1945

Department of Physics
Harvard University
Cambridge, MA, 02138
Tel: 617-495-3387
home tel: 617 332 4823
Fax: 617-495-0416
E Mail: WILSON@HUHEPL.HARVARD.EDU

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July 10th 2000

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Secretary
Nuclear Regulatory Commission
WASHINGTON, DC 20555-0001

Docket Number 72-22-ISFSI
Licensing hearing on proposal of Private Fuel Storage LLC
Limited Appearance at Salt Lake City, June 23rd 2000
on behalf of Scientists for Secure Waste Storage (SSWS)

Dear Sir,

Attached please find a copy of the limited appearance statement that I made on behalf of Scientists for Secure waste Storage (SSWS) on June 23rd 2000 at Salt Lake City. The original has been sent to every member of SSWS and only a few spelling and similar mistakes were found and corrected. This may therefore be considered an accurate representation of their views.

Yours sincerely

Richard Wilson
Spokesman SSWS

Enclosure

Atomic Safety and Licensing Board: Nuclear Regulatory Commission
In the Matter of Private Fuel Storage
Limited appearance statement by Richard Wilson as spokesman for:

William T. Anders[+%$], Steven Barrowes, Hans Bethe[&], Nicolaas Bloembergen[&], Allan Bromley[*], Max Carbon, Bruce Church, Bernard Cohen, Gerard Debreu[&], Sheldon Glashow[&], Robert Hoffman, Daniel M. Kammen, John Landis, Ralph Lapp, Otto Raabe, Norman Ramsey[+&], Marcus Rowden[$], Glenn Seaborg[&$](deceased), Allen Sessoms, Jacob Shapiro, Richard Wilson, (spokesman)

+ former ambassador; & Nobel Laureate; % astronaut; * former Presidential Science Advisor, $ former Chairman of AEC or NRC.

Appearance 7 pm June 23rd 2000 in Salt Lake City.
Corrected for errors July 10th 2000

The above group of scientists formed Scientists for Secure Waste Storage (SSWS) to support the Goshute Indians in their desire to allow nuclear waste to be stored "in their back yard". We argue firstly that Skull Valley Goshutes have a right to run their own affairs and should be supported in doing so, provided that they do not impinge on the rights of others, and secondly we argue that the reservation is an excellent location for storage of nuclear waste.

The first proposition is to us self evident. It is a right that is governed by the treaty negotiated with the United States of America, The Skull Valley Goshutes have accepted the jurisdiction of the Nuclear Regulatory Commission in this matter. Those Americans who are immigrants or descendants of immigrants in the last couple of centuries (and that is most of us) have an especial duty to help the Goshutes exercise this right, because our ancestors have not always treated the tribe well and pushed them into territory that has few productive uses. We believe that the Goshutes have chosen wisely in selecting this activity. It will bring them employment, be useful to the rest of the United States in which they live, (and bring them appropriate compensation) and be consonant with the land that they have inherited. It will bring them back to the reservation with its pristine air, away from the air pollution of Salt Lake City, since a simple visual inspection shows that the particle concentration is less in Skull Valley than in Salt Lake City. The proposed facility is likely to make it financially attractive for many more of the Skull Valley band to live on their reservation and thereby improve their health and well being.

This statement argues the second proposition that the reservation is an excellent location for nuclear waste. We do not claim that it is the best location, but claim that it is one of many scientifically acceptable locations from which society can choose on other criteria. That the Goshutes want it is clearly and excellent criterion. Nor do we argue that the site is good for a permanent waste storage - but we do point out that the time limit need not be specified. The difference between the requirements for temporary fuel storage and permanent fuel disposal derives from the fact that temporary fuel storage is monitored, whereas with permanent fuel storage hope to be able to forget about the material after burial.

The long time delay (nearly three years) between the initial proposal and the start of this hearing

and the anticipated further delay before construction of the facility can commence, should not blind the hearing board or the public to the fact that the facility is a simple one and can simply be shown to be safe and reliable. This follows from four important facts which should underlie any consideration of a proposal to store nuclear waste:

(a) Almost all the radioactive material in the fuel rods will be solid.

(b) The heat generated by the waste will be very small and not nearly enough to evaporate or disperse any material. As a fraction of the nuclear fission power at the time of operation it is 0.01% after 10 years. This will be less than one millionth of the power in the "excursion" that blew apart the Chernobyl reactor.

