

## RELATED CORRESPONDENCE

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSIONDOCKETED  
USNRCBEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of:

PRIVATE FUEL STORAGE, LLC  
(Independent Spent Fuel  
Storage Installation)

Docket No. 72-22-ISFSI

ASLBP No. 97-732-02-ISFSI

March 19, 2001

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFFSTATE OF UTAH'S SEVENTH SUPPLEMENTAL RESPONSE  
TO APPLICANT'S FIRST SET OF FORMAL DISCOVERY REQUESTS

The State of Utah supplements its previous responses to General Interrogatory Nos. 3-5 in Applicant's First Set of Formal Discovery Requests, dated April 2, 1999, to name the following individuals it may call as expert witnesses for Contentions Utah O, V, W, Z, and DD. Information on their profession, professional expertise, educational, scientific experience, and professional qualifications and publications in the last ten years, and testifying experience as expert in the last four years, if any, can be found in their attached resumes.

## Utah Contention O (Hydrology)

Name and Address:

Donald A. Ostler, P.E.  
Director, Division of Water Quality  
Utah Department of Environmental Quality  
288 N. 1460 West  
Salt Lake City, Utah 84116

Employer:

Utah Department of Environmental Quality

Publications in the last  
ten years:

None.

Testifying experience as expert in the last four years:    See attached resume.

Subject matter of testimony:    Hydrology, water quality and water pollution issues relating to the PFS facility.

Documents reviewed and/or relied upon:    Materials review or relied upon by Mr. Ostler will include applicable portions of the PFS License Application (including the Safety Analysis Report ("SAR") and the Environmental Report ("ER")), as amended, and applicable supporting analyses, relevant PFS responses to Requests for Additional Information with supporting documentation, and other relevant discovery responses and documents produced by PFS and the State, applicable portions of the Safety Evaluation Report ("SER") and draft Environmental Impact Statement ("DEIS"), relevant regulations, guidance documents, and environmental studies, Hydrologic Reconnaissance of Skull Valley, Tooele County, Utah, by J.W. Hood and K.M. Waddell (1968). In addition, he may review any new information that the State obtains.

Resume:    Attached.

Name and Address:    John R. Mann, P.E.  
Regional Engineer  
Division of Water Rights  
Utah Department of Natural Resources  
1636 W. North Temple, Suite 210  
Salt Lake City, Utah 84116

Employer:    Utah Department of Natural Resources

Publications in the last ten years:    None.

Testifying experience as expert in the last four years:    None.

Subject matter of testimony:    Availability and usage of water, and impact to the aquifer and other users

Documents reviewed  
and/or relied upon:

Materials review or relied upon by Mr. Mann will include applicable portions of the PFS License Application (including the SAR and the ER), as amended, and applicable supporting analyses, relevant PFS responses to Requests for Additional Information with supporting documentation, and other relevant discovery responses and documents produced by PFS and the State, applicable portions of the SER and DEIS, relevant regulations, guidance documents, and environmental studies Hydrologic Reconnaissance of Skull Valley, Tooele County, Utah, by J.W. Hood and K.M. Waddell (1968). In addition, he may review any new information that the State obtains.

Resume:

Attached.

Name and Address:

Helge Gabert  
Environmental Scientist/Hydrologist  
Division of Solid and Hazardous Waste  
Utah Department of Environmental Quality  
288 N. 1460 West  
Salt Lake City, Utah 84116

Employer:

Utah Department of Environmental Quality

Publications in the last  
ten years:

See attached resume.

Testifying experience as  
expert in the last four years:

None.

Subject matter of testimony:

Water quality and water pollution issues relating to the PFS facility.

Documents reviewed  
and/or relied upon:

Materials review or relied upon by Mr. Gabert will include applicable portions of the PFS License Application (including the SAR and the ER), as amended, and applicable supporting analyses, relevant PFS responses to Requests for Additional Information with supporting documentation, and other relevant discovery responses and documents produced by PFS and the State, applicable portions of the SER and DEIS,

relevant regulations, guidance documents, and environmental studies Hydrologic Reconnaissance of Skull Valley, Tooele County, Utah, by J.W. Hood and K.M. Waddell (1968). In addition, he may review any new information that the State obtains.

Resume: Attached.

**Utah Contention V (NEPA: Transportation - weight limits)**

Name and Address: Marvin Resnikoff, PhD  
Senior Associate  
Radioactive Waste Management Associates  
526 West 26th Street, Room 517  
New York, New York 10001

Employer: Radioactive Waste Management Associates

Publications in the last ten years: See attached list.

Testifying experience as expert in the last four years: See attached list.

Subject matter of testimony: Weight of loaded shipping casks and its relationship to environmental impacts of transporting spent nuclear fuel to the PFS facility

Documents reviewed and/or relied upon: Materials review or relied upon by Dr. Resnikoff will include applicable portions of the PFS License Application (including the SAR and the ER), as amended, and applicable supporting analyses, relevant PFS responses to Requests for Additional Information with supporting documentation, and other relevant discovery responses, other pleadings, and documents produced by PFS and the State, applicable portions of the SER, applicable portions of and public comments on the DEIS, relevant regulations, guidance documents, and environmental studies, Holtec's applications and related documents pertaining to the storage and transportation casks (HI-STORM and HI-STAR). In addition, he may review any new information that the State obtains.

Resume: Attached.

**Utah Contention W (NEPA: Flooding at Rowley Junction)**

Name and Address: Barry J. Solomon  
Senior Geologist  
Utah Geological Survey  
Utah Department of Natural Resources  
1594 W. North Temple  
Salt Lake City, Utah 84114

Employer: Utah Department of Natural Resources

Publications in the last ten years: See attached list.

Testifying experience as expert in the last four years: None.

Subject matter of testimony: Geologic and earthquake hazards, tectonic subsidence, and shoreline levels at the ITF site

Documents reviewed and/or relied upon: Materials review or relied upon by Mr. Solomon will include applicable portions of the PFS License Application (including the SAR and the ER), as amended, and applicable supporting analyses and reports, relevant PFS responses to Requests for Additional Information with supporting documentation, and other relevant discovery responses, and pleadings, and documents produced by PFS and the State, applicable portions of the SER and DEIS, applicable portions of PFS's application to the BLM for right of way in the ITF area, relevant regulations, guidance documents, and environmental studies. In addition, he may review any new information that the State obtains.

Resume: Attached.

Name and Address: David B. Cole, P.E.  
Senior Engineer  
Utah Division of Water Resources  
Utah Department of Natural Resources  
1594 W. North Temple  
Salt Lake City, Utah 84114

Employer: Utah Department of Natural Resources

Publications in the last  
ten years: None.

Testifying experience as  
expert in the last four years: None.

Subject matter of testimony: The potential for flooding and swamping by wind stacked water and waves, changes to the volume of the Great Salt Lake, calculations of seiche and wave height, and effects of lake and surface drainage flooding at the ITF site.

Documents reviewed  
and/or relied upon: Materials review or relied upon by Mr. Cole will include applicable portions of the PFS License Application (including the SAR and the ER), as amended, and applicable supporting calculations, relevant PFS responses to Requests for Additional Information with supporting calculations, and other relevant discovery responses and documents produced by PFS and the State, applicable portions of the SER and DEIS, applicable portions of PFS's application to the BLM for right of way in the ITF area, relevant regulations, guidance documents, and environmental studies. In addition, he may review any new information that the State obtains.

Resume: Attached.

Utah Contention Z (NEPA: No Action Alternative)

Name and Address: Marvin Resnikoff, PhD  
Senior Associate  
Radioactive Waste Management Associates  
526 West 26th Street, Room 517  
New York, New York 10001

Employer: Radioactive Waste Management Associates

Publications in the last ten years: See attached list.

Testifying experience as expert in the last four years: See attached list.

Subject matter of testimony: No action alternative

Documents reviewed and/or relied upon: Materials review or relied upon by Dr. Resnikoff will include applicable portions of the PFS License Application (including the SAR and the ER), as amended, and applicable supporting analyses, relevant PFS responses to Requests for Additional Information with supporting documentation, and other relevant discovery responses and documents produced by PFS and the State, applicable portions of the SER and DEIS, relevant regulations, guidance documents, and environmental studies, Holtec's applications and related documents relating to the storage and transportation casks (HI-STORM and HI-STAR). In addition, he may review any new information that the State obtains.

Resume: Attached.

#### Utah Contention DD (NEPA: Ecology & Species)

Name and Address: Frank P. Howe, PhD  
Non-Game Avian Program Coordinator  
Utah Division of Wildlife Resources  
Utah Department of Natural Resources  
1594 W. North Temple  
Salt Lake City, Utah 84114

Employer: Utah Department of Natural Resources

Publications in the last ten years: See attached list.

Testifying experience as expert in the last four years: None.

Subject matter of testimony: Impacts to birds from the construction and operation of the PFS facility and the ITF site.

