ornithology, 1974-1978.
U.S. Energy Research and Development Administration, Vertebrate Ecologist (Tec. Rep), Division of Biomedical and Environmental Research, Program Headquarters, Washington D.C., 1975-1976.
Brigham Young University, Professor and Curator of Ornithology, 1978-present.

Other:

Boise State University, Adjunct Professor of Zoology, 1988-present

Professional Experience: (see also under Public Relations)

- Summer employee, Ecologist, Ornithologist and Botanist, University of Utah Floral and Fauna Investigations, Flaming Gorge Reservoir Basin, 1959.
- Summer employee, Ecologist and Ornithologist, University of Utah Floral and Faunal Investigations, Navajo Reservoir Basin, 1960.
- Research and Field Assistant, "Birds of Utah" under William H. Behle, University of Utah, 1961-62.
- Field and Laboratory Assistant, Physiology and Systematics of Redpolls, under B. Kessel, University of Alaska, 1962-63.
- Field Technician, Physiology of Ptarmigan under George West and Lawrence Irving, Laboratory of Zoophysiology, Institute of Arctic Biology, University of Alaska, Summer 1964.
- Associate Investigator, with T. Cade on Grants from U.S. Fish and Wildlife and Arctic Institute of North America, "Peregrines and Pesticides in Alaska," Yukon River (1966), Colville River (1967-69).
- Associate Principle Investigator, "Ecology of Cliff Nesting Birds in Alaska," U.S. IBP Tundra Biome, 1971-72.
- Associate Investigator with F. S. L. Williamson, Smithsonian Institution, "Avifauna Investigation of Amchitka Island, Alaska," Funds from U.S. AEC and Battelle Laboratories, 1969-1974, for the underground nuclear testing program.
- Consultant, Battelle Memorial Institute Columbus Labs, Impact of Gas pipelines on Gulf Coast of Louisiana and Arctic Slope of Alaska, 1972-1975.
- Consultant, General Research Corporation, Environmental Studies of Nevada Continental Operation Range, 1974, for low level supersonic military flights.
- Special Temporary Employee and Observer, U.S. Fish and Wildlife, "Impact of Alaska Pipeline; Impact of Alaskan Reservoir Basins; and Reintroduction of Endangered Species in Alaska," Summers, 1970, 1972, 1974, 1975.
- Invited Senior Researcher, Victoria Fisheries and Wildlife Division, Victoria, Australia, Sept.-Nov. 1976, Sept.-Nov. 1977, Oct.-Nov. 1978, Work on "Population Dynamics of Australian Raptors."
- Project Leader, June-Aug. 1977, "Ecological Profile of Raptors and their habitat in western Alaska," for BLM, Alaska office, a study of endangered species for the D-2 lands in the Alaskan Native Lands Claims Settlement Act.
- Consultant, Vaughn Hansen Associates, "Endangered Species and Coal Development in Utah." 1977-1980.
- Consultant, Dow, Lohnes and Albertson Law Offices and Pittston Oil Co., "Endangered Species and the Eastport, Maine Refinery," 1978-79.
- Consultant, Coastal States Energy Co., "Endangered species, birds and energy development." 1979-1982.
- Principal Investigator, "The Effects of Geothermal Development on Ferruginous Hawks," Department of Energy funds thru EG&G, Idaho, and U.S. Fish and Wildlife Service, 1978-1980.
- Member, Scientific Advisory Committee, On Potential Impact of Space Shuttle Sonic Booms on the Biota of the California Islands, Hubbs/Sea World Research Inst., 1978-1979.
- Co-investigator, "Peregrine falcon nesting habitat survey on the Six Rivers, Mendocino, Klamath, and Shasta - Trinity Nat'l. Forests," U.S. Forest Service, 1979.
- Co-investigator, "A survey of North American Migrant Peregrine Falcons in South America," U.S. Fish and Wildlife Service project, 1979-80, work in Argentina, Brazil and Peru.
- Co-investigator, "Peregrine falcon nesting habitat survey on U.S. Forest Service lands along the west slope of the Sierra Nevada Mountains - 1980" and "Fremont National Forest, Oregon," U.S. Forest Service, 1980.
- North American Coordinator, Bird of Prey World Working Group, International Council for Protection of Birds, International Union for the Conservation of Nature and Natural Resources, Morges, Switzerland, 1979-present.
- Co-investigator, "Evaluation of Warner Valley, Oregon for reintroduction of nesting peregrine falcons," U.S. Bureau of Land Management, May 1982.
- Co-investigator, "Effects of Carbofuran Pesticide Formulations on Birds in Corn and Alfalfa", F.M.C. Corporation, 1982.

Consultant, Bechtel Group, Inc., "Survey of Endangered Species at Gibson Dome and Elk Ridge study areas, Paradox Region, Utah" for siting of underground nuclear waste dumps, 1982, 1983, and 1985.

Consultant, Bechtel Group, Inc., "Threatened and Endangered Species Along the Proposed CO₂ and Phosphate Slurry Pipeline, Wyo., Utah and Colo." for the Chevron Corporation, 1984-1985.

Consultant, Utah Department of Transportation, Assessment of endangered species along highways, on retainer, 1984-present.

Member of exchange team/workshop on Bird Banding with U.S. Fish Wildlife Service, to the Peoples Republic of China, 1988.

Participant, U.S./U.S.S.R. Environmental Exchange Program, U.S. Fish Wildlife Service, to Kazakhstan, S.S.R., Summer 1991.

Expert Witness, Exxon Company, U.S.A., on Exxon Valdez Gulf of Alaska (Prince William Sound) oil spill, and consultant, Alaska Biol. Res. Inc., 1989-1992.

Consultant, Lockheed Environmental Services Division, Las Vegas, NV., on EPA's EMap Arid Field Study, 1994.

Consultant, Baseline Data, Inc., Salt Lake City and Orem, UT., on WestDavis/Lagacy Highway development, Davis and Salt Lake Counties, UT., 1997-1998.

Teaching Experience:

Brigham Young University (1970 to present)

Honors 211R, 221R, 241R: Shaping the Modern Mind. Colloquium in Arts, Letters, and Sciences. Team taught.

Biology 200: General Biology for Zoology majors. Team taught. I taught ecology, evolution and animal diversity.

Zoology 203: Vertebrate Zoology. Diversity and evolution of vertebrates.

Zoology 204: Animal Diversity. Team taught. I taught vertebrate portion on structure, function, and evolution.

Zoology 334: Nature Study Methods. Natural history for primary education majors.

Zoology 344: Natural History of Wildlife

Zoology 446: Ornithology. Ecology, natural history and evolution of birds.

Zoology 475: Evolutionary Science. Team taught. Organic evolution. I taught evidence portion using radiometric dating, fossil record, biogeography, anatomy, and biochemical evidence.

Zoology 549R: World Bird Families. A survey of birds of the world using museum specimens.

Zoology 549R: Raptor Biology. The ecology and natural history of birds of prey.

Zoology 601: Zoogeography. Study of the distribution of animals as explained by historical data and contemporary theory.

Seminar on Conservation Biology. Team taught.

Cornell University (1968-1970)

Vertebrate Zoology: Team taught. I taught portion on birds.

Ornithology: Biology of birds.

University of Kansas (1965-1966)

Biogeography: Team taught. Distribution of life on earth.

Tropical Biology: Team taught. I taught bird portion of tropical species.

Ornithology: Biology of birds.

University of Alaska (1962-1963)

General Zoology: Teaching and laboratory assistant.

Ornithology: Teaching and laboratory assistant, Assistant curator.

University of Utah (1959-1962, 1964-1965, 1966-1968)

Pathology: Teaching assistant at medical school for 2nd year medical students.

Ornithology: Teaching assistant.

Vertebrate Natural History: Teaching assistant.

Boise State University (1989)

Seminar: Raptor Biology and Evolution (Fall quarter)

Research Activities: (past and present)

See also Professional Experiences for many of the activities:

(1) U.S. Forest Service, "Raptors in the Uinta Forest," 1972-75. \$3,000 per year. (2) U.S. Fish and Wildlife, "Peregrine Survey of Utah and Central Nevada 1972-74. \$4,000. (3) Seabird/Plutonium Contamination Study, Thule, Greenland, AIBS-ERDA, 1975, \$4,200. (4) Victoria Fisheries and Wildlife, Australia, "Raptor Populations." 1976, \$4,800, 1977, \$5,200. (5) E. G. and G., "Bird studies at Raft River Geothermal site." Summer, 1977-1979, \$35,000. (6) Ecological relationships of vertebrates to spruce budworm control and forest management practices, U.S. Forest Service, \$25,000. (7) Peregrine falcon survey of Northern California National Forests, U.S. Forest Service, 1979, \$34,000. (8) Gas pipelines and bald eagles, Northwest Pipeline Co., 1979, \$4,000. (9) Migrant North American Peregrine Falcons in South America, U.S. F.W.S., 1979-80, \$50,000. (10) Peregrine Falcon Survey, Sierra Nevada Mountains, California and Southern Oregon, U.S. Forest Service, 1980, \$30,000. (11) Raptors of the proposed MX regions, Utah and Nevada, HDR Sciences, 1980, \$12,000, 1981, \$12,000. (12) Endangered Species on Proposed Nuclear Waste Dump Sites, Bechtel Group, Inc., 1982, \$13,000, 1983, \$12,000, 1985, \$8,000. (13) Endangered Species and Raptors along the CO₂/Phosphate Pipeline, Bechtel Group and Chevron Corporation, 1984-85, \$43,000. (14) Endangered Species, UDOT, 1984-1989, \$20,000. (15) Biology of Peregrine Falcons in the Fiji Islands, Chemtronics, Inc., San Diego, CA, 1985-1991, \$71,000. (16) Goshawk studies, Dixie Nat'l Forest, 1991, \$21,000, 1992, \$16,000. (17) Preliminary investigations of the "Altay (Altai)" Falcon, USSR (Khazakstan and southern Russia), Trust for Mutual Understanding, \$ 17,000, 1991. (18) Goshawk Studies, Ashley Nat'l Forest, 1992, \$12,000. (19) Endangered Species, Katami Nat'l Park, Alaska, 1993, \$51,000, (20) Biology of Peregrine Falcons in Fiji and Vanuatu, Dan Brimm, San Diego, CA, 1992-93, 1996-98, \$71,000, (21) The Mountain Plover in the Uintah Basin, Utah Div. Wildl. Res. and USBLM, 1996, \$ 14,300, 1997, \$17,000, 1998, \$15,000. 1999-2000, \$15,000. (22) Possible impact on flammulated owls from the Winter Olympics development at Snow Basin, UT., \$ 21,000. (22) Northern Goshawk movements as determined by satellite telemetry, U.S. Forest Service, 2000-01, \$ 110,000.

