

RAS 2481

RELATED CORRESPONDENCE

DOCKETED  
12/7/00

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DEC -7 P3:00

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel Storage Installation)	)	December 1, 2000

**STATE OF UTAH'S ELEVENTH SET OF DISCOVERY REQUESTS  
DIRECTED TO THE NRC STAFF**

Pursuant to the Board's Orders dated April 22, 1998 (LBP-98-7), August 20, 1998, February 2, 2000, September 5, 2000 and accompanying revised schedule, and 10 CFR §§ 2.720, 2.740, 2.742, and 2.744, Intervenor State of Utah, hereby requests that the Staff of the Nuclear Regulatory Commission ("Staff") answer the following Interrogatories and Requests for Admissions separately, fully, in writing, and under oath within 10 days after service of this discovery request.

As required by 10 CFR § 2.744(a), this discovery request is being served on the NRC Executive Director for Operations. In addition, pursuant to § 2.720(h), the State submits that this discovery is necessary to a proper decision in this proceeding.

**I. INSTRUCTIONS**

A. Scope of Discovery. These interrogatories and requests for admissions are directed to NRC Staff and any of the Staff's contractors or agents (collectively "NRC" or "Staff"). The interrogatories cover all information in the possession, custody and control of NRC Staff, including information in the possession of officers, employees, agents, servants,

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representatives, attorneys, or other persons directly or indirectly employed or retained by NRC Staff, or anyone else acting on their behalf or otherwise subject to NRC Staff's control.

B. Lack of Information. If you currently lack information to answer any Interrogatory completely, please state:

1. The responsive information currently available;
2. The responsive information currently unavailable;
3. Efforts which you intend to make to secure the information currently unavailable; and
4. When you anticipate receiving the information currently unavailable.

C. Supplemental Responses. Each of the following requests is a continuing one pursuant to 10 CFR § 2.740(e) and the State hereby demands that, in the event that at any later date NRC Staff obtains or discovers any additional information which is responsive to these interrogatories and request for admissions, NRC Staff shall supplement its responses to this request promptly and sufficiently in advance of the adjudicatory hearing.

Such supplementation shall include, but not be limited to:

1. The identity and location of persons having knowledge of discoverable matters;
2. The identity of each person expected to be called as an expert witness at any hearing, the subject matter on which she/he is expected to testify, and the substance of her/his testimony; and
3. New information which makes any response hereto incorrect.

D. Objections. If you object to or refuse to answer any interrogatory under a claim of privilege, immunity, or for any other reason, please indicate the basis for asserting the objection, privilege, immunity or other reason, the person on whose behalf the objection, privilege, immunity, or other reason is asserted, and describe the factual basis for asserting the objection, privilege, immunity, or other reason in sufficient detail so as to permit the administrative judges in this matter to ascertain the validity of such assertion.

E. Estimates. Interrogatories calling for numerical or chronological information shall be deemed, to the extent that precise figures or dates are not known, to call for estimates. In each instance that an estimate is given, it should be identified as such together with the source of information underlying the estimate.

## II. DEFINITIONS

Each of the following definitions, unless otherwise indicated, applies to and shall be a part of each interrogatory and request for admission which follows:

A. "NRC," "Staff," "you" and "your" refers to the officers, employees, agents, servants, representatives, attorneys, or other persons directly or indirectly employed or retained by the Staff of the U.S. Nuclear Regulatory Commission, or anyone else acting on its behalf or otherwise subject to the Staff's control.

B. "PFS," or "Applicant," refers to Private Fuel Storage, LLC and the PFS members and their officers, employees, agents, servants, representatives, attorneys, or other persons directly or indirectly employed or retained by them, or anyone else acting on their behalf or otherwise subject to their control.

C. The term "documents" means the originals as well as copies of all written,

printed, typed, recorded, graphic, photographic, and sound reproduction matter however produced or reproduced and wherever located, over which you have custody or control or over which you have the ultimate right to custody or control. By way of illustration, but not limited thereto, said term includes: records, correspondence, diaries, notes, interoffice and intraoffice communications, minutes of meetings, instructions, reports, demands, memoranda, data, schedules, notices, recordings, analyses, sketches, manuals, brochures, telephone minutes, calendars, accounting ledgers, invoices, charts, spreadsheets, working papers, computer tapes, computer printout sheets, information stored in computers or other data storage or processing equipment, electronic mail, microfilm, microfiche, corporate minutes, blueprints, drawings, contracts and any other agreements, rough drafts, and all other writings and papers similar to any of the foregoing, however designated by you. If the document has been prepared and several copies or additional copies have been made that are not identical (or are no longer identical by reason of the subsequent addition of notations or other modifications), each non-identical copy is to be construed as a separate document.