Documents reviewed  
and/or relied upon:

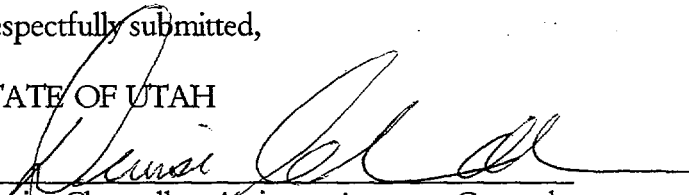
Materials review or relied upon by Dr. Howe will include applicable portions of the PFS License Application (including the SAR and the ER), as amended, and applicable supporting documents, relevant PFS responses to Requests for Additional Information with supporting documentation, and other relevant discovery responses and documents produced by PFS and the State, applicable portions of the SER and DEIS, relevant regulations, guidance documents, and environmental impact statements. In addition, he may review any new information that the State obtains.

Resume: Attached.

DATED this 19<sup>th</sup> day of March, 2001.

Respectfully submitted,

STATE OF UTAH



Denise Chancellor, Assistant Attorney General  
Fred G Nelson, Assistant Attorney General  
Diane Curran, Special Assistant Attorney General  
Connie Nakahara, Special Assistant Attorney General  
Daniel G. Moquin, Assistant Attorney General  
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CERTIFICATE OF SERVICE

I hereby certify that a copy of STATE OF UTAH'S SEVENTH SUPPLEMENTAL RESPONSE TO APPLICANT'S FIRST SET OF FORMAL DISCOVERY REQUESTS was served on the persons listed below by electronic mail (unless otherwise noted) with conforming copies by United States mail first class, this 19<sup>th</sup> day of March, 2001:

Rulemaking & Adjudication Staff  
Secretary of the Commission  
U. S. Nuclear Regulatory Commission  
Washington D.C. 20555  
E-mail: [hearingdocket@nrc.gov](mailto:hearingdocket@nrc.gov)  
(original and two copies)

G. Paul Bollwerk, III, Chairman  
Administrative Judge  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555  
E-Mail: [gp@nrc.gov](mailto:gp@nrc.gov)

Dr. Jerry R. Kline  
Administrative Judge  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
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Washington, DC 20555  
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E-Mail: [pfscase@nrc.gov](mailto:pfscase@nrc.gov)

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Salt Lake City, Utah 84105  
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Adjudication  
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U. S. Nuclear Regulatory Commission  
Washington, DC 20555

James M. Cutchin  
Atomic Safety and Licensing Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001  
E-Mail: jmc3@nrc.gov  
(*electronic copy only*)



Denise Chancellor  
Assistant Attorney General  
State of Utah

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of:

PRIVATE FUEL STORAGE, LLC  
(Independent Spent Fuel  
Storage Installation)

) Docket No. 72-22-ISFSI  
)  
)

) ASLBP No. 97-732-02-ISFSI  
)

) March 19, 2001  
)  

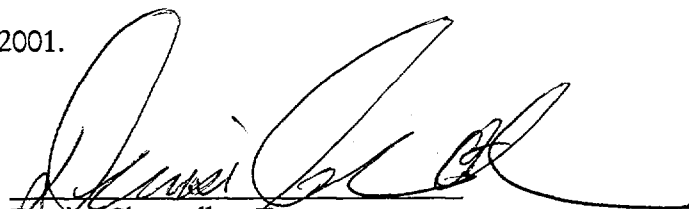
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DECLARATION OF DENISE CHANCELLOR, ESQ.

I, Denise Chancellor, Esq., hereby declare under penalty of perjury and pursuant to 28 U.S.C. § 1746, that I am authorized to verify the State of Utah's March 19, 2001 Seventh Supplemental Response to Applicant's First Set of Formal Discovery Requests, and that the statements contained in the State's Seventh Supplemental Response, specifically supplemental response to General Interrogatory Nos. 3-5, are true and correct to the best of my knowledge, information and belief.

Dated this 19<sup>th</sup> day of March, 2001.

By:

  
Denise Chancellor, Esq.  
Assistant Attorney General  
Utah Attorney General's Office

## **DON A. OSTLER, P.E.**

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288 North 1460 West, 3<sup>rd</sup> Floor  
P.O. Box 144870  
Salt Lake City, Utah 84114-4870  
Telephone: (801) 538-6146  
Facsimile: (801) 538-6016

### **PROFESSIONAL EXPERIENCE**

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Director, Utah Division of Water Quality Utah Department of Environmental Quality	1991 to Present
Executive Secretary, Utah Water Quality Board	1991 to Present
Director, Utah Bureau of Water Quality Utah Department of Health	1987 to 1991
Manager, Permitting and Financial Assistance Sections Utah Bureau of Water Quality	1975 to 1987
Review Engineer, Utah Bureau of Water Quality	1972-1987
Design Engineer, U.S. Bureau of Reclamation Salt Lake City and Denver Colorado	1972
Design Engineer, U.S. Forest Service Salmon, Idaho and Salt Lake City.	1971 to 1972

### **RESPONSIBILITIES**

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My responsibilities during the last 12 years include the implementation and enforcement of the State's water quality program, which mandate is the protection and improvement of the quality of lakes, streams and groundwater by controlling the discharge of pollutants from both point and non-point sources. Additionally, during my employment with the State of Utah in the past 27 years, I have been responsible for the analysis and review of water pollution control plans from a great variety of sources. To that end, I have reviewed many hundreds of water pollution control plans from a variety of point and non-point pollution sources. This has included engineering plan review and writing surface water and ground water discharge permits. This work routinely requires evaluating activities by various industries and their potential to discharge pollutants to surface and ground water, as well as prescribing best available treatment or

containment systems, practices, and technology.

## EDUCATION

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Masters Degree, Civil Engineering                      1975  
University of Utah, Salt Lake City, Utah

Bachelors Degree, Civil Engineering                      1971  
University of Utah, Salt Lake City, Utah

## PROFESSIONAL ORGANIZATIONS

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Registered Professional Engineer in Utah;  
Member of Tau Beta Pi and Chi Epsilon (National Engineering Honorary Fraternities);  
President, Vice-President, governing Board Member (1987 to 1992),  
                    and current member of National Association of State and Interstate Water Pollution  
                    Control Administrators;  
Past Chairman (1989), current member, Western States Water Council, Water Quality  
                    Committee;  
Member, Utah Soil Conservation Commission, 1987 to Present.

## TRAINING

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Attended countless workshops and seminars, many sponsored by the United States  
Environmental Protection Agency, relating to current and emerging water quality issues, during  
my 27 years of employment with the State of Utah.

## TESTIMONY

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Testified before Congress on water quality issues in 1988-1991.

## Resume

John R. Mann  
5586 S. Capitol Reef  
Taylorsville, Ut 84118  
(801)968-5102 home  
(801)538-7397 work  
email [nrwrt.jmann@state.ut.us](mailto:nrwrt.jmann@state.ut.us)

Education    BS Civil Engineering awarded in 1981, Brigham Young University

### Work

Experience    1985 to present **Utah Division of Water Rights.** My first position with the Division was as assistant to the directing engineer for appropriations under Stan Green. I received a promotion and was assigned to the dam safety section in about 1986. I functioned there as an engineer dealing with all aspects of the state's regulation and inspection of dams. Since January 1990, I have been the Division's regional engineer for the Weber River / West Desert section of the office. In this capacity, I have managed and directed the activities of the staff of the section, been responsible for policy decisions, and involved in all aspects of administering Utah water law in this region.

1982 - 1985 Newsco Well Servicing. I was the assistant district engineer for this oil well servicing company. We performed high pressure fracture stimulations of wells and provided specialized coiled tubing equipment.

1981 - 1982 Willmore Development This was a company which completed a bankrupt condominium project.

1980 - 1981 General Homes dba Eden Corporation This was a land development corporation in the Houston area. I functioned as a project superintendent and was involved in the design and construction of improvements and utilities on raw land to create lots.

1976 - 1978 I was employed as a surveyor in an open pit mining operation in Wyoming.

Professional    Licensed professional engineer in Utah.

**Helge Gabert**

**2/95 to present, State of Utah, Department of Environmental Quality, Division of Solid and Hazardous Waste, Salt Lake City, Utah**

**Environmental Scientist/Hydrologist**

- Principal regulator for groundwater and corrective action at Tooele Army Depot (TEAD), Utah. Oversee environmental cleanup for RCRA SWMUs at TEAD. Administer TEAD's post-closure permit. Consult with Utah Attorney General's office on TEAD BRAC early transfer. Research and recommend mathematical optimization program for TEAD's groundwater treatment plant. Discover secondary, off-post plume, with subsequent delineation, characterization, and treatment.
- Principal regulator for groundwater detection monitoring and corrective action at Grassy Mountain (GM) Hazardous Waste landfill. Administer GM's Part B permit. Research and recommend spatial variability-free, statistical method to evaluate GM's background (Class 3) groundwater data. Oversee corrective action at Waste Management Area 5.
- Evaluate groundwater monitoring data to determine if public health is impacted or environmental hazards are posed at project sites. Conduct RCRA Comprehensive Monitoring Evaluations (CMEs). Write scope of work for groundwater monitoring and sampling plans, and facilitate consultant/contractor efforts in gathering data and pertinent published scientific literature, computer models, governmental guidance, and regulatory criteria.
- Prepare inspection reports, advise management on facility compliance (notice of violations, warning letters, consent decrees).
- Independently evaluate contractor conclusions through the use of vadose and phreatic zone analytical and numerical models. Independently interpret and evaluate submitted geologic and hydrogeologic reports for completeness and accurate identification of aquifer characteristics. Ensure that all site activities conducted throughout the remedial response or detection monitoring process are consistent with state and federal laws, regulations, policies, and procedures.
- Represent the state at public meetings.
- Advise management on rule-making.
- Liaison for Western Governor's ITRC program (6/96 to 10/97). Prepare a paper on electrokinetic remediation of metals in soils.
- Liaison for the Army's peer review process (1/98 to present). Present regulatory framework regarding groundwater cleanup under risk-based rules.