(c) Therefore not only is it impossible for the heat in a fuel storage facility to evaporate the fuel, but also any accident can only proceed slowly. This contrasts with Three Mile Island which took place in 2 hours and Chernobyl within a few seconds. Therefore any release of material is expected to be very small, will happen slowly, and can therefore be noticed by monitoring and can be corrected. [an obvious exception would be a direct (within 100 feet) hit by a hydrogen bomb. But such a hit would involve many more consequences to the Goshute tribe and the United States of America which would be far more serious]

(d) The safety hazard of exposure to radiation can be controlled by three factors; distance, shielding and time. Even the Goshute community is 2 miles away; the casks are well shielded, and even the Goshutes (and others) who will monitor the facility will only spend a short time close to the casks.

The particular items that are being considered in this part of the hearing are:

(1) fire protection
(2) thermal design of the casks
(3) financial responsibility and
(4) decommissioning.

SSWS comment thereon as follows:

(1) Neither the casks themselves nor the fuel rods therein are inflammable in the ordinary sense. Zirconium and uranium can oxidize (burn) but at high temperature and a self sustaining fire is almost impossible. The concern is the fuel that men will bring to assist in their ancillary tasks; gasoline for their cars, diesel fuel for the railroad engines. It is important to realize that the risk of fire from these activities is certainly less than the risk of fire at a downtown road junction in Salt Lake City, and can be more easily controlled. In the very remote chance of fire engulfing a storage cask the cask is very unlikely to break. But even if a cask cracks only the small amount of remaining gaseous material (krypton 85) would immediately escape to the atmosphere - and that since krypton is chemically inert) would disperse and not cause appreciable human exposure.

(2) Heat is generated in the casks at a rate 1/1,000,000 or less of the power in a reactor. This is too small to raise the temperature to a level high enough to melt or evaporate any material even if the air circulation were to be blocked. It is planned to use helium to prevent deterioration of the fuel rods, but it is important to realize that even if all the helium escapes and is replaced by air, safety can still be easily maintained. The detailed calculations are to prevent any deterioration - and are far more than needed merely to stop small leaks. Small leaks if they occurred could be located and fixed and do not represent a major hazard.

(3) SSWS have little comment on the financial responsibility of Private Fuel Storage. However it need not be great; the decommissioning as noted below could, and should, be straightforward.

(4) The decommissioning of the facility should be exceptionally simple. The storage casks could be

taken onto the railroad the way they were brought in. Once that is done, the major problems would be removing a rail yard and concrete pad with at most a little radioactive material spilt thereon.

In general SSWS argue that the risks attributable to a waste storage facility are very small and much less than many societal risks. In particular they are smaller than the risks of living in Salt Lake City with its particulate air pollution.

There are plans to use especially designed railcars to bring the spent fuel casks to the site. These will have an unusually low probability of derailment. But it is important to realize that this is NOT necessary for safety. The casks are designed to withstand crashes without disruption of the shielding. This makes the consequences of any accident much less than an accident of the frequent chemical and hydrocarbon transport that goes through Salt Lake City. It is "gilding the lily". The new railcars will, however, minimize the chance of a derailment in the middle of a town , that although not hazardous in itself might well cause public disturbance and unnecessary concern.

The scientists in SSWS believe that the proposal of Private Fuel Storage to store spent nuclear fuel in the Skull Valley Indian reservation, is in principle a sensible proposal to cope with one of the steps in the technology of nuclear power in a safe and environmentally acceptable way. They have little doubt that such a storage facility can be built and operated safely. There have been vocal complaints that the nuclear waste should stay where it is generated. This is NOT done with other wastes. I, living in Massachusetts, do not want the fine particles that blow in from states upwind, including Utah. Unlike the muclear wastes which are under close control and cause no health hazard, these are believed by many scientists to adversely affect health at low levels.

Since the hearing has just started and evidence just collected, SSWS requests the opportunity to review and comment in writing upon any the scientific and technical issues that have and will come before the board. SSWS requests the right to revise this (and any other) limited statements in the light of any subsequent evidence presented. We desire this right to make sure that the scientific and technical testimony is accurate and in proper context. It is our intention that written comments would be circulated among the petitioners and the group report would then represent their views rather than merely represent the views of myself. This statement closely follows the oral comment at the hearing on June 23rd 2000. It has been sent to each and every scientist in SSWS for subsequent checking. Only spelling and punctuation errors were found.

