

UNITED STATES OF AMERICA
 NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

NRC STAFF'S OBJECTIONS AND RESPONSES
 TO "SOUTHERN UTAH WILDERNESS ALLIANCE'S (SUWA)
FIRST SET OF DISCOVERY REQUESTS DIRECTED TO THE NRC STAFF"

INTRODUCTION

On January 29, 2002, the Southern Utah Wilderness Alliance (SUWA) filed the "Southern Utah Wilderness Alliance's (SUWA) First Set of Discovery Requests Directed to the NRC Staff" ("SUWA's Request"), concerning the application for an Independent Spent Fuel Storage Installation ("ISFSI") filed by Private Fuel Storage, L.L.C. ("PFS" or "Applicant"). In its request, SUWA filed (a) ten interrogatories, (b) five document requests, and (c) two requests for admission concerning Contention SUWA B (Railroad Alignment Alternatives). The NRC Staff ("Staff") hereby files its objections and responses to the SUWA Request, as follows.¹

GENERAL OBJECTIONS

Objection 1. The Staff objects to each of SUWA's discovery requests, in that SUWA has not complied with the Commission's regulations that govern discovery from the Staff. In this regard, it is well established that discovery against the Staff rests on a different footing than discovery in general. *Consumers Power Co.* (Midland Plant, Units 1 and 2), ALAB-634, 13 NRC

¹ The Staff's answers to SUWA's interrogatories and requests for admissions are supported by the "Affidavit of Gregory P. Zimmerman and the "Affidavit of Alice B. Stephenson," attached hereto; objections are stated by Counsel. The Staff notes that responses to SUWA's document requests are due to be filed on or before February 13, 2002, and are not included herein.

96, 97-98 (1981). While discovery from parties in an NRC adjudicatory proceeding is generally governed by the provisions of 10 C.F.R. § 2.740 *et seq.*, interrogatory and document discovery against the Staff is governed by the provisions of 10 C.F.R. §§ 2.720(h)(ii)-(iii), 2.744 and 2.790.² These regulations establish certain limits to the Staff's obligation to respond to discovery requests. In particular, with regard to interrogatories, the Commission's rules provide:

[A] party may file with the presiding officer written interrogatories to be answered by NRC personnel with knowledge of the facts designated by the Executive Director for Operations. Upon a finding by the presiding officer that answers to the interrogatories are necessary to a proper decision in the proceeding and that answers to the interrogatories are not reasonably obtainable from any other source, the presiding officer may require that the staff answer the interrogatories.

10 C.F.R. § 2.720(h)(2)(ii). With regard to requests for the production of documents, the Commission's rules similarly provide:

(a) A request for the production of an NRC record or document not available pursuant to 10 C.F.R. § 2.790 . . . shall set forth the records or documents requested, either by individual item or by category, and shall describe each item or category with reasonable particularity and shall state why that record or document is relevant to the proceeding.

(b) If the Executive Director for Operations objects to producing a requested record or document on the ground that (1) it is not relevant or (2) it is exempted from disclosure under § 2.790 and the disclosure is not necessary to a proper decision in the proceeding or the document or the information therein is reasonably obtainable from another source, he shall so advise the requesting party.

10 C.F.R. § 2.744(b). Finally, it is an adequate response to *any* discovery request for a party to state that the information or document requested is available in the public domain and to provide information to locate the material requested. 10 C.F.R. § 2.740(b)(1); *accord*, *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), CLI-79-8, 10 NRC 141, 147-148 (1979).

² See also 10 C.F.R. §§ 2.740(f)(3), 2.740a(j), 2.740b(a), and 2.741(e) (excluding discovery from the Staff from the general provisions of those regulations).

Here, SUWA has not complied with the Commission's requirements governing discovery against the Staff. First, SUWA has not indicated that the requested information is not available in the public domain. Indeed, some of the information requested by SUWA is available to the public in the Commission's Public Document Room ("PDR") or from the Bureau of Land Management ("BLM") in the U.S. Department of the Interior, or has previously been provided to SUWA. Further, SUWA has not indicated that the requested information is exempt from disclosure under 10 C.F.R. § 2.790 or that it can not obtain the documents from public sources. Similarly, to the extent that any documents may be exempt from disclosure, SUWA has not explained why any such exempt items are necessary to a proper decision in the proceeding.

Objection 2. The Staff objects to each of SUWA's discovery requests, insofar as they request information that is not relevant to the issues in this proceeding and/or that exceeds the scope of admitted Contention SUWA B in this proceeding.

Objection 3. The Staff objects to SUWA's discovery requests insofar as they relate to matters which are outside the jurisdiction of the NRC and/or are beyond the proper scope of this proceeding.

Objection 4. The Staff objects to each of SUWA's discovery requests, insofar as they seek to impose an obligation to respond that is different from or greater than the obligations imposed by Commission requirements in 10 C.F.R. Part 2. *See, e.g.,* "Supplemental Responses" (SUWA Request at 2-3).

Objection 5. The Staff objects to each of SUWA's discovery requests, insofar as they may request information or documents from the "Nuclear Regulatory Commission," "NRC," or other persons or entities who are not NRC Staff members or consultants in this proceeding. *See, e.g.,* "Definition A" (SUWA Request at 4). The NRC and persons other than Staff members (*e.g.,* Commissioners, Commissioners' Assistants, Licensing Board members, ACRS members, etc.) are not parties to this proceeding and are not properly subject to SUWA's requests for discovery.

Objection 6. The Staff objects to each of SUWA's discovery requests, insofar as they request personal information such as the home address and telephone numbers of persons employed by or affiliated with the Staff, and which may be protected from disclosure under 10 C.F.R. § 2.790(a) . See, e.g., "Definition D.1" ("describe" or "identify") (SUWA Request at 5).

Objection 7. The Staff objects to each of SUWA's discovery requests as unduly burdensome insofar as they request that descriptions of documents are to include the name of "the person or persons having possession and/or copies thereof, the person or persons to whom the document was sent, all persons who reviewed the document, the substance and nature of the document, [and] the present custodian of the document . . ." See Definition D.2 ("describe" or "identify") (SUWA Request at 5).