- EPA Region VIII liaison for EPA's Technical Support Project (6/98 to present).
- Collect split samples, measure water levels, perform other field work as necessary.

#### **EDUCATION:**

1983, Exchange Student, University of Wisconsin-Madison

1985, Hydrology Diploma (equiv. to M.S.), University of Freiburg, Germany. Graduated with High Honors.

1987-88, Research Fellowship, German Academic Exchange Program, Madison, Wisconsin.

#### **CERTIFICATIONS:**

OSHA 40-hour Hazardous Materials Training.

Certified Utah Groundwater and Soil Sampler (# GS0440).

#### **PROFESSIONAL MEMBERSHIPS:**

National Groundwater Association.

#### **AWARDS:**

Research Fellowship, German Academic Exchange Program, 1987-1988.

#### **PUBLICATIONS:**

"Emerging Technologies for Soils Contaminated with Metals," with Daniel B. Sogorka, Dibakar Goswami and Brian Sogorka; Annual Proceedings of the Contaminated Soils Conference (Vol. III), University of Massachusetts, Amherst, 1998.

"A Passive Soil Bioremediation System Utilizing Groundwater Transport Processes," 8th Annual NGWA Outdoor Action Conference, Minneapolis, Minnesota, p. 205-217, 1994.

"An Analysis and Comparison of Stochastic Models for Predicting Lake Level Fluctuations in Closed Lakes: A Case Study of Devils Lake, North Dakota," Diploma Thesis, Albert-Ludwigs-Universität Freiburg, Germany, 1985.



**ADDITIONAL INFORMATION:**

“Electrokinetics for metals remediation in soils,” 1996 ITRC peer review, Albuquerque, NM.

“Current regulatory climate with respect to Groundwater Corrective Action at Tooele Army Depot,” 1998 U.S. Army peer review, Monterey, CA.

Foreign Language Proficiency: German, French, Portuguese

Computer Language Programming: Fortran, C.

Computer Programs (Aquifer Analysis, Air Modeling, Vadose/Phreatic Flow and Transport, Surface Water, Risk Analysis, Contouring, Well Logging):  
Aqtesolv, ISCLT, PTPLU, SCREEN, Pump, GMS (including MODFLOW, MODPATH, and MT3D/RT3D), Riskpro (including SESOIL and AT123D modules), Flowpath, Quickflow, WHPA, EXAMS-II, HEC I/II, ENPART, RISKTAB, Surfer, Grapher, gINT.

## Resume of Marvin Resnikoff, Ph.D.

**Dr. Marvin Resnikoff** is Senior Associate at Radioactive Waste Management Associates and is an international consultant on radioactive waste management issues. He is Principal Manager at Associates and is Project Director for risk assessment studies on radioactive waste facilities and transportation of radioactive materials. Dr. Resnikoff has concentrated exclusively on radioactive waste issues since 1974. He has conducted studies on the remediation and closure of the leaking Maxey Flats, Kentucky radioactive landfill for Maxey Flats Concerned Citizens, Inc. under a grant from the Environmental Protection Agency, the Wayne and Maywood, New Jersey thorium Superfund sites and on proposed low-level radioactive waste facilities at Martinsville (Illinois), Boyd County (Nebraska), Wake County (North Carolina), Ward Valley (California) and Hudspeth County (Texas). He has conducted studies on transportation accident risks and probabilities for the State of Nevada and dose reconstruction studies of oil pipe cleaners in Mississippi and Louisiana, residents of Canon City, Colorado near a former uranium mill, residents of West Chicago, Illinois near a former thorium processing plant, and residents and former workers at a thorium processing facility in Maywood, New Jersey. In West Chicago he calculated exposures and risks due to thorium contamination and served as an expert witness for plaintiffs A Muzzey, S Bryan, D Schroeder and assisted counsel for plaintiffs KL West and KA West. He is presently serving as an expert witness for a separate group of plaintiffs in West Chicago, including R Dassion. He also evaluated radiation exposures and risks in worker compensation cases involving G Boeni and M Talitsch, former workers at Maywood Chemical Works thorium processing plant. He recently completed work in a major personal injury cases involving former uranium mines and mills in South Texas. In June 2000, he was appointed to a Blue Ribbon Panel on Alternatives to Incineration by DOE Secretary Bill Richardson.

Under a contract with the State of Utah, Dr. Resnikoff is a technical consultant to DEQ on the proposed dry cask storage facility for high-level waste at Skull Valley, Utah and proposed storage/transportation casks. He is assisting the State on licensing proceedings before the Nuclear Regulatory Commission. In addition, at hearings before state commissions and in federal court, he has investigated proposed dry storage facilities at the Point Beach (WI), Prairie Island (MN) and Palisades (MI) reactors. He is also presently preparing studies on transportation risks and consequences for the State of Nevada and Clark and White Pine Counties.

In Canada, he has conducted studies on behalf of the Coalition of Environmental Groups and Northwatch for hearings before the Ontario Environmental Assessment Board on issues involving radioactive waste in the nuclear fuel cycle and Elliot Lake tailings and the Interchurch Uranium Coalition in Environmental Impact Statement hearings before a Federal panel regarding the environmental impact of uranium mining in Northern Saskatchewan. He has also worked on behalf of the Morningside Heights Consortium regarding radium-contaminated soil in Malvern and on behalf of Northwatch regarding decommissioning the Elliot Lake tailings area before a FEARO panel. More recently he completed a study for Concerned Citizens of Manitoba regarding transportation of irradiated fuel to a Canadian high-level waste repository.

He was formerly Research Director of the Radioactive Waste Campaign, a public interest organization conducting research and public education on the radioactive waste issue. His duties with the Campaign included directing the research program on low-level commercial and military waste and irradiated nuclear fuel transportation, writing articles, fact sheets and reports, formulating policy and networking with numerous environmental and public interest organizations and the media. He is author of the Campaign's book on "low-level" waste, *Living Without Landfills*, and co-author of the Campaign's book, *Deadly Defense, A Citizen Guide to Military Landfills*.

Between 1981 and 1983, Dr. Resnikoff was a Project Director at the Council on Economic Priorities, a New York-based non-profit research organization, where he authored the 390-page study, *The Next Nuclear Gamble, Transportation and Storage of Nuclear Waste*. The CEP study details the hazard of transporting irradiated nuclear fuel and outlines safer options.

In February 1976, assisted by four engineering students at State University of New York at Buffalo, Dr. Resnikoff authored a paper that changed the direction of power reactor decommissioning in the United

States. His paper showed that power reactors could not be entombed for long enough periods to allow the radioactivity to decay to safe enough levels for unrestricted release. The presence of long-lived radionuclides meant that large volumes of dismantled reactors would still have to go to low-level waste disposal facilities. He has assisted public interest groups NECNP and CAN on the decommissioning of the Yankee-Rowe and Haddam Neck reactors, and is presently serving as a technical consultant and expert witness in NRC hearings on the License Termination Plan for Haddam Neck.

Dr. Resnikoff is an international expert in nuclear waste management, and has testified often before State Legislatures and the U.S. Congress. He has extensively investigated the safety of the West Valley, New York and Barnwell, South Carolina nuclear fuel reprocessing facilities. His paper on reprocessing economics (Environment, July/August, 1975) was the first to show the marginal economics of recycling plutonium. He completed a more detailed study on the same subject for the Environmental Protection Agency, "Cost/Benefits of U/Pu Recycle," in 1983. His paper on decommissioning nuclear reactors (Environment, December, 1976) was the first to show that reactors would remain radioactive for hundreds of thousands of years.