Research Interests: (1) Plastics in stomachs of Sea Birds, (2) Winter Lipid Deposition in Arctic Finches (3) DDE in the Birds of Utah Lake Ecosystem (in conjunction with Utah Board of Health), (4) Ecology of Peregrine Falcons in Alaska, (5) Birds of Aleutian Islands, Alaska, (6) Captive Breeding of Peregrine Falcon, (7) Australian Raptors. (8) Spatial Patterns in Linear Distributed Raptors of the Green River. (9) Nesting relationship of Buteo in juniper forests. (10) Biochemical systematics of the family Falconidae. (10) Biogeography and distribution of Falconiformes. (11) Biology and Evolution of Island Birds (South Pacific). (12) Environmental impacts from human activity on the breeding biology of raptors.

Publications and Writings:

Books -- Editor:

Murphy, J. R., C. M. White, and B. E. Harrell. (eds). 1975. Population Status of Raptors. Raptor Res. Report No. 3. Vermillion, South Dakota, 232 pp.

Senner, S. E., C. M. White, and J. R. Parrish (eds.). 1986. Raptor conservation in the next 50 years. Raptor Res. Report No. 5, Provo, Utah, 87 pp.

Cade, T. J., J. H. Enderson, C. G. Thelander, and C. M. White (eds.). 1988. Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund Inc., Braun-Brumfeld, San Francisco, California. 949 pp.

Chapters in Books:

White, C. M. 1975. Studies on peregrine falcons in the Aleutian Islands. In: J. R. Murphy and C. M. White (eds), Population Status of Raptors. Raptor Res. Report No. 3, Vermillion, South Dakota. pp. 33-50.

White, C. M. and R. W. Risebrough. 1977. Polychlorinated biphenyls in the ecosystems, Ch. 25, pp. 615-625. In: M. L. Merritt and R. G. Fuller (eds), The Environments of Amchitka Island, Alaska. U.S. ERDA., TID-26712 Oak Ridge, Tennessee.

White, C. M., F. S. L. Williamson and W. B. Emison. 1977. Avifaunal investigations, Ch. 11, pp. 227-260. In: M. L. Merritt and R. G. Fuller (eds), The Environments of Amchitka Island, Alaska. U.S. ERDA., TID-26712 Oak Ridge, Tennessee.

White, C. M. 1982. Food and other habits in relation to the evolution of the peregrine falcon in Alaska, pp. 174-186. In: W. H. Ladd and P. F. Schempf (eds) Raptor Management and Biology in Alaska and Western Canada. Proc. FWS/AK/PROC-82, Anchorage, Alaska.

White, C. M. 1987. The peregrine: systematics and evolution. pp. xii-xxx. In: R. D. Porter, A. Jenkins, and A. Gaski (eds). Working bibliography of the peregrine falcon. Nat. Wildl. Fed. Sci. Tech. Ser. No. 9. Wash. D.C.

- Boyce, D. A., Jr. and C. M. White. 1987. Evolutionary aspects of Kestrel Systematics: a scenario. pp. 1-21. In: D. M. Bird and R. Bowman (eds.). The Ancestral Kestrel, Raptor Research Reports No. 6, Raptor Res. Found., Inc.
- Ambrose, R. E., R. J. Ritchie, C. M. White, P. F. Schempf, T. Swem, and R. Dittrick. 1988. Changes in the status of peregrine falcon populations in Alaska, pp. 73-82. In: Cade, T. J., et al. (eds.), Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- McNutt, J. W., D. H. Ellis, C. P. Garat, T. B. Roundy, W. G. Vasina, and C. M. White. 1988. Distribution and status of the peregrine falcon in South America, pp. 237-249. In: T. J. Cade, et al. (eds.), Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- White, C. M., D. J. Brimm, and F. Clunie. 1988. A study of peregrines in the Fiji Islands, South Pacific Ocean, pp. 275-287. In: T. J. Cade, et al. (eds.), Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- White, C. M. and D. A. Boyce, Jr. 1988. An overview of peregrine falcon subspecies, pp. 789-810. In: T. J. Cade, et al. (eds.), Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise, Idaho.
- White, C. M., D. A. Boyce, and R. Straneck. 1989. Observations of Buteo swainsoni in Argentina, 1984; with comments on food, habitat alteration and agricultural chemicals, pp. 79-87. In B-U Meyburg and R. D. Chancellor (eds.), Raptors in the Modern World, Proc. 3rd World Conf. Birds of Prey, Eilat, Israel, 1987.
- White, C. M., R. W. Risebrough and S. A. Temple. 1989. Observations on North American breeding peregrines (Falco peregrinus) on the non-breeding grounds in South America, pp. 89-93. In B-U Mayburg and R. D. Chancellor (eds.), Raptors in the Modern World, Proc. 3rd World Conf. Birds of Prey, Eilat, Israel, 1987.
- Longmire, J. L., R. E. Ambrose, N. C. Brown T.J. Cade, T. Maechtle, W. Seegar, F. Ward, and C. M. White. 1991. Use of sex-linked minisatellite fragments to investigate genetic differentiation and migration of North American populations of the peregrine falcon Falco peregrinus. pp 217-229. In T. Burke, G. Dolf, A.J. Jeffreys and R. Wolff (eds). DNA Fingerprinting Approaches and Applications, Birkhauser Verlag, Basel, Switzerland.
- White, C.M., J.R. Parrish, D.J. Brimm and J.L. Longmire. 1993. Aspects of variation between peregrine falcons: a review with emphasis on Southern Hemisphere populations. pp.13-24, In: P. Olsen (Ed.), Proc. Australian Raptor Studies, Royal Australian Ornithologists' Union, Melbourne, Australia

- Emison, W.B., W.M. Bren and C.M. White. 1993. Influence of weather on the breeding of *Falco peregrinus* near Melbourne. pp.26-32, In: P. Olsen (Ed.). Proc. Australian Raptor Studies, Royal Ornithologists' Union, Melbourne, Australia.
- White, C.M., P.D. Olsen, and L.F. Kiff. 1994. Family Falconidae, pp. 216-247. in: J. del Hoyo, A. Elliott, and J. Sargatal, (eds.), Handbook of the Birds of the World, Vol. 2, New World Vultures to Guinaefowl. Lynx Edicions, Barcelona, Spain.
- White, C.M., R.J. Ritchie, and B.A. Cooper. 1995. Density and productivity of bald eagles in Prince William Sound, Alaska, after the *EXXON VALDEZ* oil spill, pp. 762-779. in P.G. Wells, J.N. Butler, and J.S. Hughes (eds.). *Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters*. ASTM STP 1219, American Soc. Testing and Materials, Philadelphia, PA.
- White, C.M., and L.F. Kiff. 1998. Language use and misapplied, selective "science;" their roles in swaying public opinion and policy as shown with two North American raptors. pp. 547-560. In B-U. Meyburg, R.D. Chancellor and J.J. Ferrero (eds.). Holarctic Birds of Prey, Proc. 5th International Conf., World Working Group of Birds of Prey, Badajoz, Spain.
- Anderson, J.H., C.M. White, and U. Banasch. 1998. Captive breeding and releases of peregrines, *Falco peregrinus* in North America. pp. 437-444. In. B-U. Meyburg, R.D. Chancellor, and J.J. Ferrero (eds.). Holarctic Birds of Prey, Proc. 5th International Conf., World Working Group of Birds of Prey, Badajoz, Spain.
- White, C.M. and L.F. Kiff. 2000. Biodiversity, island raptors and species concepts. pp. 633-652. In. R.D. Chancellor and B.-U. Meyburg (eds.). Raptors at Risk. Proc. V World Conf. Birds of Prey and Owls, Midrand, Johannesburg, South Africa, 4-11 Aug 1998. Hancock House, Surrey, B.C., Canada.
- Anderson, C.M. and C.M. White. 2000. Recent observations on peregrine falcons *Falco peregrinus* on of Cape Verde Islands, Atlantic Ocean. pp. 685-689. In. R.D. Chancellor and B.-U. Meyburg (eds.). Raptors at Risk. Proc. V World Conf. Birds of Prey and Owls, Midrand, Johannesburg, South Africa, 4-11 Aug 1998. Hancock House, Surrey, B.C., Canada.
- White, C.M., D.J. Brimm and J.H. Wetton. 2000. The peregrine falcon *Falco peregrinus* in Fiji and Vanuatu. pp. 707-720. In. R.D. Chancellor and B.-U. Meyburg (eds.). Raptors at Risk. Proc. V World Conf. Birds of Prey and Owls, Midrand, Johannesburg, South Africa, 4-11 Aug 1998. Hancock House, Surrey, B.C., Canada.

Article -- Peer Reviewed and others:

- White, C. M. and W. H. Behle. 1960. Birds of Flaming Gorge Reservoir Basin, Utah and Wyoming. Anthro. Papers, University of Utah 48:186-208.