Objection 8. The Staff objects to each of SUWA's discovery requests as unduly burdensome insofar as they request that descriptions of "any activity, occurrence, or communication" are to include the identity "of each person alleged to have had any involvement with or knowledge of the activity, occurrence, or communication, and the identity of any document recording or documenting such activity, occurrence, or communication." See Definition D.4 ("describe" or "identify") (SUWA Request at 6).

Objection 9. The Staff objects to each of SUWA's discovery requests as unduly burdensome, and irrelevant and not calculated to lead to the discovery of admissible evidence, insofar as they request the discovery of "material contained in, or which might be derived or ascertained from, the personal files of NRC Staff employees, representatives, investigators, and agents." See SUWA Request at 7.

Objection 10. The Staff objects to each of SUWA's discovery requests, insofar as they may request information pertaining to or copies of intra-agency memoranda, notes and other pre-decisional materials; or information or documents protected under the attorney-client privilege, the doctrines governing the disclosure of attorney work product and trial preparation materials,

and/or any other privilege or exemption that warrants or permits the non-disclosure of documents under the Freedom of Information Act, as set forth in 10 C.F.R. § 2.790(a). Notwithstanding this objection, to the extent, if any, that documents are requested in SUWA's First Request, the Staff will prepare a privilege log to identify documents that are sought to be withheld from discovery as privileged or exempt from disclosure, and will produce that log to SUWA.

RESPONSES TO DISCOVERY REQUESTS

Notwithstanding the above objections to SUWA's Request, and without waiving these objections or its right to interpose these or other objections in the future, the Staff hereby states the following additional objections and responses to SUWA's Request.

A. INTERROGATORIES—CONTENTION SUWA B

Interrogatory No. 1: Please list and describe in detail all local transportation alternatives (in Skull Valley) that were considered by the Staff in any way for the purpose of transporting casks to the proposed ISFSI storage site. Please describe all rail or road alignments considered, as well as any variations in the project design elements of any of the various alignments such as fire buffers, access roads, footprint of the right-of-way, changes in vegetation treatments, and/or mitigation measures.

STAFF RESPONSE. The Staff objects to this request on the grounds that it (1) is vague, and ambiguous insofar as it uses the terms "alignments considered," "any variations in the project design elements," "footprint of the right-of-way," "changes in vegetation treatments," and mitigation measures," (2) is overly broad and unduly burdensome, (3) seeks to discover information that is beyond the scope of Contention SUWA B, as admitted, (4) is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence in this proceeding, and (5) SUWA has not demonstrated that the information requested could not have been obtained from publicly available sources, including, without limitation, the Commission's Public Document Room ("PDR")

and documents submitted by PFS in this proceeding and/or in the BLM right-of-way application process, and the FEIS.

In this regard, the Staff notes, first, that insofar as this interrogatory requests descriptions of alternatives “considered by the Staff in any way,” it is not clear what is being requested beyond the rail transportation alternatives identified in the “Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Tooele County, Utah,” NUREG-1714 (“FEIS”). Therefore, the Staff is unable to respond as to rail transportation alternatives it may have “considered in any way,” apart from the alternatives that are described in the FEIS. In addition, it is unclear if the requested description of “footprint of the right-of-way” refers to the width of a rail alignment corridor, the path (or alignment) of the rail line, or a combination of these two.

Second, SUWA has not demonstrated that the information requested could not have been obtained from publicly available sources, including, without limitation, the FEIS for the proposed PFS Facility (“PFSF”). As such, the interrogatory places an unwarranted burden on the Staff.

Third, as set forth below, the information requested is irrelevant to Contention SUWA B, as admitted, insofar as it requests information regarding (a) “all local transportation alternatives” and (b) “any variations in the project design elements of any of the various alignments such as fire buffers, access roads, footprint of the right-of-way, changes in vegetation treatments, and/or mitigation measures.” It is elementary that a contention is limited by its terms and by its bases. *See generally Illinois Power Co. (Clinton Power Station, Unit 1)*, LBP-81-61, 14 NRC 1735, 1737 (1981) (the scope of the matters in controversy are limited to the specific alleged bases set forth in support of the contention). Contention SUWA B, as proposed, did not involve “all local transportation alternatives” or “variations in the project design elements.” *See “[SUWA]’s Contentions Regarding [PFSF] License Application (The Low Rail Spur)*, at 2-6 (Nov. 18, 1998);

and “Reply of [SUWA] to Staff and Applicant Responses to SUWA’s Petition to Intervene, Request for Hearing and Contentions,” at 14-15 (Dec. 8, 1998) (“SUWA Reply”). Indeed, in propounding its contentions, SUWA made only a general reference to a single alternative, and that was a rail line alternative. See “Second Declaration of Jim Catlin for Petitioner [SUWA],” ¶ 9 (Dec. 9, 1998) (attached to the SUWA Reply).

In LBP-99-3, the Licensing Board admitted Contention SUWA B, and determined that the contention, “[a]s it seeks to explore the question of alignment alternatives to the proposed placement of the Low Junction rail spur, [is] admissible in that the contention and its supporting basis are sufficient to establish a genuine dispute adequate to warrant further inquiry.” *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-99-3, 49 NRC 40, 53 (1999) (emphasis added). The Commission affirmed the Licensing Board’s admission of Contention SUWA B. *Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), CLI-99-10, 49 NRC 318 (1999). In its decision, the Commission determined that “NEPA requires PFS and the NRC to consider alternative rail routes that might prove more environmentally benign than PFS’s chosen route.” *Id.* at 327. The Commission also indicated that the alternatives described in the Environmental Report (“ER”) submitted by PFS “addressed only general transportation options (e.g., trucking vs. railroad) and did not reflect consideration of alternative configurations to the proposed Low Corridor rail spur alignment.” *Id.* at 326. The Commission expressly admitted Contention SUWA B because “a failure to consider alternative configurations to the specific alignment in question is at least worthy of further consideration on the merits.” *Id.* Accordingly, Contention SUWA B is limited to rail line alignment alternatives. Further, information regarding any other “local transportation alternatives” or “variations in the project design elements of any of the various alignments such as fire buffers, access roads, footprint of the right-of-way, changes in vegetation treatments, and/or mitigation measures” is irrelevant to the contention as admitted.