D. "All documents referring or relating to" means all documents that in whole or in part constitute, contain, embody, reflect, identify, state, interpret, discuss, describe, explain, apply to, deal with, evidence, or are in any way pertinent to a given subject.

E. The words "describe" or "identify" shall have the following meanings:

1. In connection with a person, the words "describe" or "identify" mean to state the name, last known home and business address, last known home and business telephone number, and last known place of employment and job title;
2. In connection with a document, the words "describe" or "identify"

mean to give a description of each document sufficient to uniquely identify it among all of the documents related to this matter, including, but not limited to, the name of the author of the document, the date, title, caption, or other style by which the document is headed, the name of each person and entity which is a signatory to the document, the date on which the document was prepared, signed, and/or executed, any relevant bates numbers on the document, 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, the present custodian of the document, and any other information necessary to adequately identify the document;

3. In connection with an entity other than a natural person (*eg*, corporation, partnership, limited partnership, association, institution, etc.), the words “describe” or “identify” mean to state the full name, address and telephone number of the principal place of business of such entity.

4. In connection with any activity, occurrence, or communication, the words “describe” or “identify” mean to describe the activity, occurrence, or communication, the date of its occurrence, the identify 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.

F. “Date” shall mean the exact day, month, and year, if ascertainable, or if not, the best approximation thereof (including by relationship to other events), and the basis for

such approximation.

G. "ISFSI" shall mean the PFS proposed Independent Spent Fuel Storage Installation located in the northwest corner of the Skull Valley Goshute Indian reservation, Utah.

H. The word "discussion" shall mean communication of any kind, including but not limited to, any spoken, written, or signed form of communication.

I. The word "person" shall include any individual, association, corporation, partnership, joint venture, or any other business or legal entity.

J. Words herein of any gender include all other genders, and the singular form of words encompasses the plural.

K. The words "and" and "or" include the conjunctive "and" as well as the disjunctive "or" and the words "and/or."

L. The discovery sought by this request encompasses material contained in, or which might be derived or ascertained from, the personal files of NRC Staff employees, representatives, investigators, and agents.

### III. DISCOVERY REQUESTS

This set of discovery against the Staff relates to the section 2.1.6, Geology and Seismology of NRC Staff's recently issued Safety Evaluation Report ("SER") released to the public in October 2000. The State is unaware of (a) the Staff's basis or rationale for the some of the representations in the SER; (b) whether the Staff relied on representations in the Applicant's license application that the State's technical experts consider to be inaccurate or

unsupportable; and (c) whether the Staff overlooked certain important technical considerations. All of these Requests for Admissions and Interrogatories are necessary to a proper decision in this proceeding for Contention Utah L.

## CONTENTION UTAH L - Geotechnical

### A. Requests for Admissions - Contention Utah L.

REQUEST FOR ADMISSION NO. 1. SAR (Rev. 8) at 2.6-22 (*emphasis added*)

states:

Based on the borings and laboratory test data, the generalized subsurface profile consists of three layers. The uppermost layer extends to a depth of between 25 and 35 ft below existing grade and is mainly interlayered silt, silty clay, and clayey silt. Standard Penetration (SPT) N-values for this layer are mostly between 8 and 20 blows per ft, with an average of 16 blows per ft and a median value of 14 blows per ft, indicating that these are “stiff” or “medium dense” materials.

Do you admit that the above statement in the SAR does not support giving the uppermost layer a classification of “stiff” or “medium dense.” *See also* SER at 2-46.

REQUEST FOR ADMISSION NO. 2. Do you admit that engineering properties (e.g., soil unit weights, shear strengths, consolidation properties) were not determined for each of the soil layers described in SAR Figure 2.6-5 (Rev. 8)? *See also* SER at 2-46 to -47.

REQUEST FOR ADMISSION NO. 3. Do you admit that averaging of soil properties was used in the engineering analyses for the soil profile in the upper 25 to 30 feet?

REQUEST FOR ADMISSION NO. 4. Do you admit that in the SER the Staff relies on averaging the engineering properties in the upper soil profile?

REQUEST FOR ADMISSION NO. 5. Do you admit that the upper five soil layers shown in SAR Fig. 2.6-5 contain dissimilar soil properties?