- White, C. M. and W. H. Behle. 1961. Birds of Navajo Reservoir Basin in Colorado and New Mexico, 1960. Anthro. Papers, University of Utah 55:130-51.
- White, C. M. and G. D. Lloyd. 1962. Predation on peregrines by ringtails. Auk 79:277.
- White C. M. 1962. Prairie falcon displays accipitrine and circinine hunting methods. Condor 64:439-440.
- White, C. M. 1963. Botulism and myiasis as mortality factors in falcons. Condor 65:442-443.
- Richards, G. L. and C. M. White. 1963. Notes on the common crow in Utah. Condor 65:530-531.
- White, C. M. 1963. Unusual behavior of the northern shrike. Wilson Bull. 75:459-460.
- Behle, W. H., J. B. Bushman, and C. M. White. 1963. Distributional data on uncommon birds in Utah and adjacent states. Wilson Bull. 75:450-456.
- White, C. M. and W. H. Brooks. 1964. Additional bird records for interior Alaska. Condor 66:308.
- Kessel, B., H. K. Springer, and C. M. White. 1964. June birds of the Kolomak River, Yukon-Kuskokwim Delta, Alaska. The Murrelet 45(3):37-47.
- White, C. M. 1964. Comments concerning Alaskan peregrine and gyrfalcon populations. J. North American Falconry Assoc. 3(1):9-11.
- White, C. M. and H. K. Springer. 1965. Notes on the gyrfalcon in Western Coastal Alaska. Auk 82:104-105.
- White, C. M., G. D. Lloyd and G. L. Richards. 1965. Goshawk nesting in upper Sonoran of Colorado and Utah. Condor 68:269.
- White, C. M. 1965. Roadside raptor count through Utah, Colorado and Kansas. Bull. Kansas Ornithological Soc. 16:18-19.
- Welch, F. and C. M. White. 1965. Two owls with potential in falconry. J. North American Falconry Assoc. 4:15-17.
- White, C. M. 1966. Notes on food of Swainson's Hawk. Bull. Kansas Ornithology Soc. 17(1):10.
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- White C.M. 1998. Spiritual Trails I Have Traveled: The Inarticulate Speech of My Heart, pp. 152-160. In: T.T. Williams, W.B. Smart, and G.M. Smith (eds), New Genesis: A Mormon Reader on Land and Community. Gibb Smith Publ, Salt Lake City, UT.
- White, C.M. 1999. The Power of Landscape and Place; Inarticulate Speech of my Heart, pp. 38-47. In: G. Hatch and D. Paul. (Eds.), Enter to Learn. Brigham Young University, Provo, UT.
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Articles in Press

- White, C. M., D.J. Brimm, and J.H. Wetton. The peregrine falcon (*Falco peregrinus*) in Fiji and Vanuatu. Proc. 8th Pacific Sciences Inter-Congress, "Islands in the Pacific Century", Suva, Fiji, 13-19 July 1997 (in press).
- Ellison, A.E., and C.M. White. 2001. Breeding biology of the Mountain Plover (*Charadrius montanus*) in the Uintah Basin. *Western North American Naturalists*. (In press)
- Ellison, A.E., and C.M. White. 2001. Nest site selection of the Mountain Plover (*Charadrius montanus*) in a shrub-steppe habitat. *Western North American Naturalists*. (In press).
- Baker, A.J., D.F. Whitacre, O.A. Aguirre-Barrera, and C.M. White. 1999. First record of a Barred Forest-falcon (*Micrastur ruficollis*) nesting in a cliff pothole. *Ornithología Neotropical* 11: (in press).

Manuscripts for Submission or under Review

- White, C. M. The biosystematics of North American Peregrine falcons.(Ph.D. thesis, MS in prep. to submit to A.O.U. Monograph.)

- White, C. M. Comments on wintering fattening in Aleutian Island rosy finches. (MS)
- Williamson, F. S. L., C. M. White and W. B. Emison. The biology of the birds of Amchitka Island, Alaska. Pacific Coast Avifauna (300 page MS accepted for monograph series).
- Hehnke, M. F. and C. M. White. A study of bald eagle populations in the Alaska Peninsula. For Murrelet.
- White, C. M. Plastic particles in the stomach of parakeet auklets in the Aleutian Islands (MS to submit to West. Birds or Marine Pollution Bull.).
- Springer, A.M., R.W. Risebrough, C.M. Anderson, D.H. Ellis, M. Sander, S.A. Temple, G. Vanina and C.M. White. (1988) Acumulacao de organoclorados no falcao peregrino, *Falco peregrinus* na American do Sul. accepted pending revisions, Rev, Brazil Biol.
- Lloyd, J., and C.M. White. 2001. Mountain Plover (*Charadrius montanus*) nest site selection: a microhabitat analysis. (For Western North American Naturalists)

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- Cade, T. J., C. M. White, J. R. Haugh and W. R. Spofford. 1967. Ecology of Raptorial Populations in Arctic Alaska. Arctic Institute of North American, Wash., D.C. (ONR Project 391), 53 pp.
- Cade, T. J., C. M. White, J. R. Haugh, J. H. Enderson and S. A. Temple. 1968. Ecology of Raptor Populations in Arctic Alaska. Arctic Institute of North America, Wash. D.C. (ONR Project 409), 26 pp.
- White, C. M. and J. H. Streater. 1970. Survey of raptorial birds along the proposed Trans-Alaska Pipeline System. U.S. Fish and Wildlife Service, Anchorage, Alaska. 10 pp. plus maps.
- Cade, T. J., C. M. White, J. R. Haugh. 1971. Ecology and Current Status of Cliff nesting raptors in Arctic Alaska. AINA and Tundra Biome USIBP (Project Code 5342), 22 pp.
- White, C. M. and T. D. Ray. 1972. Results of T.A.P.S. raptorial bird survey, 1972. U.S. Fish and Wildlife Service, Anchorage, Alaska. 9 pp. plus maps.
- White, C. M. and S. K. Sherrod. 1973. The peregrine falcon in the proposed Woodchopper Reservoir impoundment area, Yukon River. U.S. Fish and Wildlife Service, Anchorage, Alaska and Alaska Power Corporation. 8 pp. plus maps.
- Mosher, J. A., J. R. Murphy and C. M. White. 1973. Study of rare or endangered raptors of the Uinta National Forest, final report. Typed report, USFS Forest Supervisors Office, Provo, Utah, 24 pp.
- Mosher, J. A., J. R. Murphy and C. M. White. 1974. Study of rare or endangered raptors of the Uinta National Forest 1974. Typed report, USFS, Forest Supervisor's Office, Provo, 20 pp.

- White, C. M. 1974. The peregrine falcon in the region of the Alaska Pipeline, Yukon River Crossing Stevens Village to Tanana, Yukon River. U.S. Fish and Wildlife Service, Anchorage, Alaska. 7 pp. plus maps.
- Jorgensen, C. D., C. M. White, P. T. Tueller. 1974. Environmental Studies, analysis, and impact statement for the continental operations range. General Research Corporation, Santa Barbara, Calif., 146 pp.
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- Mosher, J. A., J. R. Murphy and C. M. White. 1974. Study of rare or endangered raptors of the Uinta National Forest 1974. Typed report, USFS, Forest Supervisors Office, Provo, Utah 20 pp.
- White, C. M. and T. J. Cade. 1975. Raptor studies along the proposed Susitna powerline corridors, oil pipeline, and in the Yukon and Colville River regions of Alaska. Combined report for 1975 to U.S. Fish and Wildlife Service, Bureau of Land Management, National Park Service, Arctic Institute of North America and American Museum of Natural History. 29 pp. plus 2 Figs., 11 Tables.
- White, C. M. and D. A. Boyce. 1977. Distribution and ecology of raptor habitat studies for the Kilbuk Mts., Anvik, Unalakleet, and Northwestern Arctic regions of Alaska. Bureau of Land Management, Anchorage, Alaska. 49 pp. plus maps.
- White, C. M. and S. G. Jones. 1977. Distribution and ecology of the peregrine falcon in Victoria, Australia--final report. Fisheries and Wildlife Division, Ministry for Conservation, Victoria, Australia, 92 pp.
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- White, C. M. and T. L. Thurow. 1979. Ferruginous Hawks and geothermal development. Final Report for 1978 (contract EY-77-07-1674) U.S. Dept. of Energy and E G and G. 22 pp.
- White, C. M. 1979. A Bald Eagle study of the Colorow Gathering System, Rio Blanco Co., Colorado. Prepared for Northwest Pipeline Corporation. 12 pp. plus 6 Figs.
- Boyce, D. A. and C. M. White. 1979. A Peregrine Falcon nesting habitat survey on U.S. Forest Service lands in northwestern California - 1979. Report to U.S. Forest Service, Contract 53-9A47-9-17. 59 pp plus 226 p. appendix.
- Boyce, D. A. and C. M. White. 1979. A peregrine falcon nesting habitat survey on U.S. Forest Service lands in northwestern California, 1979. Wilderness Research Institute Inc. 59 pp. plus 237 pgs. appendix.
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- Boyce, D. A. and C. M. White. 1980. Peregrine falcon nesting habitat survey on U.S. Forest Service lands along the west slope of the Sierra Nevada Mountains - 1980. Report to U.S.F.S., contract 53-9IU9-0-80029. 46 pp. plus 260 pp. appendix.
- Murphy, J. R. and C. M. White. 1980. Raptor surveys in the Intermontane Valleys (MX racetrack areas) of Western Utah and Eastern Nevada, May-June 1980. Final Report to HDR Sciences Division, 14 pgs. plus tables.
- Smith, H. D., J. T. Flinders, C. D. Jorgensen and C. M. White. 1980. Ecology of vertebrate wildlife in relation to spruce budworm and forest management practices, 203 pp. Submitted to U.S. Forest Service CANUSA - WSBW Program, Portland, Oregon.
- White, C. M. 1980. The avifauna and raptors of the skyline mine project. Report to Coastal States Energy, Co., SLC, Utah. 11 pp. plus maps and appendix.
- White, C. M. 1980. Raptors and general avifauna studies SUFCo, Convulsion Canyon, July-August, 1980. Report to Coastal States Energy Co., SLC, Ut. 14 pp. plus maps and appendix.
- White, C. M. 1980. Raptor survey of right fork, starpoint fork of Deadman Canyon and Straight Canyon, Pennacle Mine. Report to AMCA Coal Leasing, Price, Ut. 8 pp. plus maps.