Notwithstanding (and without waiving) these objections, the Staff states as follows. In preparing the environmental impact statement (“EIS”) for the proposed PFSF, the Staff considered four alternative local rail transportation options. See FEIS, Section 2.2.4.2, at 2-47 to 2-51. Two of the rail options were proposed by the Applicant and evaluated in the FEIS, including (1) a new rail line, which the Applicant refers to as the “Low rail corridor alternative” (the proposed action) which would go from the existing Union Pacific main rail line at Skunk Ridge to the PFSF, and (2) an additional new rail line (called the “west valley rail alternative”) which would go to the PFS site from Skunk Ridge, with an alignment that is partially located east of the first option. The Staff also considered two additional rail options, which include (3) a new rail line constructed on the eastern side of Skull Valley parallel to the existing Skull Valley Road and running near the wetlands at Horseshoe Springs, and (4) a new rail line originating east of the Stansbury Mountains with a new rail corridor around the northern end of these mountains.

The alignment for the first option (the Low rail corridor alternative) is presented in Figure 1.2 of the FEIS, described in FEIS Section 2.1.1.3, and specified in detail by PFS in right-of-way requests made to BLM. See Donnell (1999) and Hennessy (1999), listed in FEIS Chapter 12, “References.” The PFS right-of-way requests before BLM and Section 2.1.1.3 of the FEIS also describe the cross-section of the proposed Low rail corridor alternative. The alignment for the second option is presented in attachments to a letter from PFS to the NRC Staff dated December 4, 2001 (subject: “Clarification -- Low Rail Corridor Alignment”). The third and fourth options referred to above were evaluated qualitatively by the staff and were eliminated from detailed evaluation in the FEIS. See FEIS, Section 2.4.2.2, at 2-47.

Interrogatory No. 2: Please describe in detail your conclusions regarding each of these alternatives. Where the Staff has relied upon information provided, or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. The Staff objects to this request for the reasons set forth in response to Interrogatory No. 1, *supra*. Notwithstanding (and without waiving) these objections, the Staff states as follows. Any conclusions resulting from its evaluation or consideration of the local rail transportation options or alternatives identified in response to Interrogatory No. 1, *supra*, were set forth in the FEIS by the NRC Staff and the staffs of the Cooperating Agencies (BLM; the Bureau of Indian Affairs (“BIA”), and the U.S. Surface Transportation Board (“STB”)). The conclusions concerning the Low rail corridor alternative were based upon an independent evaluation of information provided by PFS in its application, as reflected in various sections of the FEIS, including page liv of the Executive Summary, and FEIS Sections 2.2.4.2. and 9.4.3. Specifically, in various subsections of FEIS Chapter 5, the environmental impacts of construction and operation of the proposed Low rail corridor alternative are described, and an evaluation of each of those impacts is provided. In addition, the Staff reviewed the cut-and fill information which PFS provided to BLM in its application for the right-of-way for the proposed Low corridor rail line. The Staff’s evaluation of these impacts, as set forth in the FEIS, supports the Staff’s overall conclusion.

With respect to the west valley rail alternative, the Staff performed a qualitative evaluation of the analysis submitted to the Staff by PFS in a letter dated December 4, 2001. The Staff relied on the information submitted by PFS in its analysis. This is reflected in Section 2.2.4.2 of the FEIS. Finally, with respect to the other two alternatives identified in response to Interrogatory No. 1, *supra*, the Staff independently considered these alternatives in FEIS Section 2.2.4.2, and the Staff’s evaluation of those alternatives is set forth in the FEIS. See FEIS Section 2.4.2.2, at 2-47.

Interrogatory No. 3: Please describe in detail any and all analyses, review, or processes used in evaluating each of these alternatives, and used in coming to any conclusions regarding these alternatives. Please include in your answer a description of the person(s) who undertook these analyses, the date of such analyses, and what information this individual or these individuals relied upon in undertaking these analyses. Where the Staff has relied upon

information provided, or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. The Staff objects to this request for the reasons set forth in response to Interrogatory No. 1, *supra*. Notwithstanding (and without waiving) these objections, the Staff states as follows.

As documented in Chapter 5 of the FEIS, during the preparation of the environmental impact statement, the NRC staff and the staffs of the Cooperating Agencies conducted a detailed evaluation of the potential environmental impacts of the Applicant's proposed new rail line from the existing Union Pacific main line at Skunk Ridge to the proposed PFSF. This evaluation included visits to the potentially impacted site(s). The analyses and other methods used in evaluating the Applicant's proposed new rail line are documented in Chapter 5 of the FEIS on a resource-by-resource basis. The names and positions of the individuals who prepared this evaluation are listed in Chapter 11 of the FEIS.

In its Environmental Report, and in its right-of-way application submitted to the BLM, PFS provided detailed information concerning its proposed rail line (*i.e.*, the Low rail corridor alternative), including: the proposed alignment, engineering plan and profile drawings, artists' renderings, estimates of cut and fill quantities, culvert design details and locations, and biological and cultural survey information. The information provided by PFS was reviewed and independently verified by qualified engineers, geologists, hydrologists, biologists, and cultural resource specialists for the NRC Staff and the Cooperating Agencies. The process of reviewing and verifying the information provided by PFS included site visits to Skull Valley to verify that the PFS information was consistent with current field conditions. These site visits were performed by the NRC Staff and the staff of the Oak Ridge National Laboratory ("ORNL") (which performed environmental evaluations for the Staff

under a technical assistance contract), on June 2 and October 15, 1998, February 25, 1999, and August 21, 2000.

From the time of PFS's initial license application in 1997 until a revised license amendment request in 1998 in which PFS proposed the Low rail corridor option, the NRC staff and the ORNL staff focused their detailed evaluation of rail alternatives in Skull Valley on an alignment in the eastern portion of Skull Valley, parallel to Skull Valley Road (*i.e.*, the third option identified in response to Interrogatory No. 1, *supra*). This detailed evaluation was abandoned in the Fall of 1998, when PFS dropped the east rail alignment in favor of the Low rail corridor option, located on lands administered by BLM. Other possible rail alternatives originating north of Interstate 80 ("I-80") and east of the Low rail corridor, or east of the Stansbury Mountains, were rejected for further study because they clearly would have involved similar or greater environmental impacts than the Applicant's proposed rail line.