SSWS notes that according to paragraph 2.715 of the rules of practice the presiding officer may at his discretion permit a limited appearance either orally or by written statements of the position on the issues at any session of the hearing. In view of the initial request for intervention SSWS requests that the presiding officer permit this wide latitude in such limited appearances as SSWS feels it has something useful to say. SSWS want to be able to ensure that the best scientific and technical information has been presented and respond to such other information as may be presented in this matter. SSWS is following the record and may wish to comment to help ensure that the scientific and technical record is correct.

Most of the scientists in SSWS have worked much of their lives in research on the science and technology of nuclear energy and in planning and regulating nuclear energy (as set forth succinctly in the qualifications beside the names, with exceptions noted) and we believe that our collective knowledge

and experience can be of help to the board and therefore to the public at large. None of the scientists in SSWS have personal financial or property interests in the proceeding. Our interest however is great, but is solely an interest in the public good and a desire to ensure that the public good be properly considered.

Presented by Richard Wilson (spokesman for SSWS) June 23rd 2000 at Salt Lake City

APPENDIX I References:

The details of the radionuclides produced in nuclear fission are well known and exceptionally well documented. Often they are found merely by reference to a computer code such as the ORIGEN code that has been available from Oak Ridge National Laboratory and widely compared with direct experimental data. But there are four generic references that can be used in discussion of the specific points raised above (and of the several other erroneous contentions in this case). In order to simplify the reference they are referred to here as A, B, C and D.

(A) David Bodansky, NUCLEAR ENERGY: PRINCIPLES, PRACTICE, AND PROSPECTS (American Institute of Physics, Woodbury NY)

(B) Bernard L. Cohen, "High Level Radioactive Waste from Light-Water Reactors," 49(1) *Reviews of Modern Physics* 1-20 (January 1977)

(C) L. Charles Hebel, et al., "Report to the American Physical Society (APS) by the Study Group on Nuclear Fuel Cycles and Waste Management", 50(1) *Reviews of Modern Physics*, Part II, S1-S185 (January 1978)

(D) Richard Wilson, et al., "Report to the American Physical Society (APS) of the Study Group on Radionuclide Release from Severe Accidents at Nuclear Power Plants," 57(3) *Reviews of Modern Physics*, Part II, S1-S154 (July 1985)

APPENDIX II

Biographical data of the members of "Scientists for Secure Waste Storage"

William T. Anders, former Astronaut
former Chairman Nuclear Regulatory Commission
former Ambassador to Norway
former Chairman General Dynamics Corp.
Resident in Eastsound, Washington

Steven Barrowes, consultant physicist, resident in Salt Lake City

Hans Bethe, Professor of Physics Emeritus, Cornell University
Nobel Laureate in Physics (for understanding the energy in the sun)
Resident in Ithaca, NY

Nicolaas Bloembergen, Gerhard Gade University Professor Emeritus
Harvard University, Professor of Physics
Nobel Laureate in Physics
Resident in Lexington, Massachusetts

Allan Bromley, Dean of Engineering, Yale University
Sterling Professor of the Sciences
Past President American Physical Society
formerly The Assistant to President George Bush for Science and Technology
Resident at or near New Haven, Connecticut

Max Carbon, Professor of Nuclear Engineering Emeritus
University of Wisconsin,
formerly member of Advisory Committee on Reactor Safeguards, AEC/NRC
formerly INPO accreditation board
Resident of Madision, WI

Bruce W. Church, Desert Research Institute, University of Nevada
Adjunct research Professor University of Cincinatti
formerly head of Environmental Health and Safety
DOE Nevada operations office.
Resident in Logandale, NV
Native of Southern Utah

Bernard L Cohen, Professor of Physics, University of Pittsburgh
author of many papers on nuclear waste disposal
Resident at or near Pittsburgh, Pennsylvania

*Gerard Debreu, Professor of Economics, University of California
Nobel Laureate in Economics
Resident at or near Berkeley, California

Sheldon L. Glashow, Higgins Professor of Physics, Harvard University
Nobel Laureate in Physics (for his work on the "standard model"
Resident in Brookline, Massachusetts

Robert J. Hoffman, certified health physicist
Radiation Safety Consultant
Formerly Chairman Radiation Control Board of the State of Utah
Resident in Salt Lake City
An affidavit confirming this participation will be available

*Daniel M. Kammen, Assistant Professor of Public Policy and International Affairs
Princeton University
expert on solar energy in developing countries
Resident in Princeton, New Jersey