- Mader, W. J. and C. M. White. 1981. Raptor surveys at the proposed MX-08 site, Coyote Springs area, Nevada and Milford-Beryl areas, Utah and Special Adjacent Peregrine Falcon Survey areas - June 1981. Report to HDR Sciences Div., 20 pp plus maps.
- White, C. M. 1982. Final Report of Survey of Endangered Vertebrate Species, Gibson Dome and Elk Ridge, San Jaun Co., Utah. Report to Bechtel Group, Inc. for National Waste Terminal Storage Program, DOE, 19 pp. plus 4 maps.
- Boyce, D. A. and C. M. White. 1982. Peregrine falcon nesting habitat survey along Fish Creek River, Oregon. BLM (contract YA-553-07-1071), Final Report, BLM, Lakeview, Oregon, 46 pp.
- Jorgensen, C. D., G. M. Booth, M. W. Carter, C. M. White and R. C. Whitmore, Jr. 1982. The effects of Carbofuran 4F formulation (Furadan 4F) on avian and insect populations in alfalfa (Medicago sativa). 120 pp. Submitted to F.M.C. Corporation, Philadelphia, PA.
- Jorgensen, C. D., G. M. Booth, M. W. Carter, C. M. White and R. C. Whitmore, Jr. 1982. The effects of two Carbofuran formulations (10G and 15G) on avian populations associated with corn fields. 15 pp plus 40 tables and graphs. Submitted to F.M.C. Corporation, Philadelphia, PA.
- White, C. M. 1982. Final report of surveys of endangered vertebrate species, Gibson Dome and Elk Ridge study areas, San Juan Co., Utah. Report to Bechtel Group, Inc. San Francisco. 18 pp. plus 7 pp. maps and appendix.
- White, C. M. 1982. Letter report of site surveys of borehole and meterological stations adjacent to Gibson Dome, for endangered animals. Report to Bechtel Group, Inc. San Francisco, 5 pp.
- White, C. M. 1983. Letter report on literature review for endangered species and other items in Task 2, for Gibson Dome study area. Report to Bechtel Group, Inc. San Francisco. 11 pp. plus 24 pp. maps and appendix.
- White, C. M. 1983. Draft-final report, endangered vertebrates, Gibson Dome. Report to Bechtel Group, Inc. San Francisco. 13 pp.
- White, C. M. and D.A. Boyce, Jr. 1984. Preliminary findings of the professional development grant to study Neotraopical Falconids, Argentina, 27 Dec. to 22 Jan. 1984. Report to BYUPDC, 42pp.
- White, C. M. 1984. Environmental checklist for threatened and endangered animals, King Mine, Carbon Co., Utah. Report to Bechtel National, Inc., San Francisco, 10 pp.
- Bio/West, Inc., Endangered Plant Studies, Inc., and C. M. White. 1984. A threatened and endangered species survey for proposed CO₂ and Phosphate Slurry Pipelines, Colorado, Utah and Wyoming (PR-96-1). Report to the Chevron Corporation through Bechtel Group, Inc., 40 pp plus 20 pp appendix, plus map.

- White, C. M. 1985. Bald eagles and the Phosphate-CO₂ pipeline. Report to Bechtel Group, Inc. on behalf of Chevron Corporation, 45 pp.
- White, C. M. 1985. Raptors and grouse along the Phosphate - CO₂ pipeline. Report to Chevron Resource Corporation, San Francisco, 25 pp. plus 44 pp. appendix.
- White, C. M. 1987. Faunal resources, birds: U.S. Highway 189, Utah Valley to Heber Valley, Utah and Wasatch Co. Utah. Report by H.D. Smith and Assoc. (Provo) and HNTB (Seattle), 25 pp + tables.
- White, C. M. 1988. Endangered animal species along the Utah Power and Light Southwest Intertie Project (SWIP). Report to Endangered Plants, Inc., Provo, UT. 20 pp.
- White, C. M. 1989. Kaiparowits Coal Project Raptor Survey. Report to Andalex Resources, Inc., Tower Division, Price, UT. 5pp + map.
- Crawley, J. and C.M. White. 1990. Final Report: *Pandion haliaetus* on Flaming Gorge: 1989-1990 breeding season. Report to Utah Div. Wildl. Res. and U.S. Forest Serv., 30 pp + 6 maps.
- Sherrod, S.K., B.J. Walton, and C.M. White. 1991. Khazakstan, S.S.R. initial joint U.S.- U.S.S.R. falcon work, 12-26 June 1991. Report to Mutual Trust for Understanding, 15 pp.
- Johansson, C. and C.M. White. 1991. Dixie National Forest 1991 goshawk project. Submitted to Dixie National Forest, Cedar City, Utah., 40 pp.
- White, C.M. 1992. Raptor survey, Wah Wah Mt. area for proposal seismic lines, Northern Geophysical of America, Co., 7 pp.
- White, C.M., J. Holmes and D. Beal. 1992. A preliminary survey of northern goshawk nesting habitat: Manila Ranger District, Ashley National Forest and Evanston and Mt. View Districts, Wasatch-Cache National Forest. Submitted to D. Winn, U.S. Forest Service, Logan Ut., 15 pp. + 9 maps.
- Johansson, C. and C.M. White. 1993. Dixie National Forest 1992 Goshawk Project, Final Report. Dixie Nat'l Forest, Cedar City, UT. 21 pp.
- White, C.M, C. Johansson and P. Hardin. 1993. A peregrine falcon survey of Katmai National Park, Alaska, Challenge Grant account # 5-20676. Katmai National Park and Preserve, King Salmon, Ak. 26 pp + map.
- Ellison, A. and C.M. White. 1996. Biology and habitat use of mountain plovers in the Uintah Basin. Report to U,S. BLM and Utah Div. Wildl. Resour. 20pp.
- White, C.M. 1997. Legacy Highway bird surveys, April-September 1997, Final Report. Submitted to Baseline Data, Inc., Orem, UT. 14 pp. text, 52 pp. tables 9 pp. maps.

- Ellison, A., C.M. White and M. Landers. 1998. Mountain plover surveys on the Monument Butte oil field and habitat relationships, April to August 1997. Submitted to the U.S. BLM, Vernal District and Utah State Div. Wildl. Resources, NE Region. 15 pp., text, 5 tables.
- Ellison, A., C.M. White and W. Mendel. 1999. Mountain plover surveys on the Monument Butte oil field; April to August 1998. Submitted to U.S. BLM, Vernal District and Utah Division of Wildlife Resources, Northeastern Region. 13pp text + 5 Tables
- Lloyd, J.E., C.M. White and T.T. Lloyd. 2000. Mountain Plover *Charadrius montanus* populations and nest site selection in the Utah Basin,: A Micro habitat Analysis. Submitted to U.S. BLM, Vernal District and Utah State division of Wildlife Resources, 19pp text + 6 Tables.

Academic and Professional Honors, Awards, and Appointments:

- Frances B. Roberts Award, Cooper's Ornithological Society, 1968.
 Elected member, Laboratory of Ornithology, 1969.
 Sigma Xi Grant-in-Aid, 1964.
 Chapman Fund Grant, American Museum of Natural History, 1966.
 Sigma Xi, ASBYU Research Award, 1973.
 Elected member, American Ornithology Union, 1974.
 Appointed member, Alaskan peregrine falcon recovery team. Office of Endangered Species, Dept. of the Interior, 1974-1985.
 Appointed member, American Ornithologist Union, Committee on Public Responsibility, 1977.
 Appointed member, Advisory Committee for Division of Polar Programs, National Science Foundation, 1978-1985.
 Included in American Men and Women in Science, 12th ed.
 Board of Directors, Peregrine Fund, Inc., 1983-1991.
 Scientific Advisor, Greenland Peregrine Falcon Survey Team, Ohio, 1980-present.
 Board of Advisors, Falcon Research Group, Washington State, 1982-present.
 Advisory Board, Salt Lake City Tracy Aviary, 1982-present
 Member, four member "Blue-Ribbon" panel on California Condor status, funded by Sierra Club, Oct. 1984
 Advisory Board, Western Foundation for Raptor Conservation, New Mexico, 1986-1990.
 Scientific Advisor, Geo. M. Sutton Avian Research Center, Oklahoma, 1984-present.
 Adjunct Professor of Biology, Dept. Biology, Boise State University, 1985-present.
 Nature Conservancy, Utah Advisory Committee, Great Basin Field Office, 1986-present.
 Invited participant, 9-person team, U.S.-PRC Bird migration workshop, Qingdao, People's Republic of China, 3-18 October 1988.
 Appointed member, American peregrine falcon recovery team, Western U.S. Office of Endangered Species (Regions 1, 2, & 6). U.S. Fish and Wildlife. Serv., 1987-1994.
 Department Outstanding Achievement and Service Award, 1990-91.
 College of Biological and Agricultural Sciences Creative Achievement Award, 1993.
 Guest Dinner Speaker, American Birders Association Convention, 17-23 June 1996, Park City, Utah.

Karl G. Maeser Research Award (University award), in recognition of extraordinary research, August 1996.

International Game Bird and Conservationists' Association award (cash award), 1996., for work on Red-tailed Black Cockatoo in Victoria, Australia.

Overseas outside reader, dissertation examiner, or adjunct students:

1. Fox, Nick. 1977. The biology of the New Zealand falcon (Falco novaeseelandiae Gmelin 1788). Univ. Canterbury, Christ Church, New Zealand. Ph.D. dissertation.
2. Baker-Gabb, David J. 1982. Comparative ecology and behaviour of swamp harriers Circus approximatus, spotted harriers C. assimilis, and other raptors in Australia and New Zealand. Monash Univ., Clayton, Vic. Australia. Ph.D. dissertation.
3. Watson, Richard T. 1986. The ecology, biology and population dynamics of the bateleur eagle (Terathopius ecaudatus). Univ. Witwatersrand, Johannesburg, South Africa. Ph.D. dissertation.
4. Nielsen, Olafur Karl. 1986. Population ecology of the Gyrfalcon in Iceland, with comparative notes on the merlin and the raven. Cornell Univ., Ithaca, NY. Ph.D. dissertation.
5. Olsen, Jerry. 1987. The effect of weather on nesting peregrine falcons near Canberra, Australia. Univ. of New England, Armidale, N.S.W. Aust. M.S. Thesis.
6. Brown, Christopher J. 1988. A study of the bearded vulture Gypaetus barbatus in southern Africa. Univ. of Natal, Pietermaritzburg, South Africa. Ph.D. Dissertation.
7. Swem, Theodore. 1989. Biology of rough-legged hawks (Buteo lagopus) on Alaska's north slope. Boise State Univ., Boise, ID, M.S. Thesis.
8. Burton, Andrew Mark. 1991. Resource partitioning between two sympatric goshawks in the Australian wet tropics. James Cook University of North Queensland, Australia, Ph.D. Dissertation.
9. Olsen, Penny D. 1991. Aspects of the evolutionary ecology of reproduction of raptors. Australian National Univ., Canberra, Australia, Ph.D. Dissertation.
10. Leary, Alan W. 1996. Home ranges, core use areas, and dietary habits of ferruginous hawks (Buteo regalis) in southcentral Washington. Boise State University, Boise, Idaho, M.S. Thesis.
11. Schmidt, Elise Vernon. 1996. Population differentiation in migrating raptors as indicated by mtDNA and morphological variation. Univ. Nevada at Las Vegas, Las Vegas, Nevada, Ph.D. Dissertation.
12. Jenkins, Andrew R. 1998. Behavioural ecology of peregrine and lanner falcons in South Africa. Univ. of Cape Town, Rondebosch, South Africa, Ph.D. Dissertation.