REQUEST FOR ADMISSION NO. 6. Do you admit there is no justification in averaging the engineering properties of the upper five layers shown in SAR Fig. 2.6-5?

REQUEST FOR ADMISSION NO. 7. Do you admit that the unacceptable performance of a foundation system (eg, sliding) is not governed by the average properties of a soil profile?

REQUEST FOR ADMISSION NO. 8. Do you admit that when averaging is used in engineering analyses, a conservative account of any potential low shear strength zones in the shallow soil profile must be considered?

REQUEST FOR ADMISSION NO. 9. Do you admit that the PFS license application does not account for any potential low shear strength zones in the shallow soil profile?

REQUEST FOR ADMISSION NO. 10. Do you admit that the SER does not account for any potential low shear strength zones in the shallow soil profile?

REQUEST FOR ADMISSION NO. 11. Do you admit that the tip stress from the cone penetrometer test (CPT) at the PFS site was not correlated with the undrained shear strength of a fine-grained soil?

REQUEST FOR ADMISSION NO. 12. Do you admit that if CPT tip stress is correlated with undrained shear strength (i.e., lower tip stress indicates lower shear strength), then one of the five the layers in SAR Figure 2.6-5 has the potential for having the lowest shear strength?

REQUEST FOR ADMISSION NO. 13. Do you admit that the shear strength for the low strength zone in SAR Fig. 2.6-5 was not accounted for in the sliding and dynamic bearing capacity analyses?

REQUEST FOR ADMISSION NO. 14. Beside laboratory shear strength testing, do you admit that no other data or methods were used to estimate the shear strength properties of soils in the Bonneville Clay?

REQUEST FOR ADMISSION NO. 15. Calculation no. 05996.02 G(B) 04-6, *Stability Analyses of Storage Pads* (June 16, 2000), at p. 13 states:

... the resistance to sliding on that interface will be limited by the shear strength of the silty clay/clayey silt. Direct shear tests on samples of the soils ... [sic] in the pad emplacement area indicate the shear strength available to resist sliding from loads due to the design basis ground motion [sic] 2.1 ksf as shown in Figure 7 ...

Do you admit there is no explanation of how this design value was derived?

REQUEST FOR ADMISSION NO. 16. Do you admit that the peak shear strength used in the calculation for seismic sliding of the pads, Calculation 05996.02 G(B) 04-6, p. 13, is based on one set of direct shear tests taken from a single borehole (borehole C-2, Sample U-1)?

REQUEST FOR ADMISSION NO. 17. Do you admit that a single datum, borehole C-2, Sample U-1, is not a representative sample of this layer across the entire pad placement area?

REQUEST FOR ADMISSION NO. 18. Do you admit that for the sliding analyses for the pad, Calculation 05996.02 G(B) 04-6, it is unknown whether the value of 2.1 ksf represents a mean value, upper bound, or lower bound to the undrained shear strength?

REQUEST FOR ADMISSION NO. 19. Do you admit that the silty-clays and clay-silts found in the upper 10 feet of the profile are partially saturated?

REQUEST FOR ADMISSION NO. 20. Do you admit that for partially saturated soils, the shear strength is a function of the amount of matrix suction present in the soil fabric?

REQUEST FOR ADMISSION NO. 21. Do you admit that as the matrix suction increases, the moisture content decreases?

REQUEST FOR ADMISSION NO. 22. Do you admit that the shear strength also increases as the moisture content decreases?

REQUEST FOR ADMISSION NO. 23. Do you admit that prolonged exposure to air causes a decrease in the moisture content of the soil?

REQUEST FOR ADMISSION NO. 24. SAR 2.6-32 reports total stress parameters of  $\phi = 24.9$  deg. and  $c = 1.22$  ksf based on direct shear tests performed as described in Attachment 7, Appendix 2A of the SAR. SAR App. 2 A, Attachment 7 at 1, states in relevant part:

The samples were trimmed into a nominal 2.5-inch diameter ring and placed in the direct shear apparatus. The samples were not inundated because the soils at the site are not expected to be saturated during the life of the facility. A normal load was applied and the deformation measured. Primary consolidation occurred prior to 1 minute. After at [sic] minimum of 90 minutes, the sample was sheared at a displacement rate of 18 mm/hr.

Do you admit that the samples referred to above may have dried out during the minimum of 90 minutes between primary consolidation and shearing?

REQUEST FOR ADMISSION NO. 25. Do you admit that PFS conducted

supplemental unconsolidated-undrained triaxial tests in March 1999 from samples taken in October 1996? See SAR, App. 2A, Att. 5 at 1.