Dr. Resnikoff has prepared reports on incineration of radioactive materials, transportation of irradiated fuel and plutonium, reprocessing, and management of low-level radioactive waste. He has served as an expert witness in state and federal court cases and agency proceedings. He has served as a consultant to the State of Kansas on low-level waste management, to the Town of Wayne, New Jersey, in reviewing the cleanup of a local thorium waste dump, to WARD on disposal of radium wastes in Vernon, New Jersey, to the Southwest Research and Information Center and New Mexico Attorney General on shipments of plutonium-contaminated waste to the WIPP facility in New Mexico and the State of Utah on nuclear fuel transport. He has served as a consultant to the New York Attorney General on air shipments of plutonium through New York's Kennedy Airport, and transport of irradiated fuel through New York City, and to the Illinois Attorney General on the expansion of the spent fuel pools at the Morris Operation and the Zion reactor, to the Idaho Attorney General on the transportation of irradiated submarine fuel to the INEL facility in Idaho and to the Alaska Attorney General on shipments of plutonium through Alaska. He was an invited speaker at the 1976 Canadian meeting of the American Nuclear Society to discuss the risk of transporting plutonium by air. As part of an international team of experts for the State of Lower Saxony, the Gorleben International Review, he reviewed the plans of the nuclear industry to locate a reprocessing and waste disposal operation at Gorleben, West Germany. He presented evidence at the Sizewell B Inquiry on behalf of the Town and Country Planning Association (England) on transporting nuclear fuel through London. In July and August 1989, he was an invited guest of Japanese public interest groups, Fishermen's Cooperatives and the Japanese Congress Against A- and H- Bombs (Gensuikin).

Between 1974 and 1981, he was a lecturer at Rachel Carson College, an undergraduate environmental studies division of the State University of New York at Buffalo, where he taught energy and environmental courses. The years 1975-1977 he also worked for the New York Public Interest Group (NYPIRG).

In 1973, Dr. Resnikoff was a Fulbright lecturer in particle physics at the Universidad de Chile in Santiago, Chile. From 1967 to 1973, he was an Assistant Professor of Physics at the State University of New York at Buffalo. He has written numerous papers in particle physics, under grants from the National Science Foundation. He is a 1965 graduate of the University of Michigan with a Doctor of Philosophy in Theoretical Physics, specializing in group theory and particle physics.

## Dr. Marvin Resnikoff

Radioactive Waste Management Associates  
526 West 26th Street, Room 517  
New York, NY 10001  
(212)620-0526 FAX (212)620-0518

241 W. 109<sup>th</sup> St, Apt. 2A  
New York, NY 10025  
(212) 663-7117

### EXPERIENCE:

April 1989 - present **Senior Associate**, Radioactive Waste Management Associates, management of consulting firm focused on radioactive waste issues, evaluation of nuclear transportation and military and commercial radioactive waste disposal facilities.

1978 - 1981; 1983 - April 1989 **Research Director**, Radioactive Waste Campaign, directed research program for Campaign, including research for all fact sheets and the two books, *Living Without Landfills*, and *Deadly Defense*. The fact sheets dealt with low-level radioactive waste landfills, incineration of radioactive waste, transportation of high-level waste and decommissioning of nuclear reactors. Responsible for fund-raising, budget preparation and project management.

1981 - 1983 **Project Director**, Council on Economic Priorities, directed project which produced the report *The Next Nuclear Gamble*, on transportation and storage of high-level waste.

1974 - 1981 **Instructor**, Rachel Carson College, State University of New York at Buffalo, taught classes on energy and the environment, and conducted research into the economics of recycling of plutonium from irradiated fuel under a grant from the Environmental Protection Agency.

1975 - 1976 **Project Coordinator**, SUNY at Buffalo, New York Public Interest Research Group, assisted students on research projects, including project on waste from decommissioning nuclear reactor.

1973 **Fulbright Fellowship** at the Universidad de Chile, conducting research in elementary particle physics.

1967 - 1972 **Assistant Professor of Physics**, SUNY at Buffalo, conducted research in elementary particle physics and taught range of graduate and undergraduate physics courses.

1965 - 1967 **Research Associate**, Department of Physics, University of Maryland, conducted research into elementary particle physics.

### EDUCATION

University of Michigan  
Ann Arbor, Michigan

PhD in Physics, June 1965  
M.S. in Physics, Jan 1962  
B.A. in Physics/Math, June 1959

## Marvin Resnikoff, PhD: Court Proceedings

<i>Case</i>	<i>Official Title, Case #, Court</i>	<i>Plaintiff Attorney</i>	<i>Nature of case</i>
Adams v Dupont	Anita Adams et al v EI DuPont DeNemours et al, US District Court, San Antonio, SA-98-CA- 816(EP)	John Emerson Whittington, vonSternberg, Emerson 2600 S Gessner, Ste 600 Houston, TX 77063 713.789.8850	Personal injury, U mining and milling
Boeni v Stepan Chemical	George L. Boeni v. Stepan Chemical Co.; heard before Div. Of Worker's Compensation, Hackensack, NJ	David Tykulsker Ball, Livingston & Tykulsker 108 Washington St. Newark, NJ 07102 (201) 622-4545	Worker's comp; thorium processing plant
Carey v Kerr-McGee	Jesse Carey et al v Kerr- McGee Corp, US District Ct, Northern Dist of Illinois, No. 96-C-8583	Paul Weiss Hagens & Berman 1301 Fifth Ave, Ste 2900 Seattle, WA 98101 206.623.7292	Personal injury, thorium processing plant
Case v Chevron	James Edward Case et al. v. Chevron USA, Inc. et al.; USDC; Southern Miss.; Jackson District; Case #J92-0269(W)(N)	Stuart Smith Sacks & Smith 1615 Poydras St. Suite 860 New Orleans, LA 70112 (504) 593-9600	Dose reconstruction: oil pipe scale
Davis v Transelco		Stuart Smith Sacks & Smith 1615 Poydras St. Suite 860 New Orleans, LA 70112 (504) 593-9600	Thorium lens polishing compound; occupational exposure
Dodge v Comm Edison	Joseph Dodge et al. v. The Cotter Corporation and Commonwealth Edison Co.; USDC; District of Colorado; Civil Action #91 Z 1861	Rebecca Lorenz Melat, Pressman, Ezell & Higbie 711 South Tejon St. Colorado Springs, CO, 80903-4059 (719) 475-0304	Dose reconstruction; Cotter U mill
Ferguson v Ashland	Victor Ferguson v Ashland Inc, et al Johnson Circuit Court, KY, No. 95-CI-124	Pete Petroski, Esq Fleming, Hovenkamp & Grayson 1330 Post Oak Blvd Houston, TX 77056-3019	NORM contamination

<i>Case</i>	<i>Official Title, Case #, Court</i>	<i>Plaintiff Attorney</i>	<i>Nature of case</i>
Garza v Wyoming Minerals	A Garza et al v Westinghouse Electric Corporation, et al; UDC in Corpus Christi, TX; Civ No. C-95-505	Andrew Schirrmeister, 2603 Augusta, Ste 1200, Houston, TX 77057; (713) 781-0771	Personal injury case re. birth defects; parents involved in U mining
Kenny v Shore Regional	Robt Kenny v Shore Regional Bd of Ed, et al Superior Court of NJ, Monmouth Cty, MON-L-6617-93	Norm Hobbie, Esq, Giordano, Halleran, 125 Half Mile Rd, Middletown, NJ 07748, (732)219-5484	Personal injury, industrial accident
Idaho AG	Public Service Co. of Colorado v. Cecil D Andrus, individually and as the Governor of the State of Idaho; UDC; District of Idaho; Civil # 91-0035-S-HLR	Larry Echohawk, Atty General State of Idaho; Office of the Attorney General; Boise, ID 83720-1000 (208) 234-2400	Federal Court proceedings re. impact of transportation of sub fuel to Idaho
Kennedy v Southern California Edison	Joe Kennedy and Ellen Marie Kennedy v Southern California Edison, et al US District Ct, Southern District of California Case No. 95-3769 J (RBB)	Katy Jacobs, Esq Howarth & Smith 700 So Flower St, Suite 2900 Los Angeles, CA 90017 213/955-9400	Personal injury at nuclear reactor
Longoria v URI	Manuel T Longoria et al. v. Uranium Resources, Inc. et al.; in the District Court of Duval County, 229 <sup>th</sup> Judicial District, Texas; Cause # 16264	Ricardo DeAnda DeAnda Law Firm Plaza de San Augustin 212 Flores Ave. Laredo, TX 78040 (210) 726-0038	Property damage due to uranium solution mining
Marina Owners v MM	Euchee Marina & Campground, et al. v. Martin Marietta Energy System, Inc. et al.; USDC; East Dist; North Div; Docket: CIV-3-91-0510	Wm Vines; Butler, Vines & Babb; Suite 810, First American Center; Knoxville, TN 37901-2649; (423) 637-3531	Federal Court proceedings, potential risk from Oak Ridge releases
Miller v Tetra Pak, et al	Miller v Tetra Pak, et al, District Court, Denton County, Texas	Greg Marks, Esq 1333 Corporate Dr, Suite 209, Irving, TX 75038, (972) 790-4400	Personal injury, electron beam machine
Radioactive Waste Campaign		Louie Roselle; Waite, Schneider, Bayless & Chesley; 1513 Central Trust Tower, Cincinnati, OH 45202; (513) 621-0267	Fernald U exposures and radiation doses to nearby residents