Professional Exposure and Meetings:

Assistant Editor, AUK (American Ornithologists' Union) 1966.

Editor, J. RAPTOR RESEARCH (Raptor Res. Foundation, Inc.), 1977-1987.

Review Editor, AUK, CONDOR, WILSON BULLETIN, 1968-present; MURRELET, 1977-present.

Editorial Board, GREAT BASIN NATURALISTS, 1974-1993.

Recent Literature Submitter, J. FIELD ORNITHOLOGY, 1978-present.

Review proposals for: NATIONAL GEOGRAPHIC SOCIETY, NATIONAL SCIENCE FOUNDATION, AUSTRALIAN RESEARCH COUNCIL

Reviewed papers for: SCIENCE, AMER. NAT., SOUTHWEST NAT., EVOLUTION, J. WILDL. MANAGE., CANADIAN J. ZOOLOGY, EMU., NATURE (London), RESOURCE PUBLICATIONS (U.S. FISH AND WILDLIFE SERVICE), MURRELET (NORTHWEST NAT.), WESTERN BIRDS, UTAH BIRDS, THE CONDOR, THE AUK, THE WILSON BULLETIN, J. FIELD ORNITHOL, NATURAL AREAS J, CORELLA, EL HORNERO, JOURNAL OF BIOGEOGRAPHY.

Reviewed book manuscripts for: CORNELL UNIVERSITY PRESS, OHIO STATE UNIVERSITY PRESS, UTAH STATE UNIVERSITY PRESS, BRIGHAM YOUNG UNIVERSITY PRESS, ACADEMIC PRESS, T & A D POYSER PUBLISHER (LONDON), BUTEO BOOKS.

Many **contributed** and **invited papers** at professional meetings (average three per year since 1968) with first professional paper given in 1964; Invited papers are not only within the U.S. but also foreign (**Too many to list**) but recent examples of contributions to meetings are:

1. Fifth International Conference on Birds of Prey, Badajoz, Spain 17-22 April 1995; co-chair (with Vladimir Galushin, Russia) of session entitled Socio-Economic Aspects of Raptor Conservation. Three papers given at conference, a synthesis paper--"Language use and misapplied, selective" science, their roles in swaying public opinion and policy" and two original research papers--"Captive breeding and releases of peregrine falcons in North American" and "Survey mapping with Global Positioning Systems (GPS) and Geographic Information systems (GSI); integration of data modelling applications."
2. Invited speaker and session chair, specialist workshop of the Middle East Falcon Research Group, Abu Dhabi, United Arab Emirates, 14-16 November 1995; paper "The Taxonomy of Desert Falcons."
3. Invited speaker, Utah Section of Wildlife Society Annual meeting, Provo, Utah, 8 Feb. 1997; topic "Status of the peregrine falcon; is it endangered?"
4. Invited workshop presenter and speaker, 5 presentations given at course entitled, "Al Corso di Formazione Sulle Tecniche e Medodi di Ralascio Degli Uccelli da Preda," for the Associazione Italiana Per i Rapaci, held at Bassano del Grappa, Italy, 26 May-1 June 1997.
5. Midwest Regional Raptor Management and Peregrine Symposium, synthesis paper on "Reflections on the 'Urban Peregrine' Paradigm," Milwaukee Public Museum, 13-14 March 1997.

Travel and Languages:

Lived in Argentina and Chile, 1956-58; Spanish, fluent, writing. Participated in or conducted research throughout western U.S. and Alaska and in Argentina, Australia, Brazil, Chile, Fiji, Ecuador, Greenland, New Zealand, Vanuatu, and Venezuela. Part of U.S. Fish and Wildlife Service, USA/People's Republic of China exchange team/workshop, 1988. Part of U.S. Fish and Wildlife Service, USA/USSR Environmental Exchange Program, to Kazakhstan, SSR, 1991.

Professional Memberships and Positions:

<u>Society</u>	<u>Positions Held</u>
American Association for Advancement, Science	(Not current) None
American Ornithologists' Union	Committee Member (Elected member)
Cooper's Ornithological Society	None
Wilson Ornithological Society	None
Society of Systematic Zoology	None
The Society of the Sigma Xi	None
Raptor Research Foundation Inc.	Chairman, Editor (1977-86)
Pacific Seabird Group	None
International Council for Bird Preservation	U.S. Coordinator (Raptor world group)
American Museum of Natural History	Associate member -None
The Nature Conservancy	Utah Advisory Committee
Australian Raptor Association	None

Special Activities and Public Relations:

Newspaper and magazine articles on my research have appeared in: The National Observer, The Washington Post, New York Times (AP release--duplication nationwide), Time Magazine, Wall Street Journal, and several local US and foreign papers (e.g., Fiji Times, 21 July 1997)

Interviewed on T.V., 1970, 1978, 1982, 1984, 1985, 1986, 1990 and local radio 1977, 1981, 1983, 1986.

Talks to schools, museums, societies, and church groups on research are at the rate of about three per year.

Guest Lecturer at: American Museum of Natural History (annual lecture series), Utah Museum of Natural History, Utah Audubon Society, Utah Division of Wildlife Resources Workshop, Utah Aviculturists Society, Hogle Zoological Gardens Docents.

Committee activities:

University: Pre-dental Committee, 1977-79

College: Rank Advancement and Tenure Committee, 1996-present.

Department: Departmental level responsibilities (Rank Advancement, Executive, Seminar etc.; too many to list)

Graduate students for whom I was or am Advisor or Major Professor:M.S. Degree

Platt, Joseph B. Habitat and Time Utilization of a Pair of Nesting Sharp-shinned Hawks (Accipiter striatus velox): A Telemetry Study - completed 1973.

- Jenkins, M. Alan. Behavior of the gyrfalcon from hatching to fledging: a time-lapse photographic study - completed 1974.
- Sherrod, Steve K. Biology of northern bald eagles on Amchitka Island, Alaska - completed 1975.
- Beske, Alan E. Goshawk biology in desert mountain ranges - dropped out of program.
- Burnham, Wm. H. Breeding biology and ecology of the peregrine falcons in west Greenland - completed 1974.
- McArthur, Laurence B. Utilization of nest boxes by birds in three vegetational communities with special references to the American kestrel - completed 1977.
- Thurrow, Thomas L. Ecology and behavior of the gymnogyne (Polyboroides typus) - completed 1979.
- Jones, Stephen G. Abundance and habitat selection of shore birds at Prudhoe Bay, Alaska - completed 1980.
- Parker, Wm. K. The influence of western spruce budworm on avian succession in a grand fir forest - completed 1981.
- Williams, Richard N. Breeding ecology of prairie falcons at high elevations in central Colorado - completed 1981.
- Pruett-Jones, Melinda Anne. Spacing and distribution of bowers in Macgregor's bowerbird - completed 1981.
- Lemon, Rodney R. Ecological, nutritional and physiological factors related to cedar waxwing feeding in winter in central Utah - completed 1981.
- Martin, John W. Aspects of breeding biology and habitat use by northern harriers in agricultural situations - completed 1984.
- Meese, Robert J. The distribution and density of passerines in west Greenland in relation to peregrine falcon nesting sites - completed 1984.
- Albuquerque, Jorge L. B. The peregrine falcon in southern Brazil: Aspects of winter ecology in an urban environment - completed 1984.
- Fristensky, (Looman) Sandra. Productivity, food habits and sexing of barn owls in Utah - completed 1985.
- Grebence, Brandon. Physiographic characteristics of peregrine falcon nesting habitat along the Colorado River System in Utah - completed 1988.

Payne, Val. Effects of subsidence from underground coal mines on golden eagle nests - dropped program.

Johansson, Carl. Large-area goshawk habitat modeling in the Dixie National Forest using vegetation and elevation data - completed 1994.

Haney, Don L. Population dynamics of wintering merlins (*Falco columbarius*) in central Utah - completed 1997.

Baker, Aaron J. Status and breeding biology, ecology, and behavior of the orange-breasted falcon (*Falco deiroleucus*) in Guatemala and Belize. - completed 1998.

Kremer-Goodell, Shelly R. Diet analysis of the great-horned owl (*Bubo virginianus*) in disturbed and undisturbed habitat types. - completed 1999.

Ellison, Ann E. Distribution and reproductive status on the mountain plover (*Charadrius montanus*) in the Uintah Basin. - completed 1999.

Lloyd, Jason E. Mountain Plover (*Charadrius montanus*) populations and nest site selection in the Uintah Basin: a micro-habitat analysis. - completed 2000.

Mika, Markus. Prey base differences and reproductive output of breeding Flammulated Owls (*Otus flammeolus*) in northern Utah.-- in progress

Sonsthagen, Sarah. Movements of the Northern Goshawk as determined by satellite telemetry. - in progress

Hill, Rebecca. Effects of forest harvest on Three-toed Woodpecker in the Fish Lake National Forest.-- in progress

Ph.D. Degrees

Mosher, James A. Raptor temperature regulation and energetics - completed 1975.

Knight, Richard L. Aspects of auklet - peregrine falcon interaction in the Aleutian Islands - dropped out of program.

Whitmore, Robert A. Habitat partitioning in a community of passerine birds - completed 1975.

Mader, William J. Ecology of the savanna hawk in Venezuela - completed 1981.

Platt, Stephen W. Prairie falcons: aspects of population dynamics, individual vocal identification, marking and sexual maturity - completed 1981.

Benson, Patrick G. Large raptor electrocution and power pole utilization: a study in six western states - completed 1981.

Castrale, John S. Use of managed sagebrush grasslands by bird populations - completed 1981.

Mindell, David P. Migration of North American breeding raptors: Endogenous versus environmental control, biogeography and hazard to aircraft - completed 1985.

Williams, Richard N. Introduction, distribution, and foraging ecology of two introduced bulbuls (Pycnonotus) in Hawaii - completed 1985.

Whaley, Wayne H. Trends in geographic variation of Cooper's hawk and northern goshawks: a multivariate analysis - completed 1988.