REQUEST FOR ADMISSION NO. 26. Do you admit that NRC has no objective evidence to support that these samples used for the supplemental unconsolidated-undrained triaxial tests in March 1999 have not undergone significant drying in a two year five month period?

REQUEST FOR ADMISSION NO. 27. Do you admit that is it not a common procedure to test samples that were collected approximately 2 ½ years prior to the test?

REQUEST FOR ADMISSION NO. 28. Do you admit that PFS relied on CPT data to quantify the amount of variability in engineering properties across the pad and canister transfer building sites?

REQUEST FOR ADMISSION NO. 29. Do you admit that the Staff relied on PFS's CPT data to quantify the amount of variability in engineering properties across the pad and canister transfer building sites?

REQUEST FOR ADMISSION NO. 30. Do you admit that PFS did not use geostatistical (*i.e.*, spatial statistics) techniques to determine the degree of horizontal and vertical variation for the CPT data within the pad and CTB sites?

REQUEST FOR ADMISSION NO. 31. Do you admit that PFS did not correlate the results of the CPT data with foundation design properties such as undrained shear strength and friction angle?

REQUEST FOR ADMISSION NO. 32. Do you admit that PFS did not measure and account for shear strength anisotropy in determining the sliding resistance and

bearing capacity of the storage pads and cask transfer building sites?

REQUEST FOR ADMISSION NO. 33. Do you admit that PFS did not compare the results of the shear wave velocities from the seismic refraction survey with the results from the seismic cone penetrometer soundings?

REQUEST FOR ADMISSION NO. 34. Do you admit that the Staff did not compare the results of the shear wave velocities from the seismic refraction survey with the results from the seismic cone penetrometer soundings?

REQUEST FOR ADMISSION NO. 35. Do you admit that SAR Figure 2.6-28 (Rev. 6) shows the shear wave and primary wave velocities versus depth from the seismic cone penetrometer (SCPT)?

REQUEST FOR ADMISSION NO. 36. Do you admit that in the upper Bonneville Deposits (*i.e.*, upper 10 feet of the profile) the shear wave velocity values shown in SAR Fig. 2.6-28 range from about 400 to 700 feet per second?

REQUEST FOR ADMISSION NO. 37. Do you admit that in Calc. No. 05996.01-G(P05)-1, *Development of soil and foundation parameters in support of dynamic soil-structure interaction analyses*, prepared by Geomatrix (June 9, 1997), Figure 3-2, "Idealized Shear Wave Velocity Profile," shows shear wave velocities of 700 to 800 feet per second in the Bonneville Deposits?

REQUEST FOR ADMISSION NO. 38. Do you admit that the profiles shown in SAR Fig. 2.6-28 and Figure 3-2 of Calc. No. 05996.01-G(P05)-1 cannot both be correct?

REQUEST FOR ADMISSION NO. 39. Do you admit that the shear wave velocity measurements from the shear wave refraction surveys in SAR Ch. 2, App. 2B, Fig.

4.2 and Fig. 4.4 show that shear wave velocities in the upper 50 to 60 feet of the profile range from range from 721 to 829 ft/s for seismic line 1, and from 695 to 952 ft/s for seismic line 2?

REQUEST FOR ADMISSION NO. 40. Do you admit that the shear wave velocities from the CPT in SAR Fig. 2.6-28 are

<u>Depth</u>	<u>Shear Wave Velocity</u>
0 to 10 feet	mean $V_s \approx 550$ ft / s
10 to 25 feet	mean $V_s \approx 750$ ft / s
25 to 30 feet	mean $V_s \approx 1100$ ft / s

REQUEST FOR ADMISSION NO. 41. Do you admit that the data from the shear wave refraction survey and seismic CPT cannot both be correct?

REQUEST FOR ADMISSION NO. 42. Do you admit that the SCPT data from the upper 10 feet suggest a mean shear wave velocity of 540 ft/sec and a lower bound of about 400 feet per second? See SAR Fig. 2.6-28.

REQUEST FOR ADMISSION NO. 43. Do you admit that PFS did not revise the design basis motion calculation to account for the 540 fps velocity layer?

REQUEST FOR ADMISSION NO. 44. Do you admit that the Staff did not analyze the PFS design basis motion calculation to account for the 540 fps velocity layer?

REQUEST FOR ADMISSION NO. 45. Do you admit that a design basis motion developed for a 750 ft/sec shear wave velocity layer is not appropriate for a soil layer with a mean velocity of 540 ft/sec?