<i>Case</i>	<i>Official Title, Case #, Court</i>	<i>Plaintiff Attorney</i>	<i>Nature of case</i>
Rock v Southern California Edison	Joshua Rock v Southern California Edison, et al, Case No. 95-3821 J (RBB)	Katy Jacobs, Esq Howarth and Smith 700 S Flower St. Suite 2900 Los Angeles, CA 90017-4216	Personal injury, 'hot' particles
Talitsch v Stepan Chemical	Mathis Talitsch v. Stepan Chemical Co.; Division of Worker's Compensation, Hackensack, NJ; C.P. #91-001800	David Tykulsker Ball, Livingston & Tykulsker 108 Washington St. Newark, NJ 07102 (201) 622-4545	Worker's comp; thorium processing plant
Vercher v Intracoastal		Stuart Smith; Sacks & Smith; 1615 Poydras St. Suite 860; New Orleans, LA 70112; (504) 593-9600	Oil pipe scale
West v Kerr-McGee	Kristy Lee West et al. v. Kerr-McGee Chemical Corp.; in USDC; Northern District of Illinois; Eastern Div.; Case # 92 C 4211	Thomas Trinley Patrick J Kenneally Ltd 2 North LaSalle St. Suite 1950 Chicago, ILL 60602 (312) 236-2522	Personal injury cases re. KMCC thorium
Muzzey/Bryan v Kerr-McGee	Gary Muzzey et al. v. Kerr-McGee Chemical Corp.; in USDC; Northern District of Illinois; Eastern Div.; Case # 93 C 3623	Thomas Trinley Patrick J Kenneally Ltd 2 North LaSalle St. Suite 1950 Chicago, ILL 60602 (312) 236-2522	Personal injury cases re. KMCC thorium

## Marvin Resnikoff, PhD: Court Proceedings

<i>Case</i>	<i>Official Title, Case #, Court</i>	<i>Plaintiff Attorney</i>	<i>Nature of case</i>
Adams v Dupont	Anita Adams et al v EI DuPont DeNemours et al, US District Court, San Antonio, SA-98-CA-816(EP)	John Emerson Whittington, vonSternberg, Emerson 2600 S Gessner, Ste 600 Houston, TX 77063 713.789.8850	Personal injury, U mining and milling
Boeni v Stepan Chemical	George L. Boeni v. Stepan Chemical Co.; heard before Div. Of Worker's Compensation, Hackensack, NJ	David Tykulsker Ball, Livingston & Tykulsker 108 Washington St. Newark, NJ 07102 (201) 622-4545	Worker's comp; thorium processing plant
Carey v Kerr-McGee	Jesse Carey et al v Kerr-McGee Corp, US District Ct, Northern Dist of Illinois, No. 96-C-8583	Paul Weiss Hagens & Berman 1301 Fifth Ave, Ste 2900 Seattle, WA 98101 206.623.7292	Personal injury, thorium processing plant
Case v Chevron	James Edward Case et al. v. Chevron USA, Inc. et al.; USDC; Southern Miss.; Jackson District; Case #J92-0269(W)(N)	Stuart Smith Sacks & Smith 1615 Poydras St. Suite 860 New Orleans, LA 70112 (504) 593-9600	Dose reconstruction: oil pipe scale
Davis v Transelco		Stuart Smith Sacks & Smith 1615 Poydras St. Suite 860 New Orleans, LA 70112 (504) 593-9600	Thorium lens polishing compound; occupational exposure
Dodge v Comm Edison	Joseph Dodge et al. v. The Cotter Corporation and Commonwealth Edison Co.; USDC; District of Colorado; Civil Action #91 Z 1861	Rebecca Lorenz Melat, Pressman, Ezell & Higbie 711 South Tejon St. Colorado Springs, CO, 80903-4059 (719) 475-0304	Dose reconstruction; Cotter U mill
Ferguson v Ashland	Victor Ferguson v Ashland Inc, et al Johnson Circuit Court, KY, No. 95-CI-124	Pete Petroski, Esq Fleming, Hovenkamp & Grayson 1330 Post Oak Blvd Houston, TX 77056-3019	NORM contamination



<i>Case</i>	<i>Official Title, Case #, Court</i>	<i>Plaintiff Attorney</i>	<i>Nature of case</i>
Garza v Wyoming Minerals	A Garza et al v Westinghouse Electric Corporation, et al; UDC in Corpus Christi, TX; Civ No. C-95-505	Andrew Schirrmeister, 2603 Augusta, Ste 1200, Houston, TX 77057; (713) 781-0771	Personal injury case re. birth defects; parents involved in U mining
Kenny v Shore Regional	Robt Kenny v Shore Regional Bd of Ed, <i>et al</i> Superior Court of NJ, Monmouth Cty, MON-L-6617-93	Norm Hobbie, Esq, Giordano, Halleran, 125 Half Mile Rd, Middletown, NJ 07748, (732)219-5484	Personal injury, industrial accident
Idaho AG	Public Service Co. of Colorado v. Cecil D Andrus, individually and as the Governor of the State of Idaho; UDC; District of Idaho; Civil # 91-0035-S-HLR	Larry Echohawk, Atty General State of Idaho; Office of the Attorney General; Boise, ID 83720-1000 (208) 234-2400	Federal Court proceedings re. impact of transportation of sub fuel to Idaho
Kennedy v Southern California Edison	Joe Kennedy and Ellen Marie Kennedy v Southern California Edison, et al US District Ct, Southern District of California Case No. 95-3769 J (RBB)	Katy Jacobs, Esq Howarth & Smith 700 So Flower St, Suite 2900 Los Angeles, CA 90017 213/955-9400	Personal injury at nuclear reactor
Longoria v URI	Manuel T Longoria et al. v. Uranium Resources, Inc. et al.; in the District Court of Duval County, 229 <sup>th</sup> Judicial District, Texas; Cause # 16264	Ricardo DeAnda DeAnda Law Firm Plaza de San Augustin 212 Flores Ave. Laredo, TX 78040 (210) 726-0038	Property damage due to uranium solution mining
Marina Owners v MM	Euchee Marina & Campground, et al. v. Martin Marietta Energy System, Inc. et al.; USDC; East Dist; North Div; Docket: CIV-3-91-0510	Wm Vines; Butler, Vines & Babb; Suite 810, First American Center; Knoxville, TN 37901-2649; (423) 637-3531	Federal Court proceedings, potential risk from Oak Ridge releases
Miller v Tetra Pak, et al	Miller v Tetra Pak, et al, District Court, Denton County, Texas	Greg Marks, Esq 1333 Corporate Dr, Suite 209, Irving, TX 75038, (972) 790-4400	Personal injury, electron beam machine
Radioactive Waste Campaign		Louie Roselle; Waite, Schneider, Bayless & Chesley; 1513 Central Trust Tower, Cincinnati, OH 45202; (513) 621-0267	Fernald U exposures and radiation doses to nearby residents

<i>Case</i>	<i>Official Title, Case #, Court</i>	<i>Plaintiff Attorney</i>	<i>Nature of case</i>
Rock v Southern California Edison	Joshua Rock v Southern California Edison, et al, Case No. 95-3821 J (RBB)	Katy Jacobs, Esq Howarth and Smith 700 S Flower St. Suite 2900 Los Angeles, CA 90017-4216	Personal injury, 'hot' particles
Talitsch v Stepan Chemical	Mathis Talitsch v. Stepan Chemical Co.; Division of Worker's Compensation, Hackensack, NJ; C.P. #91-001800	David Tykulsker Ball, Livingston & Tykulsker 108 Washington St. Newark, NJ 07102 (201) 622-4545	Worker's comp; thorium processing plant
Vercher v Intracoastal		Stuart Smith; Sacks & Smith; 1615 Poydras St. Suite 860; New Orleans, LA 70112; (504) 593-9600	Oil pipe scale
West v Kerr-McGee	Kristy Lee West et al. v. Kerr-McGee Chemical Corp.; in USDC; Northern District of Illinois; Eastern Div.; Case # 92 C 4211	Thomas Trinley Patrick J Kenneally Ltd 2 North LaSalle St. Suite 1950 Chicago. ILL 60602 (312) 236-2522	Personal injury cases re. KMCC thorium
Muzzey/Bryan v Kerr-McGee	Gary Muzzey et al. v. Kerr-McGee Chemical Corp.; in USDC; Northern District of Illinois; Eastern Div.; Case # 93 C 3623	Thomas Trinley Patrick J Kenneally Ltd 2 North LaSalle St. Suite 1950 Chicago. ILL 60602 (312) 236-2522	Personal injury cases re. KMCC thorium