Boyce, Douglas A., Jr. A systematic study of the family falconidae: Protein electrophoretic analysis of genera, gene expression in the American Kestrel (Falco sparverius), and morphological analysis of the subgenus Tinnunculus (kestrels)- completed 1989.

Parrish, Jimmie R. The biogeochemistry of nearctic peregrine falcons - completed 1989.

Johansson, Carl. The Bird-Avert system; development of technology to eliminate bird kills from industrial toxic evaporation ponds - in progress.

Committees on which I had major input as a member or secured funding

Mitchell, Ronald M. Nesting ecology of the double-crested cormorant on Utah Lake, MS, 1974.

Woffinden, Neil D. Ecology of the ferruginous hawk (Buteo regalis) in central Utah: Population dynamics and nest site selection, Ph.D., 1975.

Joseph, Ronald A. Behavior and age class structure of wintering bald eagles (Haliaeetus leucocephalus) in western Utah, MS, 1977.

Burgoyne, Paul C. Bird population changes and manipulation of a ponderosa pine forest on the Kaibab Plateau, Arizona, Ph.D., 1980.

Lee, Julie A. Comparative breeding behavior of the goshawk and the Cooper's hawk, MS, 1981.

Pearson, Craig B. The density, diversity and distribution of owls along the Wasatch Front--An experimental approach, MS, 1981.

Zarnekee, Carolyn V. Circadian activity pattern of the burrowing owl (Athene cunicularia), MS, 1982.

DeLong, Tod, R. Effects of ambient condition on nocturnal nest behavior in long-eared owls, MS, 1982.

Ellis, Kevin L. Distribution and habitat selection of breeding male sage grouse in northeastern Utah, Ph.D., 1986.

Fischer, David L. Daily activity patterns and habitat use of coexisting Accipiter hawks in Utah, Ph.D. 1986.

Sabine, Neil B. Aspects of bald eagles wintering behavior in Rush Valley, Utah: a telemetry study, Ph.D., 1987.

LeClere, Monica G. Food niche relationships of sympatric raptors in western Utah, Ph.D., 1990.

Other Graduate Committees:

I have served as a committee member on an additional 23 graduate programs in the departments of Botany and Range Science and Geology and advised on a committee in the department of Geography. April 29, 1998

**Resume of
Ronald J. Kass**

RONALD J. KASS

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EDUCATION

- Ph.D.** New Mexico State University, Las Cruces, NM. Depart. of Biology, Plant Community Ecology, 1992.
- M.S.** Brigham Young University, Provo, UT. Depart. of Botany and Range Science, Plant Taxonomy, 1983.
- B.S.** Brigham Young University, Provo, UT. Depart. of Zoology, Wildlife Ecology, 1978.

PROFESSIONAL EXPERIENCE

Principal-Intermountain Ecosystems, L.C.

24 years experience in: Endangered Species Inventory and Monitoring, Quantitative Vegetation Sampling and Reclamation, Botanical and Wildlife inventory, Wetland Delineation and Mitigation. Compliance with NEPA, USACOE, EPA, FERC, SMCRA, BLM, USFS and USFWS guidelines.

PRINCIPLE PROJECTS

ENDANGERED SPECIES

- 2000** Private Fuels Storage Facility, LLC. Expert witness for rare plant and vegetation.
- Sear-Brown Group, Salt Lake City, Ut. T & E clearance for Riverdale Bike Path.
- Sear-Brown Group, Salt Lake City, Ut. T & E clearance for Man of War Bridge, St. George, Ut..
- RB&G Engineering, Provo, Ut. T&E clearance for Orem Center St. Project
- RB&G Engineering, Provo, Ut. T&E clearance for 4 Utah County Bridges
- SWCA, Salt Lake City, Ut. Solitude & DMB ski resort rare plant inventory.
- Entranco, Salt Lake City, Ut. Atkinville Interchange T&E inventory. St George, Ut.
- Entranco, Salt Lake City, Ut. Southern Corridor Biological Assessment. St George, Ut.
- Environmental Management Associates, Elko Nevada. BLM Land Exchange T&E inventory.
- W. W. Clyde, Springville, Ut. Wolf Creek Rd. T&E & raptor clearance, Tabiona, Ut.
- W. W. Clyde, Springville, Ut. North Glendale Gravel Pit. T&E clearance, Kane, Co., Ut.
- Pentacore, Midvale, Ut. *Spiranthes diluvialis* monitoring for American Fork Mall.

- Pentacore, Midvale, Ut. *Spiranthes diluvialis* inventory Provo Industrial Park.
- SWCA, Salt Lake City, Ut. Williams Corps. Aspen pipeline T&E inventory.
- Sear-Brown Group, Salt Lake City, Ut. T & E clearance for Provo 800 North.
- 1999 USDA, Unita National Forest. King's woody aster (*Machaeranthera kingii*) inventory.
- Michael Baker Jr., Salt Lake City. T&E clearance for fiber optic line-Colo.& Ut.
- Sear-Brown Group, Salt Lake City, Ut. T&E clearance River Road Project, St. George, Ut.
- W. W. Clyde, Springville, Ut. T&E clearance Green River gravel pit. Green River, Ut.
- W. W. Clyde, Springville, Ut. T&E clearance for Snow Basin-Trapper Loop Road. Odgen, Ut.
- Stone & Webster, Denver, Co. Rare plant inventory. Skull Valley Private Storage Facility, Tooele Ut.
- UDOT & Entranco, Salt Lake City, Ut. Southern Corridor Desert Tortise (*Gopherus agassizii*) inventory: St George, Ut.
- Williams Corp. Salt Lake City, Ut. Southwestern willow flycatcher (*Empidonax traillii extimus*). Mancos Loop Pipeline. Mancos, Co.
- SWCA. Salt Lake City, Ut. Williams Pipeline Co. Aspen Pipeline T& E.
- 1998 Orem City, Ut. Ute ladies tresses (*Spiranthes diluvialis*) inventory, restoration, and monitoring.
- Burns & McDonnell Kansas City, Mo. *Spiranthes diluvialis* inventory for DM&E railroad. Wyo. & S. Dakota.
- Engineering Planning Group, Draper, Ut. *Spiranthes diluvialis* inventory, American Fork, Ut.
- Stone & Webster, Denver, Co. Rare plant, burrowing owl, and loggerhead shrike inventory. Skull Valley Private Storage Facility.
- BLM. Richfield District, Ut. Rare plant, burrowing owl, Utah prairie dog and noxious weed inventory. Wayne Co.
- HDR, & Baseline Data. Legacy Highway BA. Salt Lake City, Ut.
- Pic-Technologies, Denver, Co. Wetlands & T& E. Ultra Natural Gas EIS. Pinedale, Wy.
- SWCA, Salt Lake City, Ut. Williams Pipeline Co. Aspen T&E inventory, Price, Ut.
- SWCA, Salt Lake City, Ut. Questar Gas Co., Rare plant inventory, Price, Ut.
- 1997 Continental Lime Co., Delta, Ut. Rare plant inventory Cricket Mt. Mine Expansion.
- SWCA., Salt Lake City, Ut. Questar Pipeline. *Spiranthes diluvialis* inventory. Genola, Ut.
- River Gas Inc. Northport, Al. T&E inventory: Price Coalbed Methane.

- BLM. Ferron Gas EIS Rare plant inventory. Price, Utah.
- Northern Geophysical of America, Englewood, Co. Rare plant inventory Salina, Ut.
- BLM. Wright fishhook cactus (*Sclerocactus wrightiae*) demographic monitoring.
- HDR & Baseline Data. Legacy Highway EIS, Salt Lake City, Ut.
- 1996 McMurtry Oil Company, Big Piney, Wy. Rare plant and logger head shrike inventory: Jonah EIS.
- Continental Lime Co., Delta, Ut. Rare plant inventory. Cricket Mt. Mine Expansion.
- Brush Wellman, Delta, Ut. Rare plant inventory. Topaz Mine Expansion.
- Kennecott Copper and The Nature Conservancy, Salt Lake City, Ut. Northern Oquirrh Mts. Bio-inventory.
- USFS Black Hills Natl. Forest, Sundance Wy. Rare plant inventory Bear Lodge N. F. Timber EA.
- Chandler Oil, Denver Colo. Rare plant inventory, Emery Co.
- Engineering Planning Group, Draper, Ut. Endangered species inventory, Spotted frog (*Rana pretiosa*) Ute ladies' tresses (*Spiranthes diluvialis*) American Fork, Ut.
- Baseline, Inc. Orem, Ut. Western Transportation Corridor MIS & T&E species.
- Northwest Pipeline, Salt Lake City, Ut. Rare plant inventory, Evanston, Wy.
- Mariah Assoc., Laramie, Wy. U.S. Gypsum Co., Kimball Draw EA.
- Golder Assoc., Denver, Co. Phelps Dodge Co. Chino Mine Expansion EA, Silver City, NM.
- 1995 USFS Dixie Natl. Forest, Cedar City, Ut. Status report for *Penstemon pinorum*.
- Northern Geophysical of America, Englewood, Co. Rare plant inventory Salina, Ut.
- Balcron Oil and Subsurface Exploration, Pasadena, Ca. Rare plant inventory Snake Valley Seismic Project. Millard Co, Ut.
- Northwest Pipeline Inc., Salt Lake City, Ut. Rare plant inventory for Piceance Creek Replacement Project. Rangely Co.
- Union Telephone Co., Lonetree, Wy. Rare plant and logger head shrike inventory.
- 1994 U.S. Gypsum Co, Chicago, Ill. Rare plant inventory: proposed Gypsum Mine in San Rafael, Ut.
- Balcron Oil and Subsurface Exploration, Pasadena, Ca. Rare plant inventory: Snake Valley Seismic Project, Millard Co, Ut.
- Resource Management International, Sacramento, Ca. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*). Central Utah Project, Nephi Basin, Ut.
- CH2M-Hill & Mt. Nebo Scientific, Springville Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*). Central Utah Project, Unitah Basin, Utah.

Baseline, Inc., Orem, Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*) on the UDOT Myton and Currant Creeks Bridge replacement.

Wyoming Fish and Game, Cheyenne, Wy. Rare plant inventory: Big Piney big game habitat enhancement project. Pinedale, Wy.

BLM, Rock Spring District Office. Status survey and habitat management plan for bastard draba milkvetch (*Astragalus drabelliformis*) in the Upper Green River Basin, Wy.