As documented in Section 2.4.2.2 of the FEIS (at 2-47), one of the most significant issues associated with constructing any alternative rail line in the Skull Valley area (other than building a rail line from Skunk Ridge) is that a new rail line would need to cross I-80. In the Skull Valley area, the Union Pacific rail line is located north of I-80 until it crosses the interstate at Skunk Ridge. To reach the proposed PFSF, a new rail line would need to cross over or under I-80. Such a crossing would require extensive construction impacts not associated with the Applicant's proposed rail line. The technical experts for the NRC Staff and Cooperating Agencies drove along I-80 and the Union Pacific rail corridor in the north Skull Valley area to confirm that alternatives necessitating such a crossing would result in substantial environmental impacts, and that they are clearly less desirable from an environmental standpoint than the Applicant's proposed rail line (*i.e.*, the Low rail corridor alternative). These evaluations were completed prior to February 2000, and are reflected in the FEIS.

Another possible rail line alternative (*i.e.*, the fourth option identified in response to Interrogatory No. 1, *supra*) involved utilizing an existing rail spur south of I-80 and east of the Stansbury Mountains near Tooele, Utah (which is located in the valley east of Skull Valley). This alternative would avoid the need to cross I-80; however, extending this rail line into Skull Valley would require skirting the northern end of the Stansbury Mountains between these mountains and I-80. To accomplish this, extensive cuts in the mountainside would be required due to the close proximity of the foot of the mountains to I-80. Once in Skull Valley, this alternative rail alignment would run parallel to Skull Valley Road, like the third option. As described in Section 2.4.2.2 of the FEIS (at 2-47), a rail line parallel to Skull Valley Road was determined to potentially result in significant impacts to local farms, wetlands, and traffic on Skull Valley Road. The technical experts for the NRC and Cooperating Agencies conducted “windshield” surveys (*i.e.*, surveys performed by observation from inside a vehicle) along Skull Valley Road and I-80, which confirmed that either of the third or fourth options (identified in response to Interrogatory No. 1, *supra*) would result in substantial environmental impacts and would clearly be less desirable than the Applicant's proposed rail line (*i.e.*, the Low rail corridor alternative). Again, these evaluations were completed prior to February 2000, and are reflected in the FEIS.

The Applicant also identified a west valley rail alignment alternative (*i.e.*, the second option identified in response to Interrogatory No. 1, *supra*). The Staff's evaluation of this alternative is described in response to Interrogatory No. 8, *infra*.

The individuals who performed these analyses are listed in Chapter 11 of the FEIS.

Interrogatory No. 4: Please describe in detail each of the factors that the Staff considered when evaluating each of these local transportation alternatives in Skull Valley as they relate to the wilderness, roadless and/or primitive character of lands in the North Cedar Mountains area, as well as the way in which these factors were considered and how these considerations were related to the Staff's overall analysis of, and conclusions regarding, each of these alternatives. Where the Staff has relied upon information provided,

or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. The Staff objects to this request for the reasons set forth in response to Interrogatory No. 1, *supra*. Notwithstanding (and without waiving) these objections, the Staff states as follows. BLM inventoried the North Cedar Mountains in 1979; this inventory did not identify any wilderness, roadless and/or primitive characteristics of the lands in the North Cedar Mountains area. During the development of the Pony Express Resource Management Plan (“RMP”), BLM did not identify any special features requiring a special designation. Upon receipt of the PFS application, BLM independently inspected and analyzed the proposed route and again did not identify special or unique features that would warrant a special designation. Therefore, none of the rail alternatives, which the Staff either evaluated or considered qualitatively, required analysis of those special characteristics.

The Staff and Cooperating Agencies considered features that showed the presence of man in evaluating the natural state of the area around the Low rail line corridor and the West Valley alternative. In particular, the Staff and Cooperating Agencies considered the following factors: (1) Whether the area around the alternatives is affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable; (2) whether such an area has outstanding opportunities for solitude or a primitive and unconfined type recreation; and (3) whether such an area has supplemental values (ecological, geological, or other features of scientific, educational, scenic, or historical value). The manner in which the Staff and Cooperating Agencies considered these factors is set forth in response to Interrogatory No. 6, *infra*.

Interrogatory No. 5: The FEIS states that “routes farther to the east of the alternative route would fall on State land, which PFS has stated would be in conflict with the selection and design criteria for their proposed rail route.” (FEIS at 2-49). Please describe with specificity any review, analysis, and conclusions conducted or

reached by the Staff regarding PFS's rail selection and design criteria and/or the appropriateness of this selection and design criteria with respect to crossing State land. Please include in your response if and how the Staff independently evaluated the notion that local transportation alternatives in Skull Valley that pass through or over lands owned or managed by the State of Utah and/or the School Institutional Trusts Lands Administration (SITLA), were not reasonable alternatives, and describe any and all attempts made by the Staff (or made by PFS and relied on by the Staff) to contact the State or SITLA regarding the potential to run a rail alignment through, purchase, or otherwise secure a right-of-way over SITLA-managed lands in Skull Valley, or consider such options.

STAFF RESPONSE. The Staff objects to this request on the grounds that it (1) is vague and ambiguous, in its use of the terms, "PFS's rail selection and design criteria," and "the appropriateness of this selection and design criteria with respect to crossing State land," (2) constitutes an improper and confusing compound question that touches upon and inquires into numerous separate matters, (3) is overly broad and unduly burdensome; and (4) requests information that is outside the scope of Contention SUWA B, as admitted, and (5) is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence.

Notwithstanding (and without waiving) these objections, the Staff states as follows. The Staff evaluated rail options in accordance with NEPA and NRC regulations that implement NEPA, to determine and evaluate the environmental impacts of the proposed action and reasonable alternatives thereto. PFS stated its desire to avoid lands controlled by the State of Utah, and did not propose any local transportation alternatives in Skull Valley that pass through or over lands owned, managed or controlled by the State of Utah. In evaluating rail line alternatives, the Staff did not use or identify any evaluation criteria that specifically relate to lands owned, managed or controlled by the State, and did not specifically consider any routes that would cross over such lands. Because such routes would lie further to the east of both the Low rail corridor and the west valley alternative, and are at the same or a lower elevation than the west valley alternative, they would result in environmental impacts that equal or exceed those presented by the west valley

alternative -- wholly apart from any question as to whether passage over State lands would or would not constitute a reasonably feasible alternative to rail corridor options that do not require passage over such lands, due to the need for State approval of any such route.