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Adams v Dupont	Anita Adams et al v EI DuPont DeNemours et al, US District Court, San Antonio, SA-98-CA-816(EP)	John Emerson Whittington, vonSternberg, Emerson 2600 S Gessner, Ste 600 Houston, TX 77063 713.789.8850	Personal injury, U mining and milling
Boeni v Stepan Chemical	George L. Boeni v. Stepan Chemical Co.; heard before Div. Of Worker's Compensation, Hackensack, NJ	David Tykulsker Ball, Livingston & Tykulsker 108 Washington St. Newark, NJ 07102 (201) 622-4545	Worker's comp; thorium processing plant
Carey v Kerr-McGee	Jesse Carey et al v Kerr-McGee Corp, US District Ct, Northern Dist of Illinois, No. 96-C-8583	Paul Weiss Hagens & Berman 1301 Fifth Ave, Ste 2900 Seattle, WA 98101 206.623.7292	Personal injury, thorium processing plant
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Davis v Transelco		Stuart Smith Sacks & Smith 1615 Poydras St. Suite 860 New Orleans, LA 70112 (504) 593-9600	Thorium lens polishing compound; occupational exposure
Dodge v Comm Edison	Joseph Dodge et al. v. The Cotter Corporation and Commonwealth Edison Co.; USDC; District of Colorado; Civil Action #91 Z 1861	Rebecca Lorenz Melat, Pressman, Ezell & Higbie 711 South Tejon St. Colorado Springs, CO, 80903-4059 (719) 475-0304	Dose reconstruction; Cotter U mill
Ferguson v Ashland	Victor Ferguson v Ashland Inc, et al Johnson Circuit Court, KY, No. 95-CI-124	Pete Petroski, Esq Fleming, Hovenkamp & Grayson 1330 Post Oak Blvd Houston, TX 77056-3019	NORM contamination

<i>Case</i>	<i>Official Title, Case #, Court</i>	<i>Plaintiff Attorney</i>	<i>Nature of case</i>
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Kenny v Shore Regional	Robt Kenny v Shore Regional Bd of Ed, et al Superior Court of NJ, Monmouth Cty, MON-L-6617-93	Norm Hobbie, Esq, Giordano, Halleran, 125 Half Mile Rd, Middletown, NJ 07748, (732)219-5484	Personal injury, industrial accident
Idaho AG	Public Service Co. of Colorado v. Cecil D Andrus, individually and as the Governor of the State of Idaho; UDC; District of Idaho; Civil # 91-0035-S-HLR	Larry Echohawk, Atty General State of Idaho; Office of the Attorney General; Boise, ID 83720-1000 (208) 234-2400	Federal Court proceedings re. impact of transportation of sub fuel to Idaho
Kennedy v Southern California Edison	Joe Kennedy and Ellen Marie Kennedy v Southern California Edison, et al US District Ct, Southern District of California Case No. 95-3769 J (RBB)	Katy Jacobs, Esq Howarth & Smith 700 So Flower St, Suite 2900 Los Angeles, CA 90017 213/955-9400	Personal injury at nuclear reactor
Longoria v URI	Manuel T Longoria et al. v. Uranium Resources, Inc. et al.; in the District Court of Duval County, 229 <sup>th</sup> Judicial District, Texas; Cause # 16264	Ricardo DeAnda DeAnda Law Firm Plaza de San Augustin 212 Flores Ave. Laredo, TX 78040 (210) 726-0038	Property damage due to uranium solution mining
Marina Owners v MM	Euchee Marina & Campground, et al. v. Martin Marietta Energy System, Inc. et al.; USDC; East Dist; North Div; Docket: CIV-3-91-0510	Wm Vines; Butler, Vines & Babb; Suite 810, First American Center; Knoxville, TN 37901-2649; (423) 637-3531	Federal Court proceedings, potential risk from Oak Ridge releases
Miller v Tetra Pak, et al	Miller v Tetra Pak, et al, District Court, Denton County, Texas	Greg Marks, Esq 1333 Corporate Dr, Suite 209, Irving, TX 75038, (972) 790-4400	Personal injury, electron beam machine
Radioactive Waste Campaign		Louie Roselle; Waite, Schneider, Bayless & Chesley; 1513 Central Trust Tower, Cincinnati, OH 45202; (513) 621-0267	Fernald U exposures and radiation doses to nearby residents

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Talitsch v Stepan Chemical	Mathis Talitsch v. Stepan Chemical Co.; Division of Worker's Compensation, Hackensack, NJ; C.P. #91-001800	David Tykulsker Ball, Livingston & Tykulsker 108 Washington St. Newark, NJ 07102 (201) 622-4545	Worker's comp; thorium processing plant
Vercher v Intracoastal		Stuart Smith; Sacks & Smith; 1615 Poydras St. Suite 860; New Orleans, LA 70112; (504) 593-9600	Oil pipe scale
West v Kerr-McGee	Kristy Lee West et al. v. Kerr-McGee Chemical Corp.; in USDC; Northern District of Illinois; Eastern Div.; Case # 92 C 4211	Thomas Trinley Patrick J Kenneally Ltd 2 North LaSalle St. Suite 1950 Chicago. ILL 60602 (312) 236-2522	Personal injury cases re. KMCC thorium
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**BARRY J. SOLOMON**  
3435 Enchanted Hills Drive  
Salt Lake City Utah 84121  
Res: (801) 944-9545  
Bus: (801) 537-3388  
e-mail: nrugs.bsolomon@state.ut.us

**BACKGROUND SUMMARY:** Twenty-six years of successful development, implementation, and management of geologic studies for evaluation of geologic hazards and for site screening, selection, and characterization of hazardous and nuclear waste, construction, and mining projects to comply with governmental regulations.

**EDUCATION:**

M.S. Geology, San Jose State University, 1979  
B.A. Geology, University of California, Santa Barbara, 1972

**ADDITIONAL COURSES, SEMINARS, AND TRAINING:**

Geological Engineering  
Geostatistics and Multivariate Analysis  
Construction Management  
Well Logging  
Remote Sensing Techniques  
Soils and Applied Geology  
Quaternary Dating Methods  
Reducing Radon in Structures

**PUBLICATIONS:**

More than fifty publications on geologic studies including quaternary geology and active faulting. Co-author of regulatory documents related to nuclear-waste and power-plant site characterization, selection, and screening.

**PROFESSIONAL ASSOCIATIONS:**

Association of Engineering Geologists (former Chairman, Utah Section)  
Utah Geological Association (former Treasurer)  
Geological Society of America  
American Association of Petroleum Geologists  
Northern California Geological Association (former Vice-President)

Registered Professional Geologist, State of Florida, No. PG0000318

## **EMPLOYMENT HISTORY:**

UTAH GEOLOGICAL SURVEY, Salt Lake City, Utah (1988-present)

Senior Geologist–Applied Geology Program: Principal investigator for National Earthquake Hazards Reduction Program grants to study active faults and seismic hazards in northern Utah. Principal investigator for U.S. Environmental Protection Agency grants to study geology related to the indoor-radon hazard in Utah. Responsible for review of geotechnical portion of license applications for low- and high-level radioactive waste disposal and storage sites to ensure compliance with state and federal regulations. Responsible for conducting site-specific and regional assessments of geologic hazards.

BATTELLE PROJECT MANAGEMENT DIVISION, Columbus, Ohio, and Hereford, Texas (1985 to 1988)

Geotechnical Advisor: Responsible for planning and direction of geotechnical surface-based site activities of the salt characterization program for siting of a high-level radioactive waste repository. Monitored the cost and technical status of geotechnical elements by preparing planning documents and work scopes.

BRECKINRIDGE MINERALS, INC., Salt Lake City, Utah (Southern Pacific Petroleum, Brisbane, Australia) (1980 to 1985)

Senior Geologist: Directed all phases of exploration for oil-shale and tar-sand deposits in the United States and Canada; participated in oil-shale exploration program in Australia. Managed program of lease acquisition and established field office. Conducted comprehensive geologic studies using mapping, core logging, geochemical analyses, and geophysical data to characterize potential mine sites.

U.S. GEOLOGICAL SURVEY, Menlo Park, California (1976 to 1980)

Geologist: Conducted resource evaluations and stratigraphic studies of minerals considered leasable by the U.S. Government. Provided recommendations to federal agencies regarding proper use of mineral resources on federal land.

FUGRO, INC., Long Beach, California (1973-1975)

Engineering Geologist: Conducted regional and site-specific fault investigations and engineering-geologic studies of Quaternary deposits for potential nuclear power-plant sites in Arizona and Puerto Rico. Responsible for site mapping, logging of core and soil samples, and trenching to evaluate structure.