River Gas of Utah, Northport, Al. T&E inventory: Price Coalbed Methane EIS.

Freston, Ostler, Vernon & Assoc., Vernal, Ut. Rare plant inventory for Ute ladies's tresses (*Spiranthes diluvialis*), Ashley Creek Bridge replacement.

Enron Oil & Gas Corporation, Houston, Tx. T&E inventory: Upper Green River Basin.

Chevron, USA. Houston, Tx. Rare plant inventory: southwestern Wyo.

Mobil Oil Corporation, Bakerfield, Ca. Rare plant inventory: LaBarge oil fields.

Enviroserve Assoc., Fruit Heights, Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*) AT&T underground powerline: Strawberry Reservoir, Ut.

Freston, Ostler, Vernon & Assoc., Vernal, Ut. Rare plant inventory: Ute ladies's tresses (*Spiranthes diluvialis*), Fort Duchesne, Ut.

Heitzman Drill Services, Casper, Wy. Anadarko Petroleum EA., Helper Coalbed Methane EA-- rare plants. Helper, Ut.

Endangered Plant Studies, Orem, Ut. UDOT. LaVerkin Creek Bridge Replacement BA.

Williams Field Services, Salt Lake City, Ut. Rare plant inventory Big-Piney-LaBarge oil fields.

1993 U.S. Justice Dept., Denver Co. Expert witness for Zion National Park Virgin River Adjudication. Expert for hanging gardens and rare plants.

Mobil Oil Corporation & Heitzman Drilling, Casper, Wy. Rare plant inventory: LaBarge oil fields.

Texaco Inc. Heitzman Drilling. Stagecoach Draw EIS--rare plants. Farson, Wy.

Mobil EA: LaBarge Oil Field Expansion Program. Rare plants

Endangered Plant Studies, Orem, Ut. Pacific-Corp., Salt Lake City, Ut. Ismay and Mexican Water Powerline EA, Navajo Tribal Lands, Window Rock, Az.

Williams Field Services. Green River, Wy. Rare plant inventory: Cathodic Protection Systems.

Geo-Marine Inc., Plano, Tx. Rare plants and burrowing owls inventory: Wendover Nev.

Chevron, USA. LaBarge, Wy. Rare plant inventory: LaBarge oil fields.

B LM, Salt Lake City, Ut. Monitoring and demographics for Wright Fishhook cactus (*Sclerocactus wrightiae*).

- Mariah Associates, Inc., Laramie, Wy. Rare plant inventory: Cutthroat Gas plant. Granger, Wy.
- Enron Oil & Gas, Big Piney, Wy. Rare plant inventory, LaBarge, Wy.
- Pic-Technology, Denver, Co. Rare plant inventory: Basin Exploration. Big Piney, Wy.
- Utah Power and Light, Salt Lake City, Ut. burrowing owl and black footed ferret inventory: Navajo Reservation, Aneth, Ut.
- Pic-Technology, Denver, Co. Rare plant inventory: Northwest Pipeline Inc. Big Piney, Wy.
- Endangered Plant Studies, Orem, Ut. Utah Prairie Dog (*Cynomys parvidens*) inventory: Beaver, Ut.
- 1992 Endangered Plant Studies, Orem, Ut. Desert Tortoise (*Gopherus agassizii*) inventory: Walmart Inc. Wash. Co., Ut.
- Utah Power and Light Co., Salt Lake City, Ut. Rare plant inventory: Dixie N.F. Enterprize, Ut.
- BLM, Salt Lake City, Ut. House Range rare plant inventory.
- Ute Indian Reservation, Fort Duchesne, Ut. Rare plant inventory: *Spiranthes diluvialis*.
- USFWS, Denver, Co. Status reports: *Eriogonum soredium*, *Trifolium andersonii* var. *friscanum*, and *Lepidium ostleri*.
- Endangered Plant Studies, Orem, Ut. Pacific-Corp. EA: transmission corridor. BLM and Dugway Proving Ground.
- Endangered Plant Studies, Orem, Ut. Pacific-Corp. BA: transmission corridor for Dixie National Forest.
- 1991 Versar Engineering, Orem, Ut., UDOT. *Spiranthes diluvialis* inventory, U.S.Highway 89.
- Pic-Technology, Denver, Co. Rare plant inventory: Northwest Pipeline Inc., Wyo.,Ut and Id.
- Wayne Co. Water Conservancy District, Salt Lake City, Ut. *Spiranthes diluvialis*, Capital Reef National Park.
- 1990 BLM, Richfield District, Ut. Rare plant inventory: Warm Springs and House Range Resource Areas.
- Utah Heritage Program, Salt Lake City, Ut. Rare plant inventory: Tushar Mountains, Ut.
- BLM, Salt Lake City, Ut. Rare plant inventory: Great Basin and Deep Creek Mts.
- Chusa Energy Co. Farmington, NM. *Sclerocactus mesa-verde*. Navajo Indian Reservation.
- 1989 Endangered Plant Studies, Anadarko Petroleum Company, Denver, Co. Rare plant inventory: Lonetree, Wy.
- BLM, Salt Lake City, Ut. Rare plant inventory: San Rafael Swell, Ut.
- Chusa Energy Company, Farmington, NM. Black-footed ferret inventory: Navajo Indian Reservation, Blanding, Ut.

- 1988 Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant inventory: Blanding, Ut.
 BLM, Salt Lake City, Ut. Rare plant inventory: San Rafael Resource Area, Ut.
 Endangered Plant Studies, Orem, Ut. Seis-Pro Corp., Billings, Mt. Rare plant inventory: Nucla, Co.
 Endangered Plant Studies, Orem, Ut. NPS, Springdale, Ut. Botanical inventory: Zion National Park.
 Endangered Plant Studies, Orem, Ut. Questar Pipeline Inc., Salt Lake City, Ut. Rare plant inventory in Brown's Park, Ut.
- 1987 Endangered Plant Studies, Orem, Ut. NPS, Springdale, Ut. Botanical inventory: Zion National Park.
 Endangered Plant Studies, Orem, Ut. Wayne Co. Water Conservancy District. Rare plant inventory : proposed Fremont River Dam.
 Endangered Plant Studies, Orem, Ut. Utemco Mineral Corp., Uravan, Co. Rare plant inventory: radioactive waste repository.
 Endangered Plant Studies, Orem, Ut. Plateau Mining Corp., Wattis, Ut. Rare plant inventory.
- 1986 Endangered Plant Studies, Orem, Ut. NPS, Springdale, Ut. Botanical inventory: Zion National Park.
 Neese Investigations, Salt Lake City, Ut. *Sclerocactus wrightiae* .BLM, Richfield, Ut.
- 1985 El Paso Natural Gas Company. Rare plant inventory: natural gas line in NM.and AZ.
 Transwestern Pipeline Corporation. Rare plant inventory: natural gas line, NM and Az.
 Endangered Plant Studies, Orem, Ut. Wayne Co. Water Conservancy. Rare plant inventory: Fremont River Dam, Ut.
- 1984 Endangered Plant Studies, Orem, Ut. Amoco-Badger Oil Co. Vernal, Ut. Rare plant inventory.
 Bio-West, Logan, Ut. Exxon USA, Midland Tx. Riley Ridge EIS.
 Bio-West, Logan, Ut. San Juan Basin Coal, EIS, Farmington, NM.
 Bio-West, Logan, Ut. Gulf Oil Corp, Houston, Tx. EIS. Commissary Ridge, Wy.
 Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant inventory: Wash. Co., Ut.
 Endangered Plant Studies, Orem, Ut. UDOT. Rare plant inventory: Interstate 70 in Emery Co., Ut.
 Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant & Desert Tortise (*Gopherus agassizii*) inventory: Wash. Co., Ut.
- 1983 Endangered Plant Studies, Orem, Ut. Utah Power and Light. Rare plant inventory: Unita Co., Wy
 Endangered Plant Studies, Orem, Ut. NGA, Engelwood, Co. Rare plant inventory: Price, Ut.
 Endangered Plant Studies, Orem, Ut. Chevron USA., Kemmerer, Wy. Rare plant inventory.

- Endangered Plant Studies, Orem, Ut. Bectel Corp., San Francisco, Ca. Rare plant inventory: railway facility Lavender Canyon Nuclear Waste Repository.
- Endangered Plant Studies, Orem, Ut. Colorado-Ute Power, Montrose, Co. Rare plant inventory: Grand Junction, Co.
- 1982 Endangered Plant Studies, Orem, Ut. Frontier Exploration, Billing Mt. Rare plant inventory: Price, Ut.
- Bio-West, Logan, Ut. BLM, Vernal, Ut. Rare plant inventory: Uinta Basin, Ut.
- Brigham Young University, Provo, Ut. Inventory for Zion Snail (*Physa zionis*). Zion Natl. History Association.
- 1979 BLM. Las Cruces, New Mexico. Rare plant inventory Sacramento Mts.
- 1978 Endangered Plant Studies, Orem, Ut. MX missel inventory in Nevada & Utah.

WETLAND

- 2001 R B&G Engineering. Provo, Ut. Wetland delineation
- 2000 UDOT-HDR Engineering, Salt Lake City, Ut. Springville Interchange wetland delineation and mitigation.
- W. W. Clyde. Springville, Ut. Sportmans Park Trail wetland determination. Park City, Ut.
- W. W. Clyde. Springville, Ut. Wolf Creek Gravel Pit determination. Summit Co, Ut.
- Utah County Rural Housing Development. Provo, Ut. Dry Creek subdivision delineation.
- Shady Glen Subdivision, Riverdale, Ut. Wetland delineation.
- RB&G Engineering, Provo, Ut. Spanish Fork Canyon wetland delineation and mitigation.
- 1999 HDR Engineering, Salt Lake City. Vaughn Burbridge delineation. Park City, Ut.
- Michael Baker Jr., Salt Lake City, Ut. Wetland delineation fiber optic line-Colo-Ut.
- Colliers-CRG, Salt Lake City, Ut. Wetland delineation. Farmington Ut.
- HDR& Pic-Tech, Denver, Co. Wetland delineation. DM&E Railroad, Wyo. & S. Dakota.
- W. W. Clyde. Springville, Ut. Wetland determination, Trapper Loop Snowbasin Rd.
- W. W. Clyde. Springville, Ut. Wetland determination-Gravel Pit Green River, Ut.
- 4-H Construction, Odgen, Ut. Wetland delineation.
- Williams Corp. Salt Lake City. Wetland delineation. Mancos Loop project. Mancos, Co.
- 1998 Pic-Tech, Denver, Co. Wetland delineation. Paiute Natural Gas Line from Wells to Elko, Nv.
- Doug Holmes, Blue Sky Ranch, Heber, Ut. Wetland delineation.