Interrogatory No. 6: Please describe in detail any review, analysis, and conclusions undertaken or reached by the Staff regarding the natural state of the North Cedar Mountains area, including describing the person(s) who made this analysis, and when and on what basis this analysis was made. Where the Staff has relied upon information provided, or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. The Staff objects to this request on the grounds that SUWA has not demonstrated that some of the information requested could not have been obtained from publicly available sources, including, without limitation, the FEIS.

Notwithstanding (and without waiving) these objections, the Staff states as follows. The North Cedar Mountains (UT-020-087) were inventoried by BLM in 1979 for wilderness characteristics. The area was found to lack naturalness.

Applying the factors identified in response to Interrogatory No. 4, above, the North Cedar Mountains, especially the eastern area traversed by the proposed rail line, already shows the impact of man through numerous motorcycle paths, livestock (both sheep and cattle) trails and grazing, and other extensions of routes used primarily by 4x4 wheeled vehicles, including a route running north-south parallel to the proposed Low rail line corridor. Vegetation is primarily perennial and annual grasses, including intermediate wheatgrass seeding, and cheatgrass. Desert and semi-desert shrub communities may occur in the lower elevations. Vegetation in any given portion may consist of a mosaic of varying combinations of species, or be limited to monotypic stands of one of the species. Numerous wildfires have occurred in the area as well as associated fire rehabilitation projects.

There are no major differences in the current condition between the proposed route and the west valley rail alternative, with respect to wilderness characteristics, due to their close proximity. There could be more motorcycle trails and use on the west valley rail alternative as that alignment is closer to the heavy use area west of Delle, Utah.

The following activities have occurred in the North Cedar Mountains subsequent to the 1980 wilderness intensive inventory: (1) T.1S, R.9W. sec. 3 and 4 have been drill seeded as part of an emergency fire rehabilitation project for both the Redlam and Tooele fires (1983, 1984); (2) T.1N., R.9W. sec. 33 was drill seeded as part of an emergency fire rehabilitation project for a wild land fire which occurred in 1983; (3) T.1S, R.9W. sec. 13 has occurrences of non-native vegetation due to an emergency fire rehabilitation project; (4) T.1S, R.9W. sec. 29 has a wildlife guzzler (a water catchment system providing drinking water for wildlife) and maintenance route in it; and (5) several mining claims exist within the North Cedar Mountains.

In view of the foregoing, and as set forth in the FEIS in Section 2.2.4.2, impacts to wilderness values from the proposed rail line do not significantly differ from impacts expected from the west valley rail alternative. This is due to the North Cedar Mountains containing no wilderness or wilderness study area designation and containing no wilderness values or characteristics. As set forth in FEIS Section 2.2.4.2, the Staff and the Cooperating Agencies determined that the West Valley rail alternative would not result in any significant reduction in impacts to recreation or wilderness characteristics of the adjacent land, when compared to the proposed Low rail line corridor.

The individuals who performed this analysis include Britta Laub, BLM, and Alice B. Stephenson, BLM. These individuals are identified in Chapter 11 of the FEIS.

Interrogatory No. 7: Please describe in detail any review, analyses, and conclusions undertaken or reached by the Staff, regarding any wetlands or mudflats near the southern portion of the North Cedar Mountains area which were purportedly avoided by the West Skull

Valley Alternative. Where the Staff has relied upon information provided, or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. The Staff objects to this request on the ground that it is vague and ambiguous insofar as it fails to specify the exact nature of the Staff's "review, analyses, and conclusions" that are the subject of this request.

Notwithstanding (and without waiving) this objection, the Staff states as follows. The Staff has previously stated its view that the information provided by PFS in "Applicant's Motion for Summary Disposition of Contention SUWA B - Railroad Alignment Alternatives," dated June 29, 2001, provided a reasonable basis for concluding that the environmental impacts of the west valley alternative rail route would be similar to or greater than the impacts of the proposed Low Corridor rail alignment. The Staff has not conducted a detailed evaluation of the west valley alternative but, rather, evaluated the information presented by PFS in reaching this conclusion. The Staff's evaluation and conclusions with respect to this matter are stated in the FEIS. See *also*, response to Interrogatory No. 8, *infra*.

Interrogatory No. 8: Please describe in detail any review, analyses, and conclusions undertaken or reached by the Staff regarding the amount and location of fill needed for the construction of the West Skull Valley Alternative and regarding the environmental and other impacts of such fill. Where the Staff has relied upon information provided, or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. The Staff objects to this request on the ground that it is vague and ambiguous insofar as it fails to specify the exact nature of the Staff's "review, analyses, and conclusions" that are the subject of this request.

Notwithstanding (and without waiving) this objection, the Staff states as follows. The Applicant did not provide a detailed plan or profile information for the west valley rail alternative (the second option identified in response to Interrogatory No. 1, *supra*), the alignment of which lies about 600 to 900 meters east of the proposed route over a length of about 10.5 km. The general alignment of the west valley rail alternative is depicted in Figure 2.16 of the FEIS (at 2-50) and was provided by PFS in attachments to its letter to the NRC Staff dated December 4, 2001 (subject: "Clarification -- Low Rail Corridor Alignment"). As stated in Section 2.4.2.2 of the FEIS (at 2-49), the Applicant provided estimates of the cut-and-fill necessary to construct the west valley rail line.

The Staff evaluated the alignment and cut-and-fill analysis provided by PFS for the west valley rail alternative by considering the following factors: (1) The need to keep the alignment west of the North Cedar Mountains Area, (2) PFS's stated need to avoid State Lands in the area, (3) the need to maintain a rail line grade of no more than 1.5 percent, and (4) the need to avoid the mudflats located toward the central portions of Skull Valley, depicted on Figure 2.16 of the FEIS (at 2-50). PFS's proposed cut-and-fill requirements for this alternative were not evaluated in detail by the Staff. However, the Staff qualitatively determined that PFS's cut-and-fill conclusions appeared correct based on a comparison with PFS's detailed cut-and-fill information for the Low corridor rail line. This determination by the Staff was based on the lower elevation of the west valley alternative alignment as compared to the elevation of the Low corridor rail alternative, and the need to maintain a grade of not more than 1.5 percent. The Staff's evaluations and conclusions are documented in Section 2.4.2.2 of the FEIS (at 2-49). The west valley rail alignment was reviewed by Gregory P. Zimmerman of the Oak Ridge National Laboratory.