**Barry J. Solomon**  
Selected Publications

- Black, B.D., Mulvey, W.E., Lowe, Mike, and Solomon, B.J., 1995, Geologic effects, *in* Christenson, G.E., editor, The September 2, 1992 M<sub>L</sub> 5.8 St. George earthquake, Washington County, Utah: Utah Geological Survey Circular 88, p. 2-11.
- Black, B.D., and Solomon, B.J., 1998, Surficial geologic mapping and paleoseismic investigations on the West Cache fault zone, Cache County, Utah [abs]: Seismological Research Letters, v. 69, no. 2, p. 160.
- Black, B.D., Solomon, B.J., and Harty, K.M., 1999, Geology and geologic hazards of Tooele Valley and the West Desert Hazardous Industry Area, Tooele County, Utah: Utah Geological Survey Special Study 96, 65 p.
- Doelling, H.H., Solomon, B.J., and Davies, S.F., 1994, Geologic map of the Grayback Hills quadrangle, Tooele County, Utah: Utah Geological Survey Map 166, 22 p., scale 1:24,000.
- Solomon, B.J., 1996, Engineering geologic map folio, Springdale, Washington County, Utah: Utah Geological Survey Open-File Report 340, 5 plates, scale 1:14,400.
- Solomon, B.J., 1996, Landslide hazards of Springdale, near Zion National Park, Washington County, Utah: Geological Society of America 48th Annual Rocky Mountain Section Meeting, April 18-19, 1996, Rapid City, South Dakota: Geological Society of America Abstracts with Programs, v. 28, no. 4, p. 38-39.
- Solomon, B.J., 1996, Surficial geology of the Oquirrh fault zone, Tooele County, Utah, *in* Lund, W.R., editor, The Oquirrh fault zone, Tooele County, Utah -- surficial geology and paleoseismicity: Utah Geological Survey Special Study 88, p. 1-17.
- Solomon, B.J., 1999, Surficial geologic map of the West Cache fault zone and nearby faults, Box Elder and Cache Counties, Utah: Utah Geological Survey Map 172, 20 p., scale 1:50,000.
- Solomon, B.J., and Klauk, R.H., 1989, Regional assessment of geologic conditions for sanitary landfills in Sevier County, Utah: Utah Geological and Mineral Survey Special Study 71, 17 p.
- Solomon, B.J., and McCalpin, J.P., 1999, GIS mapping of seismic hazards along the Wasatch Front [an example from Cache Valley, Utah [abs]: Association of Engineering Geologists Program with Abstracts, 42<sup>nd</sup> annual meeting, Salt Lake City, Utah, September, 1999, p. 86.
- Stewart, M.E., Taylor, W.J., Pearthree, P.A., Solomon, B.J., and Hurlow, H.A., 1997, Field



guide to neotectonics, fault segmentation, and seismic hazards along the Hurricane fault in southwestern Utah and northwestern Arizona, *in* Link, P.K., and Kowalis, B.J., editors, Geological Society of America Field Trip Guide Book, 1997 Annual Meeting, Salt Lake City, Utah: Brigham Young University Geology Studies, v. 42, pt. 2 - Mesozoic to Recent Geology of Utah, p. 261-277.

Stewart, M.E., Taylor, W.J., Pearthree, P.A., Solomon, B.J., and Hurlow, H.A., 1997, Neotectonics, fault segmentation, and seismic hazards along the Hurricane fault in Utah and Arizona: an overview of environmental factors in an actively extending region, *in* Link, P.K., and Kowalis, B.J., editors, Geological Society of America Field Trip Guide Book, 1997 Annual Meeting, Salt Lake City, Utah: Brigham Young University Geology Studies, v. 42, pt. 2 - Mesozoic to Recent Geology of Utah, p. 235-254.

# DAVID B. COLE

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6618 W 4145 South St. - West Valley City, Utah 84128

## EMPLOYMENT

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Senior Engineer

State Of Utah Division Of Water Resources

YEARS EMPLOYED (Ex: 1971-Present)

Salt Lake City, Utah

Assistant Section Chief

Develop and maintain river basin and project operation simulation computer programs.

Develop and maintain computer programs to solve complex engineering programs in areas of hydrology, hydraulics, statistics, economics, seismic data reduction and land survey reduction.

## EDUCATION

---

Civil Engineering

Bachelor of Science Degree

YEARS ATTENDED (EX: 1970-1976)

University of Utah, Salt Lake City, Utah

Graduated Cum Laude

Member of Tau Beta Pi National Engineering Honor Fraternity

Member of Chi Epsilon National Civil Engineering Honor Fraternity

## SKILLS AND LICENSING

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Over 20 years of experience developing computer programs to simulate the operation of reservoir and river systems.

Over 20 years of experience developing computer programs to perform hydrologic and hydraulic computations. ,

Over 20 years of experience computing design and probable maximum flood hydrographs, and flood routing.

Licensed Professional Engineer in State of Utah.

## Resumé

### FRANK PENCE HOWE

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Salt Lake City, Utah 84103  
home: 801-322-4067 office: 801-538-4764  
e-mail: fhowe@state.ut.us

#### EDUCATION

- B.A.** St. Cloud State University, Biology and Anthropology, 1982  
**M.S.** South Dakota State University, Wildlife Science, 1986  
*Thesis: An ecological study of Mourning Doves in a cold desert ecosystem on the Idaho National Engineering Laboratory*  
**Ph.D.** Colorado State University, Wildlife Biology, 1993  
*Dissertation: Effects of an experimental food reduction on nesting shrubsteppe passerines*

#### PROFESSIONAL EXPERIENCE

##### Current Position

##### **Nongame Avian Program Coordinator - Utah Division of Wildlife Resources**

Develop and implement statewide program to manage and conserve native, nongame bird species and their habitats. Design and implement statewide population and habitat monitoring programs for rare and endangered species, neotropical migrants, and resident birds. Conduct federal certification workshops for endangered species surveyors. Member of Mexican Spotted Owl Recovery Team; Chair of interdisciplinary team to implement recovery plans for Mexican Spotted Owls in 4 states on the Colorado Plateau. Represent state in creation of interagency Northern Goshawk Conservation Strategy. Compile State Sensitive Species List. Formulate and administer contracts for research on sensitive bird species. Develop funding proposals; administer interagency cooperative agreements, university contracts, and foundation grants. Conduct and direct statistical analyses of statewide avian databases. Develop work plans for, edit and approve reports from 5 Division of Wildlife Resources regional offices. Design Professional Development program for Division of Wildlife Resources. Create and teach professional workshops on avian population monitoring, bird identification, songbird management, raptor management, and endangered species management. Conduct guest lectures at Utah State University, University of Utah, and Southern Utah University on avian community and habitat management. Teach Project WILD and Outdoor's Woman workshops. Develop and coordinate annual statewide public outreach events. Conduct public outreach workshops on bird conservation, identification, and feeding. Founder (1992), Chair (1992-1996), and Steering Committee member (1997-present) of Utah Partners in Flight. Write professional reports and present findings at professional and public meetings. 1991-1994 & Jan 1996 - present.

##### Current Position

##### **Associate Biology Professor - Westminster College of Salt Lake City**

Conduct classroom and field/laboratory instruction in undergraduate biology. Prepare and administer course syllabus, lectures, field trips, tests, quizzes, and additional teaching materials for Environmental Biology. Grade all materials including papers, field, and Internet-oriented projects. Course emphasizes general biology and ecology research and application in the context of environmental science. Field trips require journal keeping and enforce classroom activities; trips range from identification of life zones, biomes, habitats,

and life forms to treatment and disposal of solid waste, sewage, aerial effluents, and toxic wastes. Course delivers historical perspective and emphasizes current issues. 1999-present.

#### Previous Positions

##### **Utah Partners in Flight Coordinator - Utah Division of Wildlife Resources**

Directed and coordinated development and implementation of statewide bird population monitoring, research, and management among several federal agencies, state agencies, regional universities, and private organizations. Developed and established guidelines for bird species and habitat management, monitoring, and recovery programs. Conducted professional workshops on avian management and field techniques. Utah representative to Western and International Partners in Flight. Conducted analyses, wrote, reviewed, edited, and approved technical reports and professional manuscripts. Presented results of studies at professional and public meetings. 1995-1996.

##### **Utah Mexican Spotted Owl Coordinator - Contract, Utah Division of Wildlife Resources**

Represented State of Utah as consulting member of the Mexican Spotted Owl Recovery Team. Coauthored national Recovery Plan for Mexican Spotted Owls. Developed statewide Mexican Spotted Owl locational (GIS) database. Chaired interagency team to develop management plans for Mexican Spotted Owls in Utah. 1995.

##### **Research Associate/Graduate Research Assistant - Colorado State University**

Conducted field and laboratory research to determine effects of insecticides on breeding birds. Designed research project, directed field and laboratory personnel, entered and analyzed data, prepared annual reports. Presented findings at professional meetings and published results. Graduate student representative to faculty; acted on two faculty search committees. 1988-1991.

##### **Wildlife Biologist - U.S. Fish and Wildlife Service**

Conducted surveys on population status of endangered and threatened bird species and availability of suitable habitat for those species. Conducted research involving instream flow requirements for plains river fishes. Directed field survey crews and data entry. Prepared technical reports and public awareness materials; presented findings at public meetings. 1986-1988.

##### **Graduate Research/Teaching Assistant - South Dakota State University**

Conducted research on the Idaho National Engineering Laboratory to determine the potential for transport of radionuclides by birds; also supervised research on the nesting ecology of a migratory bird species. Was responsible for research design, data collection, data entry, and statistical analysis. Prepared professional publications and technical reports. Presented findings at professional meetings. Taught undergraduate laboratory in ornithology. 1983-1986.

##### **Wildlife Research Technician - University of Minnesota - Cloquet State Forest**

Collected, compiled, and entered data on biology and behavior of ruffed grouse in Minnesota. 1982.

##### **Assistant Archaeologist - St. Cloud State University**

Collected, compiled, and catalogued archaeological artifacts from sites in Minnesota. 1980-1982.

#### **SPECIAL SKILLS**

Extensive use of personal computers and PC software including spreadsheet, data base management, word processing, and statistical packages. Also, use of land survey equipment, GPS and GIS methods

and applications. Broad experience designing and conducting large-scale research and monitoring projects.