- Pic-Tech, Denver, Co. Wetland delineation. Northwest Pipeline. Twin Falls to Wells, Nv.
- Diversified Habitats. Salt Lake City, Ut. Wetland delineation. Farmington, Ut.
- Tiffany Development Co. Wetland delineation and mitigation. Roy, Utah.
- Robert Nelson Construction, Salem, Ut. Wetland delineation.
- EPG, Draper, Utah. Wetland delineation. Toshiba Development Project.
- 1997** Issac Springs Development, Riverdale, Ut. Wetland delineation and mitigation.
- Springville City Co., Ut. Wetland delineation. Springville Industrial Complex.
- HDR & Baseline Data, Inc. Orem, Ut. Legacy Highway. Wetland delineation team.
- Alco Group, Spanish Fork, Ut. Wetland delineation.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Toomb Development, Provo, Ut.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Jordan River-Palmer.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Ogden Subdivision.
- 1996** Pic-Technologies, Denver, Co. Northwest Pipeline. Evanston pipeline delineation.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Willow Creek Park, Lehi, Ut.
- Springville City Co. Springville, Ut. Wetland delineation. Springville Industrial Complex.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Springville City, Ut.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Genola, Ut.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Macy's, Spanish Fork, Ut.
- Engineering Planning Group, Draper, Ut. Wetland delineation. Harold Toomb Development, Provo, Ut.
- 1995** Enviroserve, Fruit Heights, Ut. Heatherwood Subdivision, Ivory Homes, Roy Ut.
- Williams Field Services, Green River, Wy. Wetland delineation. Green River Pipeline.
- Ecological Planning and Toxicology, Corvallis, Or. Kennecott Copper wetland community analysis.
- Enviroserve, Fruit Heights, Ut. Wetland delineation. Odgen Cove Subdivision.
- 1994** Pic-Tech, Denver, Co. Wetland delineation: Northwest Pipeline Repair Project. Rangely, Co.
- 1993** Pacificorp, Inc. Salt Lake City, Ut. Wetland delineation: Naughton Power Plant, Kemmerer, Wy.
- 1992** PIC Technology, Denver, Co. Wetland delineation: Northwest Pipeline Expansion, Wyo. and Id.
- Ute Indian Reservation, Fort Duchesne, Ut. Wetland delineation: waste disposal plant..

- 1991 Wayne Co. Water Conservancy District, Salt Lake City, Ut. Wetland inventory: Fremont River Dam.
- 1983 Biowest Inc. Wetland inventory for the West Desert Pumping EIS Davis & Salt Lake Cos., Ut.

VEGETATION SAMPLING & RECLAMATION

- 2000 Southern Utah Fuels Co., Waste Rock re-vegetation monitoring.
- 1999 USDA, Uinta Natl. Forest. Vegetation monitoring for Mt. Goats in Mt. Nebo Wilderness Area.
- 1998 Southern Utah Fuels Co., Salina, Ut. Waste Rock and Reference re-vegetation monitoring.
- 1996 Coastal States Energy Co., Midvale, Ut. Vegetation inventory: waste rock monitoring Skyline Mine.
- 1995 Coastal States Energy Co., Midvale, Ut. Vegetation inventory: waste rock monitoring. Skyline Mine.
- Ecological Planning and Toxicology, Corvallis, Or. Ecological risk assessment. Kennecott Copper Mine, Salt Lake City, Ut.
- USFS Shoshone Natl. Forest, Cody, Wy. Soil/vegetation community typing on Absorbka Range.
- 1994 Ecological Planning and Toxicology, Corvallis, Or. Ecological risk assessment. Kennecott Copper, Ut.
- Coastal States Energy Co., Midvale, Ut. Vegetation inventory: waste rock monitoring. Skyline Mine.
- 1992 Southern Utah Fuels Company. Helper, Ut. Vegetation inventory and reclamation plan, Skyline Mine.
- Southern Utah Fuels Company. Helper, Ut. Vegetation and reclamation, Convulsion Canyon Mine, Ut.
- 1988 Endangered Plant Studies, Orem, Ut. Coastal States Energy Co. Monitoring and re-vegetation: Skyline Mine.
- 1985 Endangered Plant Studies, Orem, Ut. Coastal State Energy Co. Monitoring and re-vegetation: Skyline Mine.
- Endangered Plant Studies, Orem, Ut. Southern Utah Fuels Co., Emery, Ut. Soils and vegetation inventory for new lease area.
- 1984 Endangered Plant Studies, Orem, Ut. Coastal State Energy Co. Monitoring and revegetation at Skyline Mine.
- 1983 Mt. Nebo Scientific, Springville, Ut. Vegetation/ soil inventory: Diamond Shamrock Mine, Emery Co., Ut.
- Mt. Nebo Scientific, Springville, Ut. Vegetation/soil inventory: Horse Cyn. Mine. Sunnyside, Ut. U.S Steel Corp.
- 1982 Utah International, Farmington, N. M. Soil/ vegetation inventory at San Juan and Navajo Mines.
- Biowest, Logan, Ut. Reclamation plan for Riley Ridge Natural gas expansion. Wyoming.
- 1979 Endangered Plant Studies & NPI, Salt Lake City, Ut. Vegetation sampling and monitoring: Alaska pipeline: Prudoe Bay to Fairbanks to Tok.
- 1977-78 BLM, Moab District Office. Range technician. Vegetation mapping and sampling (SVIM).

BLM, Glenwood Sps., Co. Range technician. Vegetation mapping and sampling (SVIM).

1976 Brigham Young University and Dow Chemical Co. Gambel oak control.

PUBLICATIONS

5 scientific publications and 100 non-refereed reports.

PROFESSIONAL AFFILIATIONS

Ecological Society of America, Society of Wetland Scientists, Natural Areas Assoc., Utah & Wyoming Native Plant Society.

CERTIFICATIONS

Nationwide Permit Workshop, Wetland Training Institute, 2000.

Advanced Problems in Hydric Soil, North Carolina State University, 2000

Professional Wetland Scientist, Society of Wetland Scientists, 2000.

Habitat Evaluation Procedures, USFWS 1995.

Southwestern Willow Flycatcher Survey Techniques, USFWS 1995, 1998.

Wetland Training Institute, Advanced Wetland Delineation 1992.

Black Footed Ferret Survey Techniques, USFWS, 1990.

**Resume of
Scott Northard**

RESUME

SCOTT D. NORTHARD

Xcel Energy, Inc.
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Minneapolis, MN 55401
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EDUCATION

University of Wisconsin, Madison
BS Nuclear Engineering – 1977

University of Minnesota
Graduate Coursework in Mechanical Engineering
1978 – 1982

University of Wisconsin
Graduate Coursework in Nuclear Engineering
1986 – 1987

University of Minnesota
Pre-Finance Course – 1989

Northwestern University
Executive Development Program – Graduate 1989

Other various in-company and external professional development courses in business and technical areas – detailed information available on request

WORK EXPERIENCE

- | | |
|-------------|--|
| 1976 – 1976 | Student Engineer – Zion Nuclear Power Station
Plant Reliability Data Collection, Equipment Inspections
Plant Calorimetrics, Flux Mapping, etc. |
| 1977 – 1979 | Plant Systems Engineer – Prairie Island Nuclear Plant
Systems maintenance, performance monitoring, surveillance
Leak rate testing, Troubleshooting, Design changes, etc. |
| 1979 – 1985 | Reactor Engineer – Prairie Island Nuclear Plant
Reactor refueling, core performance monitoring, SNM,
Fuel Handling equipment, Ops Training, S/U Testing |

1985 – 1987	Senior Consultant - Special Nuclear Programs Various Reports, Industry Liaison, Program Coordination Industry Research, Performance Indicator Trends
1987 – 1990	Manager – Special Nuclear Programs Manage Programs (HLW, LLW, Decommissioning, etc.) Strategic Planning, FERC Testimony, Budget Oversight
1990 – 1991	Director – Electric Utility Human Resources Manage HR Issues (Training, Safety, Personnel, etc.) Critical Issues management, B/U Negotiation, etc.
1991 – 1993	Director – Electric Utility Materials Management Manage Procurement, Warehousing, Transformer Repair, Process Redesign, Inventory Control
1993 – 1997	Manager – Technical Standards – NSP Generation Establish Material and Work Process Standards, Drafting and Document Control, PFS Initiation, MOD Process
1997 – 1999	Manager – Nuclear Projects – NSP Nuclear Generation Manage Design and Projects Engineering, HLW management (including PFS), Programmatic Support
2000 – 2001	Director – Nuclear Asset Management – Xcel Energy, Inc. Administer Nuclear Power Plant agreement with NMC Manage strategic nuclear issues for Xcel Energy Supply including Private Fuel Storage

PROFESSIONAL AFFILIATIONS

American Nuclear Society
Nuclear Energy Institute – Spent Fuel Working Group
North Central Chapter – Health Physics Society
Utah Manufacturers Association
Salt Lake City Chamber of Commerce
Tooele Chamber of Commerce

PROFESSIONAL CERTIFICATIONS

Registered Professional Engineer – Minnesota and Wisconsin
Former NRC Licensed Senior Reactor Operator – 1981 – Prairie Island Nuclear Plant
Formerly Certified Weld Inspector – Level II

COMMUNITY SERVICE

Hastings Area Rotary Club – Current President-Elect, Community Service Chair
Dakota Area Resources and Transportation for Seniors – Board, Current Vice-Chair
United Negro College Fund – Volunteer, Fundraiser, Walkathon Chairman
Hastings School District – Science Fair Judge
Dakota Citizens Forum - Former Member
Boy Scouts of America – Current Asst Scoutmaster, Friends of Scouting Comm. Chair

PUBLICATIONS

Natural Resources Journal – *Rebuttal to Natural Resources Journal Environmental Ethics Manuscript by Noah Sachs* - New Mexico School of Law – Fall 1996 Volume 36 No. 4

Radwaste Solutions – Private Fuel Storage: Finding Real Solutions for Centralized Fuel Storage – January/February 2000