Interrogatory No. 9: Please describe in detail any review, analyses, and conclusions undertaken or reached by the Staff regarding alignment alternatives in Skull Valley that were not proposed or presented by PFS. Where the Staff has relied upon information provided, or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken

independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. The Staff objects to this request on the grounds that (1) it is vague and ambiguous insofar as it fails to specify the Staff's "review, analyses, and conclusions" that are the subject of this request; and (2) SUWA has not demonstrated that the information requested could not have been obtained from publicly available sources, including, without limitation, PFS, the PDR, BLM, and/or the FEIS for the proposed PFSF. Notwithstanding (and without waiving) these objections, see Responses to Interrogatory Nos. 1 and 3, *supra*.

Interrogatory No. 10: Please describe in detail any review, analyses, and conclusions undertaken or reached by the Staff regarding whether Congress will declare the North Cedar Mountains area as a Wilderness pursuant to the Wilderness Act of 1964. Where the Staff has relied upon information provided, or evaluations or judgments made by PFS, please explain, in detail, if and in what manner the Staff has undertaken independent evaluation and review of this information, or these evaluations or judgments.

STAFF RESPONSE. See General Objections 2 and 3, *supra*. The Staff objects to this request on the grounds that (1) it is vague and ambiguous insofar as it fails to specify the Staff's "review, analyses, and conclusions" that are the subject of this request; (2) it seeks to discover information concerning matters that are beyond the scope of Contention SUWA B, as admitted (see CLI-99-10, 49 NRC at 326-27); and (3) insofar as it seeks information concerning matters that are beyond the scope of Contention SUWA B, is irrelevant and not reasonably calculated to lead to the discovery of admissible evidence in this proceeding.

B. Requests for Admission

REQUEST FOR ADMISSION NO.1: Do you admit that you did not apply to the State of Utah or SITLA for a right-of-way to cross State land in conjunction with the proposed ISFSI?

STAFF RESPONSE. See Response to Interrogatory No. 5, *supra*. In addition to the objections stated therein, which are incorporated by reference here, the Staff objects to this request

on the grounds that, insofar as it seeks to inquire whether the NRC Staff “appl[ied] to the State of Utah or SITLA for a right-of-way to cross State land,” it (1) is vague and confusing, and (b) seeks to discover information that is not relevant to SUWA Contention B, as admitted, and is not reasonably calculated to lead to the discovery of admissible evidence in this proceeding.

REQUEST FOR ADMISSION NO.2: Do you admit that you made no inquiries regarding or attempts to purchase State land in conjunction with the proposed ISFSI?

STAFF RESPONSE. See Response to Request for Admission No. 1, *supra*.

Respectfully submitted,

/RA/

Robert M. Weisman
Martin J. O’Neill
Counsel for NRC Staff

Dated at Rockville, Maryland
this 8th day of February 2002

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S OBJECTIONS AND RESPONSES TO 'SOUTHERN UTAH WILDERNESS ALLIANCE'S (SUWA) FIRST SET OF DISCOVERY REQUESTS DIRECTED TO THE NRC STAFF,'" in the above captioned proceeding have been served on the following through deposit in the NRC's internal mail system, with copies by electronic mail, as indicated by an asterisk, or by deposit in the U.S. Postal Service, as indicated by double asterisk, with copies by electronic mail this 8th day of February, 2002:

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Atomic Safety and Licensing Board
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(E-mail copy to MCF@NRC.GOV)

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Dr. Jerry R. Kline*
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/RA/

Sherwin E. Turk
Counsel for NRC Staff

February 8, 2002

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

AFFIDAVIT OF ALICE B. STEPHENSON

Alice B. Stephenson, having first been duly sworn, hereby states as follows:

1. I am employed as an Environmental Specialist by the Bureau of Land Management ("BLM"), United States Department of the Interior, at the BLM Salt Lake Field Office in Salt Lake City, Utah. I am currently serving as the BLM Project Leader, Environmental Planning and Review, for the proposed rail line facilities in Skull Valley, Utah, associated with the Independent Spent Fuel Storage Installation ("ISFSI") proposed by Private Fuel Storage L.L.C. ("PFS" or "Applicant"). I am providing this affidavit under an Agreement between the NRC Staff and BLM. A statement of my professional qualifications is attached hereto.

2. As part of my official responsibilities, I reviewed the environmental impacts of the proposed rail line facilities associated with the proposed PFS ISFSI, and the West Skull Valley Alternative described by PFS. I further assisted in preparing the Staff's environmental evaluation of these matters, presented in the "Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Tooele County, Utah," NUREG-1714 ("FEIS")(December 2001).

3. I have reviewed the foregoing answers of the NRC Staff to Interrogatories Nos. 4 and 6 in the "Southern Utah Wilderness Alliance's (SUWA) First Set of Discovery Requests Directed to the NRC Staff," and verify that they are true and correct to the best of my knowledge, information and belief.

4. I hereby certify that the foregoing is true and correct to the best of my knowledge, information and belief.

/RA/

Alice B. Stephenson

Sworn to before me this
8th day of February, 2002

Michael G. Nelson

Notary Public

My commission expires: 06/13/04 _____

Alice B. Stephenson
Statement of Professional Qualifications

EDUCATION

B.S. Economics, Colorado State University, 1971
Training Courses, U.S. Department of the Interior, Bureau of Land Management

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL SPECIALIST

1989 - present

Salt Lake Field Office
Bureau of Land Management
U.S. Department of the Interior
2370 South 2300 West, Salt Lake City, UT 84119

Duties and Responsibilities:

Responsibilities include coordination and implementation of National Environmental Policy Act (NEPA) reviews, involving preparation and/or review of Environmental Assessments (EAs) and Environmental Impact Statements (EISs) and providing policy and program direction for implementation of existing office land use plans.

Duties include providing guidance on the NEPA process, including document preparation, and content requirements. Provide analytical and technical review of all EAs and EISs, both in-house and third-party submissions. Maintain current land use plans and assure that all proposed projects, both BLM and third party, are within the scope of the current plan. Monitor all steps for completing land use plan amendments. Provide guidance and expertise on all planning matters, including relationship between NEPA and the Federal Land Policy Management Act (FLPMA). Keep current on CEQ Regulations, department and Bureau policies/procedures, and various Acts, such as FLPMA, Endangered Species Act, National Historic Preservation Act, executive orders, and regulations governing BLM activities on public land.