John Landis, Past President, American Nuclear Society
formerly Senior Vice President, Stone & Webster Corporation
Past Chairman American National Standards Association
Resident in Weston, Massachusetts

Ralph Lapp, Safety Consultant
author of books on dangers of radiation
Resident in Alexandria, Virginia

Otto G. Raabe, Professor University of California
Institue of Toxicology and Environmental Health
Former president Health physics Society
Resident in Davis, CA

Norman F. Ramsey, Higgins Professor of Physics Emeritus
Harvard University,
Nobel Laureate in Physics
former Science Ambassador to NATO
former President, Universities Research Association
Resident in Brookline, Massachusetts

Marcus T Rowden Esq.,
former Chairman Nuclear Regulatory Commission
Resident at or near Washington, DC

Glenn T. Seaborg, Professor of Chemistry Emeritus, University of California
formerly Chancellor University of California
formerly Chairman Atomic Energy Commission
Nobel Laureate in Chemistry
Resident in Lafayette, California (now deceased)

Allen Lee Sessoms, President, Queens College, New York
formerly Science Counselor, U.S. Embassy, Paris
formerly Deputy Chief of Mission, Department of State, Mexico City
Department of Energy, Energy Advisory Committee
As a person with native American ancestry, he has a particular concern for and understanding of many of the issues.
Resident in Newton, Massachusetts

Jacob Shapiro, Radiation Safety Officer Harvard University (retired)
Author of a major text on radiation health physics
Resident in Massachussets

Richard Wilson, Mallinckrodt Research Professor of Physics, Harvard University
expert on nuclear physics and risk analysis, especially effects of radiation and air pollution
advisor on risks to many US agencies and foreign governments

Resident in Newton, Massachusetts

Collectively SSCW have expertise in most of the matters before the committee including fundamental physics and chemistry, numerical assessment of risks, and effects of radiation. However the signatories marked with an asterisk note that they do not have as much experience in nuclear energy as the others.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
PRIVATE FUEL STORAGE, L.L.C.	)	Docket No. 72-22-ISFSI
	)	
(Independent Spent Fuel Storage Installation)	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LIMITED APPEARANCE STATEMENT OF RICHARD WILSON have been served upon the following persons by deposit in the U.S. mail, first class, or through NRC internal distribution.

Office of Commission Appellate Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Administrative Judge
G. Paul Bollwerk, III, Chairman
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Administrative Judge
Jerry R. Kline
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Administrative Judge
Peter S. Lam
Atomic Safety and Licensing Board Panel
Mail Stop - T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Sherwin E. Turk, Esquire
Catherine L. Marco, Esquire
Office of the General Counsel
Mail Stop - 0-15 D21
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Diane Curran, Esquire
Harmon, Curran, Spielberg & Eisenberg, L.L.P.
1726 M Street, NW, Suite 600
Washington, DC 20036

Martin S. Kaufman, Esquire
Atlantic Legal Foundation
205 E. 42nd St.
New York, NY 10017

Joro Walker, Esquire
Land and Water Fund of the Rockies
2056 East 3300 South, Suite 1
Salt Lake City, UT 84109

Docket No. 72-22-ISFSI
LIMITED APPEARANCE STATEMENT
OF RICHARD WILSON

Denise Chancellor, Esquire
Assistant Attorney General
Utah Attorney General's Office
160 East 300 South, 5th Floor
P.O. Box 140873
Salt Lake City, UT 84114

John Paul Kennedy, Esquire
Confederated Tribes of the Goshute
Reservation and David Pete
1385 Yale Avenue
Salt Lake City, UT 84105

Richard E. Condit, Esquire
Land and Water Fund of the Rockies
2260 Baseline Road, Suite 200
Boulder, CO 80302

William D. (Bill) Peterson
Pigeon Spur Fuel Storage Facility
2127 Lincoln Lane
Holladay, UT 84124

Jay E. Silberg, Esquire
D. Sean Barnett, Esquire
Shaw Pittman
2300 N Street, NW
Washington, DC 20037-1128

Richard Wilson
Department of Physics
Harvard University
Cambridge, MA 02138

Danny Quintana, Esquire
Skull Valley Band of Goshute Indians
Danny Quintana & Associates, P.C.
68 South Main Street, Suite 600
Salt Lake City, UT 84101

Adria T. Byrdsong
Office of the Secretary of the Commission

Dated at Rockville, Maryland,
this 24th day of July 2000