REQUEST FOR ADMISSION NO. 46. Do you admit that the Fault Evaluation and Seismic Hazard Assessment (Vol. III, App. F, prepared by Geomatrix

February 1999) calculations were not revised to reflect the lower shear wave velocity in the upper 10 feet of the profile?

REQUEST FOR ADMISSION NO. 47. Do you admit that based on Calculation no. 05996.02-G(P018)-2, *Soil and foundation parameters for dynamic soil-structure interaction analyses, 2,000-year return period design ground motions* (August 10, 1999), Geomatrix, a significant part of soil shear strength is already mobilized due to free field wave propagation?

REQUEST FOR ADMISSION NO. 48. Do you admit that PFS has not considered how much shear strength has been mobilized and how much is available to resist sliding of the foundation?

REQUEST FOR ADMISSION NO. 49. In calculating the factor of safety against dynamic sliding and bearing capacity, do you admit that PFS did not give any consideration to the degradation of stiffness and peak undrained strength in the upper 10 feet of the profile due to earthquake cycling?

REQUEST FOR ADMISSION NO. 50. Do you admit that if degradation of strength has occurred, the factors of safety for dynamic bearing capacity and sliding for the pads and canister transfer building are potentially lower than the reported values?

REQUEST FOR ADMISSION NO. 51. Do you admit that in calculating the factor of safety against dynamic bearing capacity and sliding stability of the pads constructed on the silty/clayey silt, the maximum horizontal inertial force was reduced as follows:

However, the maximum horizontal force that can be applied to the top of the pad by the casks is limited to the maximum value of the coefficient of friction between the cask and the top of the pad, which equals 0.8, multiplied by the cask normal force.

Calculation no. 05996.02 G(B) 04-6 at 14.

REQUEST FOR ADMISSION NO. 52. Do you admit that if sliding does not occur it will adversely affect the calculated factor of safety?

REQUEST FOR ADMISSION NO. 53. Do you admit that to justify factors of safety below those listed in NUREG-75/087, Section 3.8.5, the Newmark analysis was used to estimate the potential amount of sliding of the pad and canister transfer building atop the silt layer at 8 to 10 feet? See SAR at 2.6-115 (Rev. 11).

REQUEST FOR ADMISSION NO. 54. Do you admit that the Newmark analysis does not consider soil structure interaction?

REQUEST FOR ADMISSION NO. 55. *Stability Analyses of the Canister Transfer Building Supported on a Mat Foundation*, Calculation No. 05996.02 G(B) 13-3 (June 19, 2000) at p. 25 states:

It is likely, that should such slippage occur within the cohesionless soils underlying the building, it would minimize the level of the accelerations that would be transmitted through the soil and into the structure. In this manner, the cohesionless soils would act as a built-in base-shear isolation system. Any decrease in these accelerations as a result of this would increase the factor of safety against sliding, which would decrease the estimated displacements as well.

Do you admit that if slippage (*i.e.*, displacement) is required to reduce accelerations to the canister transfer building, then reduced accelerations resulting from that slippage cannot reduce the displacement that has already occurred?

REQUEST FOR ADMISSION NO. 56. Do you admit that the Newmark analysis does not consider fault fling and other near-field earthquake effects?

REQUEST FOR ADMISSION NO. 57. Do you admit that the Newmark

analysis did not consider the potential degradation of shear modulus and shear strength?

REQUEST FOR ADMISSION NO. 58. Do you admit that the Newmark

analysis did not consider the potential for asymmetrical sliding?

REQUEST FOR ADMISSION NO. 59. SAR p. 2.6-81 states:

These analyses include several conservative assumptions. They are based on static strengths of the silty clay block under the Canister Transfer Building mat, even though, as reported in Das (1993), experimental results indicate that the strength of cohesive soils increases as the rate of loading increases. For rates of strain applicable for the cyclic loading due to the design basis ground motion, Das indicates that for most practical cases, one can assume that  $c_{u \text{ dynamic}} \sim 1.5 \times c_{u \text{ static}}$ .

Do you admit that the textbook value of  $c_{u \text{ dynamic}} \sim 1.5 \times c_{u \text{ static}}$  is not substantiated by site-specific testing of soils at the PFS site?

REQUEST FOR ADMISSION NO. 60. Do you admit that based on the shear strain developed in the upper 10 feet of the profile as indicated by the 1-D SHAKE analysis, there is potential for large degradation due to cycling? See Calculation no. 05996.02-G(P018)-2, Geomatrix.