REALTY SPECIALIST

1988-1989
and 1975-1985

At various offices of the Bureau of Land Management, including:

Salt Lake District Office, Salt Lake City, UT
Washington Office, Washington D.C.
Alaska State Office, Anchorage, AK
Rawlins District Office, Rawlins, WY
Craig District Office, Craig, CO
Las Vegas District Office, NV

Duties and Responsibilities:

Responsibilities included processing all types of lands cases, inventory and planning for the Bureau's Land Use Plans, and providing basic lands data to co-workers and public inquiries. Duties included preparing all required reports for lands cases, including EAs, land

reports, classification decisions, final action decisions, and issuance of authorizations including right-of-way grants, special land use leases, and land use permits. Conducted field inspections of lands involved in proposed actions, both internal and external generated. Prepared stipulations for mitigation of impacts. Gathered and presented basic lands data for input into land use plans and made recommendations to other resource specialists about lands issues.

PARALEGAL SPECIALIST/ LAND LAW EXAMINER

1985-1988

Eastern States Office
Bureau of Land Management
U.S. Department of the Interior
Arlington, Virginia

Duties and Responsibilities:

Responsibilities included providing basic land ownership data to co-workers and in response to public inquiries. Duties included reviewing and processing applications under the Color-of-Title Act, and reviewing land office records to determine land ownership.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

AFFIDAVIT OF GREGORY P. ZIMMERMAN

COUNTY OF ANDERSON)
) SS:
STATE OF TENNESSEE)

Gregory P. Zimmerman, having first been duly sworn, does hereby state as follows:

1. I am employed as Leader of the Environmental Impact Analysis Group, in the Environmental Sciences Division, at Oak Ridge National Laboratory ("ORNL") in Oak Ridge, Tennessee. I am providing this affidavit under a technical assistance contract between the NRC Staff and ORNL. A statement of my professional qualifications is attached hereto.

2. As part of my official responsibilities, I served as team leader and participated in an evaluation of the environmental impacts performed by the NRC Staff related to the proposed rail line facilities in Skull Valley, Utah (the "Low Corridor rail alternative"), associated with the Independent Spent Fuel Storage Installation ("ISFSI") proposed by Private Fuel Storage L.L.C. ("PFS" or "Applicant"). I further assisted in the supervision and preparation of the NRC Staff's "Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Facility on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Tooele County, Utah," NUREG-1714 ("FEIS") (December 2001).

3. Also as part of my official responsibilities, I participated with the NRC Staff in identifying and evaluating alternatives to the Applicant's proposed Low corridor rail alternative. I reviewed information on the proposed Low corridor rail alternative provided by the Applicant in its Environmental Report and in its right-of-way applications provided to the Bureau of Land Management. I also reviewed information provided to the NRC by the Applicant in July 2001 and in December 2001 on alternative rail alignments in Skull Valley.

4. I have reviewed the foregoing answers of the NRC Staff to Interrogatories No. 1, 2, 3, 5, 7, 8, and 9 in the "Southern Utah Wilderness Alliance's (SUWA's) First Set of Discovery Requests Directed to the NRC Staff," and verify that they are true and correct to the best of my knowledge, information and belief.

/RA/

Gregory P. Zimmerman

Sworn to before me this
8th day of February, 2002

Claire M. Atwood

Notary Public

06/30/04

My commission expires: _____

Gregory P. Zimmerman
Leader, Environmental Impact Analysis Group
Environmental Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN.

Education:

M.S. Degree, Mechanical Engineering, University of Tennessee, Knoxville, 1977.
B.S. Degree, Mechanical Engineering, University of Tennessee, Knoxville, 1975.

Qualifications:

Mr. Zimmerman has over 20 years' experience at ORNL in risk and safety analyses, radioactive waste management, and environmental impact assessment. In 1988, he participated in the preparation of a Programmatic Environmental Impact Statement (EIS) for the U.S. Army's proposal to destroy the national stockpile of lethal chemical weapons, and in 1989, he assumed program management responsibility at ORNL for the preparation of eight site-specific EISs related to that U.S. Army program.

Mr. Zimmerman has provided assistance to the Department of Energy (DOE) and the Nuclear Regulatory Commission (NRC) in the completion of environmental impact assessments. In his involvement with those programs, Mr. Zimmerman has conducted accident analyses, exposure assessments, and dose analyses for facilities handling radioactive materials and wastes under the jurisdiction of both the DOE and the NRC.

In addition to his technical interests in risk assessment and accident analysis, Mr. Zimmerman has also developed a mathematical technique for blending census of population data with information about atmospherically dispersed pollutants in order to quantify the spatial distribution of potential human health impacts. This analytical technique has been successfully applied to the siting of hazardous facilities and has potential application to the investigation of issues related to environmental justice or environmental equity.

Employment History and Selected Projects:

January 1977 to Present — OAK RIDGE NATIONAL LABORATORY, Oak Ridge, TN.

In his program manager duties, Mr. Zimmerman is responsible for coordinating and supervising the technical progress of a multi-disciplinary team of individuals who conduct environmental impact analyses and assessments for a variety of federal agencies. The program specializes in the preparation of environmental impact statements and assessments. His managerial responsibilities include the development of schedules, budgets, and work assignments, as well as technical oversight, quality control, preparation, and assembly of final project deliverables and documents.

In 1993, Mr. Zimmerman lead the ORNL effort to assist NRC with its review of the license application of Envirocare of Utah for an 11e.(2) byproduct disposal facility near Clive, Utah.

He provided technical assistance to NRC and coordinated the preparation of the NRC's final EIS as part of this effort. In 1995, Mr. Zimmerman conducted a radiological and chemical accident analyses for NRC's re-licensing of Nuclear Metals, Inc., in Concord, Mass. In 1994 to 1996, he served as the ORNL Core Team leader for Performance Evaluations of fifteen potential DOE mixed, low-level (radioactive) waste disposal sites. This project was a coordinated effort between ORNL and Sandia National Laboratories.

Mr. Zimmerman is presently assisting the NRC with its environmental review of a license application for a commercial spent nuclear fuel storage facility proposed for Skull Valley, Utah.

September 1975 to December 1976 — UNIVERSITY OF TENNESSEE, Dept. of Mechanical Engineering, Knoxville, TN.