Communication skills include experience forming and directing partnerships with state, federal, and non-governmental organizations. Extensive experience publishing and presenting results and concepts to professional and nonprofessional audiences (see attached). Experience teaching college level biology courses, coordinating symposia, developing and conducting professional and public workshops.

### PROFESSIONAL AFFILIATIONS

The Wildlife Society  
American Ornithologists' Union  
Cooper Ornithological Society  
Ecological Society of America  
Society for Conservation Biology

Utah Partners in Flight (Founder, Chair, Steering Committee)  
North American Bird Banding Association  
American Birding Association  
Utah Ornithological Society

### HONORS AND CERTIFICATION

Conservation Service Award (Mexican Spotted Owl Recovery Team) - 1999 - presented by President William J. Clinton, Secy. (DOI) Bruce Babbitt, and Director (USFWS) Jamie R. Clark.  
President Utah Chapter of The Wildlife Society (TWS) - 1997  
Certified Wildlife Biologist (TWS) - 1996  
Graduated Magna Cum Laude (3.9 GPA) Colorado State University - 1993  
Graduated Summa Cum Laude (4.0 GPA) South Dakota State University - 1986  
Graduated Magna Cum Laude (3.7 GPA) St. Cloud State University - 1982  
Associate Wildlife Biologist (TWS) - 1986  
Outstanding Graduate Student SDSU (TWS) - 1986  
Phi Kappa Phi (Honor Society) - 1985  
Gamma Sigma Delta (Honor Society) - 1985  
National Honor Society - 1978

### REFERENCES -additional references available upon request

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<b>Dr. Kate Grandison</b> Biology Dept. Southern Utah University Cedar City, UT 84720 (435)865-8345 grandison@suu.edu	<b>Alan G. Clark, Wildlife Chief</b> Utah Div. of Wildlife Resources 1594 W. North Temple Salt Lake City, UT 84114-6301 (801)538-4881 nrdwr.aclark@state.ut.us	<b>Dr. Lester D. Flake, Professor</b> Dept. Wildlife & Fisheries Sci. South Dakota State University Brookings, SD 57007 (605)688-6121 flakel@mg.sdstate.edu

Frank P. Howe, Ph.D.

PUBLICATIONS AND PRESENTATIONS

Refereed

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Block, W.M., F. Clemente, J.F. Cully, J.L. Dick, A.B. Franklin, J.L. Ganey, F.P. Howe, W.H. Moir, S.L. Spangle, S.E. Rinkevich, D.L. Urban, R. Vahle, J.P. Ward, and G.C. White. 1996. Recovery Plan for the Mexican spotted owl. Albuquerque, New Mexico. 172pp.

Howe, F. P. 1993. A western state perspective on monitoring and managing neotropical migratory birds. Pp. 269-271 in D.M. Finch and P. W. Stangel, eds. *Status and management of neotropical migratory birds*, USDA-Forest Service General Technical Report RM-229, Rocky Mountain Forest and Range Experiment Station, Ft. Collins, CO.

Howe, F. P. 1992. Effects of *Protocalliphora braueri* (Diptera: Calliphoridae) parasitism on nestling sage thrashers. *Journal of Wildlife Diseases* 28:141-143.

Howe, F. P. 1991. Two new host species for the parasitic blow fly *Protocalliphora braueri*. *Wilson Bulletin* 103:520-521.

Howe, F. P. and L. D. Flake. 1989. Mourning dove use of man-made ponds in a cold-desert ecosystem. *Great Basin Naturalist* 49:627-631.

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Howe, F. P. and L. D. Flake. 1988. Mourning dove movements during the reproductive season in southeastern Idaho. *Journal of Wildlife Management* 52:477-480.

Technical Reports

Howe, F.P. 2000. Southwestern Willow Flycatcher and Yellow-billed Cuckoo Surveys on the Green River in Utah. *Utah Division of Wildlife Resources Report*.

Howe, F. P. 1999. Colorado Breeding Bird Atlas (Book Review). *The Auk*.

Parrish, J. R., F. P. Howe, and R. Norvell. 1999. Utah Avian Conservation Strategy. *Utah Partners in Flight and Utah Division of Wildlife Resources Report*.

P. A. Gardner, R. Stevens and F. P. Howe. 1999. Handbook of Riparian Management for the Conservation of Land Birds in Utah. *Utah Division of Wildlife Resources Report*

Howe, F.P. 1999. Southwestern Willow Flycatcher Surveys on U.S. Forest Service Lands in Utah. *Utah Division of Wildlife Resources Report*

Howe, F.P., J. R. Parrish, and R. Norvell. 1999. Utah Partners in Flight Progress Report. *Utah Division of Wildlife Resources Report*

Messmer, T. A., F.P. Howe, R. Drake, L. Lentsch, B. Blackwell, M.A. Zablan, and A. Menses. 1998. Endangered and Threatened Animals of Utah. Berryman Institute Publication No. 17, Utah State University, Logan. 60pp.

Howe, F.P. 1998. Southwestern Willow Flycatcher Surveys on U.S. Forest Service Lands in Utah. *Utah Division of Wildlife Resources Report*.

Howe, F.P., J.R. Parrish, and R. Norvell. *In Prep.* Riparian Landbird Population Trends and Monitoring in Utah: 1992-1999. *Utah Division of Wildlife Resources Report.*

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Location of Habitat Important to Federally Listed Bird Species on the Missouri National Recreational River. *USDOI-USFWS.* 1986.

#### Professional Presentations

The Bird Behind the Waterfall: Finding the Enigmatic Black Swift in Utah. Utah Chapter. The Wildlife Society. 2001.

The Yellow-billed Cuckoo: Crazy for Being So Lonely. Utah Chapter. The Wildlife Society. 2001.

Community Composition and Conservation of Shrubsteppe Habitats and Avifaunas. Utah Chapter. The Wildlife Society. 2000.

Conservation of Land Birds in Utah: The Utah Partners in Flight Conservation Strategy (J. Parrish, F. Howe, R. Norvell). Utah Chapter. The Wildlife Society. 2000.

Science vs. Political Reality: Monitoring Mexican Spotted Owls on Federal Lands (G. White, B. Block, F. Howe, et al.). North American Wildlife Conference. 1999.

Monitoring Utah riparian bird density trends with point counts (F. Howe, R. Norvell, J. Parrish). Cooper Ornithological Society. 1999.

Trends in density, richness, and diversity of Utah's riparian birds. (F. Howe, R. Norvell, J. Parrish). Utah Chapter. The Wildlife Society. 1999.

Developing a Conservation Strategy for Utah's Nongame Birds (J. Parrish, F. Howe, R. Norvell). Utah Chapter. The Wildlife Society. 1999.

Mexican Spotted Owl Symposium (Symposium Coordinator and Summary Speaker). Raptor Research Foundation. 1998.

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Five years of monitoring of birds in Utah's riparian habitats (F. Howe, J. Parrish, R. Norvell). Utah Chapter: The Wildlife Society. 1998.

The State of Utah's Wildlife (Symposium Coordinator). Utah Chapter: The Wildlife Society. 1997.

High Tech Wildlife Management Workshop (Moderator). Utah Chapter: The Wildlife Society. 1997.

The Utah Partners in Flight Program (F. Howe, J. Parrish). Utah Chapter: The Wildlife Society. 1997.

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Constant-effort mist netting as a monitoring tool in Utah riparian habitats (F. Howe, J. Parrish). Utah Chapter: The Wildlife Society. 1996.

Monitoring and management of riparian habitats for breeding birds. Utah Chapter: The Wildlife Society. 1996.

Managing riparian systems for land birds. Colorado Riparian Association. 1996.

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Population Monitoring of Utah neotropical migratory birds in riparian habitats (Best Paper). Utah Chapter: The Wildlife Society. 1993.

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Malathion's effects on nesting passerines. Grasshopper Integrated Pest Management Symposium. 1989.

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#### Popular Articles and Presentations

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The decline of Utah's shrub-dependent birds. Cache Valley Audubon. 1998.

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Conservation of avian communities in southern Utah. Red Cliffs Audubon. 1997.

Great Basin Desert bird communities. Great Basin Workshop-Great Salt Lake Audubon. 1996.

The crane community. Cache Valley Crane Festival. 1996.

Monitoring and management of breeding birds in Utah's riparian areas. Utah County Birders. 1996.

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Monitoring populations of neotropical migratory birds in Utah. Great Salt Lake Audubon. 1994.

Birding: hobby into science. Salt Lake Birders. 1994.

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A conservation strategy for shorebirds on the Great Salt Lake. Great Salt Lake Audubon. 1993.

Monitoring neotropical migrant birds in Utah's riparian areas. Bridgerland Audubon. 1993.

(Brochure) Utah's Wetlands: treasures worth caring about. *Utah Partners in Flight/Utah Division of Wildlife Resources*. 1995.

(Poster) Utah's neotropical migratory birds. *Utah Partners in Flight/Utah Division of Wildlife Resources*. 1995.

(Pamphlet) Join Utah's Stream Team. *Utah Division of Wildlife Resources*. 1995.