REQUEST FOR ADMISSION NO. 61. Do you admit that the following statements in Calculation no. 05996.02 G(B) 04-6 imply that the soil-cement mat will substantially improve the sliding resistance of the pads:

. . . the shearing resistance will be available over the areas between the pads, as well as under the pads, and additional passive resistance will be provided by the continuous soil cement layer existing below the pads.

Calculation no. 05996.02 G(B) 04-6 at 13.

Furthermore, the pads will be constructed on and within soil cement, which will be strong enough to resist sliding of the pads using only the passive resistance of the soil cement. This soil cement will effectively lock the pads

in their respective locations, so that they can not move relative to one another.

Calculation no. 05996.02 G(B) 04-6 at 73.

REQUEST FOR ADMISSION NO. 62. Do you admit that for the soil cement mat to be effective in resisting sliding, it must act as an integral unit with the pads and allow no differential movement between the pads?

REQUEST FOR ADMISSION NO. 63. Do you admit that PFS has not computed the tensile strength of the soil cement?

REQUEST FOR ADMISSION NO. 64. Do you admit that the Staff had not computed the tensile strength of the soil cement?

REQUEST FOR ADMISSION NO. 65. Do you admit that PFS has not considered the potential weakness in the soil cement mat due to cracking upon drying and other environmental factors?

REQUEST FOR ADMISSION NO. 66. Do you admit that the Staff has not considered the potential weakness in the soil cement mat due to cracking upon drying and other environmental factors?

REQUEST FOR ADMISSION NO. 67. Do you admit that there are no calculations to determine the effect of the non-uniformity in thickness at the interface of the 3-foot thick soil-cement mat outside the pad footprint and the approximately one foot thick soil-cement underneath the pad?

REQUEST FOR ADMISSION NO. 68. Do you admit that no consideration has been given to how the joint at the interface of the soil-cement mat outside the pad

footprint and the soil cement underneath the pad will respond to the dynamic torsional and bending stresses?

REQUEST FOR ADMISSION NO. 69. Do you admit that there is no objective evidence that the soil-cement mat and pad system will perform as an integral unit as implied by the sliding calculations?

**B. Interrogatories<sup>1</sup> - Contention Utah L.**

INTERROGATORY NO. 5. Please explain the rationale for allowing the Applicant to compute sliding force and the overturning moment using only the peak ground acceleration values rather than the spectral values applicable to foundation frequencies. *See e.g., Calculation No. 05996.02 G(P017)-2, Storage Pad Analysis and Design* (February 4, 2000), prepared by International Civil Engineering Consultants.

INTERROGATORY NO. 6. Please describe whether, if at all, the Staff considered the fact that the passive soil cement forces restraining one pad is an active force for a second pad only five feet apart in the longitudinal direction of the pads. *See e.g., Calculation No. 05996.02 G(P017)-2.*

INTERROGATORY NO. 7. Please explain why the assumption that the casks slide smoothly on the pads is consistent with the deformation of the pad due to axial loading?

INTERROGATORY NO. 8. Please explain whether and how the proximity of the pads to major active faults warrants consideration of inclined seismic waves that could adversely impact the stability of the casks and the foundation pads?

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<sup>1</sup> Numbering for these interrogatories is continued from the last interrogatory relating to Contention Utah L previously submitted to the NRC Staff.

DATED this 1<sup>st</sup> day of December, 2000.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Denise Chancellor", written over a horizontal line.

Denise Chancellor, Assistant Attorney General  
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CERTIFICATE OF SERVICE

I hereby certify that a copy of STATE OF UTAH'S ELEVENTH SET OF DISCOVERY REQUESTS DIRECTED TO THE NRC STAFF was served on the persons listed below by electronic mail (unless otherwise noted) with conforming copies by United States mail first class, this 1<sup>st</sup> day of December, 2000:

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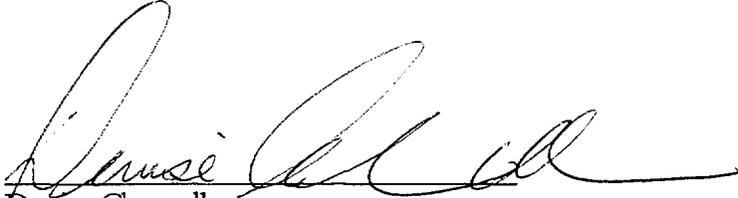
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