Under a graduate research assistantship, Mr. Zimmerman participated in nuclear safety studies involving heat and mass transfer in nuclear reactors cooled by liquid metals.

March 1971 to June 1974 — NASA (GEORGE C. MARSHALL SPACE FLIGHT CENTER), Huntsville, AL.

As part of his cooperative education experience, Mr. Zimmerman assisted with mission planning aspects of the U.S. Space Shuttle program, including payload packaging and scheduling, as well as in-flight operations and orbital mechanics & maneuvering.

Technical Specialties:

Project and Program Management	Environmental Impact Analyses
Risk and Accident Analyses	Nuclear Waste Management
Heat Transfer and Thermodynamics	Nuclear Weapons Effects
Scientific Programming (Computers)	

Professional/Academic Awards and Honors:

Member of Tau Beta Pi, the engineering honorary society.

Joel F. Bailey Award for academic achievement among engineering students (University of Tennessee), 1975

Martin Marietta Energy Systems, Inc., *Significant Event Award*, July 1991.

UT-Battelle, *Significant Event Award*, October 2000.

Selected Publications:

(Project leader for) U.S. Nuclear Regulatory Commission, *Final Environmental Impact Statement for the Construction and Operation of an Independent Spent Fuel Storage Installation on the Reservation of the Skull Valley Band of Goshute Indians and the Related Transportation Facility in Tooele County, Utah (Volumes 1 and 2)*, NUREG-1714, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Washington, D.C., December 2001.

K.S. Gant and G.P. Zimmerman, *Tooele Chemical Agent Disposal Facility: Review and Evaluation of Information for Updating the 1989 Final Environmental Impact Statement*, ORNL/TM-13542, Oak Ridge National Laboratory, Oak Ridge, Tenn., July 1999.

R.M. Reed and G.P. Zimmerman, "Analyses of Environmental Justice Concerns for the U.S. Army's Chemical Stockpile Disposal Program," proceedings of *Environmental Forum VII*, Denver, Colo., April 28 and 29, 1999, sponsored by the Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Md.

(Among preparers for) U.S. Department of the Army, *Final Environmental Impact Statement for Pilot Testing of Neutralization/Supercritical Water Oxidation of VX Agent at Newport Chemical Activity, Indiana*, Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Md., December 1998.

Blasing, T.J., G.F. Cada, C.E. Easterly, L.N. McCold, G.P. Zimmerman, *Environmental Assessment: Renewal of Materials Licenses for ALARON Corp. Northeast Regional Service Facility, Wampum, Pennsylvania*, NUREG/CR-5549, prepared by the Oak Ridge National Laboratory, Oak Ridge, Tenn., for the Office of Nuclear Material Safety and Safeguards, Nuclear Regulatory Commission, Washington, D.C., December 1998.

(Project leader for) U.S. Department of the Army, *Final Environmental Impact Statement for Pilot Testing of Neutralization/Biotreatment of Mustard Agent at Aberdeen Proving Ground, Maryland*, Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Md., July 1998.

(Among preparers for) U.S. Department of the Army, *Revised Final Environmental Impact Statement for Disposal of Chemical Agents and Munitions Stored at Pine Bluff Arsenal, Arkansas*, Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Md., April 1997.

G.P. Zimmerman, *Review and Evaluation of Updated Numerical Input Values for Determining Risks to Threatened and Endangered Species near the Umatilla Chemical Depot, Oregon*, prepared for the Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Md., by the Oak Ridge National Laboratory, Oak Ridge, Tenn., April 1997.

R.L. Miller, C.E. Easterly, D.A. Lombardi, I.E. Treitler, R.T. Wimbrow, and G.P. Zimmerman, *Environmental Assessment for Proposed License Renewal of Nuclear Materials, Inc., Concord, Massachusetts*, NUREG/CR-6528, prepared by Oak Ridge National Laboratory, Oak Ridge, Tenn., for U.S. Nuclear Regulatory Commission, Office of Nuclear Materials Safety and Safeguards, Washington, D.C., February 1997.

(Project leader for) U.S. Department of the Army, *Revised Final Environmental Impact Statement for Disposal of Chemical Agents and Munitions Stored at Umatilla Depot Activity, Oregon*, Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, Md., November 1996.

(Technical Core Team Leader for) U.S. Department of Energy, *Performance Evaluation of the Technical Capabilities of DOE Sites for Disposal of Mixed Low-Level Waste*, DOE/ID-10521 (Vols. 1, 2, and 3) and SAND96-0721 (Vols. 1, 2, and 3), prepared by Sandia National Laboratories, Albuquerque, New Mexico, March 1996.

J.D. Tauxe, D.W. Lee, J.C. Wang, and G.P. Zimmerman, "A Comparative Subsurface Transport Analysis for Radioactive Waste Disposal at Various DOE Sites," P95-79881, *Proceedings of the 1995 Fall Meeting of the American Geophysical Union*, San Francisco, Calif., December 11-15, 1995.

National Research Council, *Recommendations for the Disposal of Chemical Agents and Munitions*, National Academy Press, Washington, D.C., 1994. [G.P. Zimmerman provided the text and Figure 4-3 on the comparative risk of destroying the U.S. stockpile of chemical weapons versus continuing to store the stockpile.]

G.P. Zimmerman, *The National Environmental Policy Act (NEPA): A Training Session on Its Requirements and Its Implementation*, presented at the request of the NEPA Office of the U.S. Army Chemical Materiel Destruction Agency, Aberdeen, Maryland, February 15, 1994.

(Project leader for) U.S. Nuclear Regulatory Commission, *Final Environmental Impact Statement to Construct and Operate a Facility to Receive, Store, and Dispose of 11e.(2) Byproduct Material Near Clive, Utah*, NUREG-1476, U.S. Nuclear Regulatory Commission, Office of Nuclear Materials Safety and Safeguards, Washington, D.C., August 1993.

(Among preparers for) *Chemical Stockpile Disposal Program Final Programmatic Environmental Impact Statement*, Vols. 1, 2, and 3, Program Executive Officer–Program Manager for Chemical Demilitarization, Aberdeen Proving Ground, MD, January 1988.

G.P. Zimmerman, *Better Understanding of Bubble Behavior in Liquid Environments: The Rise and Collapse of Large Vapor Bubbles*, Master's Thesis, University of Tennessee, Department of Mechanical Engineering, 1977.