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RELATED CORRESPONDENCE
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
Before the Atomic Safety and Licensing Board

OFFICE OF THE
PUBLIC INFORMATION OFFICER
ADJUDICATORY DIVISION

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

**APPLICANT'S OBJECTIONS AND RESPONSES TO
STATE OF UTAH'S FIFTH SET OF DISCOVERY REQUESTS**

Applicant Private Fuel Storage L.L.C. ("Applicant" or "PFS") files this proprietary response to the December 1, 1999 "State of Utah's Fifth Set of Discovery Requests Directed to the Applicant and Skull Valley Band of Goshutes" ("State's Fifth Discovery Requests").¹

I. GENERAL OBJECTIONS

These general objections apply to the Applicant's responses to all of the State's Fourth Discovery Requests.

1. The Applicant objects to State's instructions and definitions on the grounds and to the extent that they request or purport to impose upon the Applicant any obligation to respond in manner or scope beyond the requirements set forth in 10 C.F.R. §§ 2.740, 2.741 and 2.742.

¹ To avoid the disclosure of potentially confidential information, the State filed its discovery requests as proprietary. After consultation with Holtec International, Applicant has determined that neither the original discovery request nor the Applicant's response contains proprietary information and thus files this document as non-proprietary.

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2. The Applicant objects to State's discovery requests to the extent that they request discovery of information or documents protected under the attorney-client privilege, the attorney work product doctrine, and limitations on discovery of trial preparation materials and experts' knowledge or opinions set forth in 10 C.F.R. § 2.740 or other protection provided by law. With respect to document production requests, the Applicant has provided the State with a Privilege Log which identifies documents subject to these privileges and protections, which the Applicant reserves the right to supplement.

3. The Applicant objects to the State's discovery requests to the extent they seek discovery beyond the scope of the Utah contentions, as admitted by the Board in this proceeding. The State is only permitted to obtain discovery on matters that pertain to the subject matter with which the State is involved in this proceeding. 10 C.F.R. § 2.740(b).

4. The Applicant objects to the State's discovery requests to the extent they seek discovery from entities that are not parties to this proceeding. The State is only permitted to directly propound requests for admission, interrogatories, and document production requests on entities that are parties to this proceeding. 10 C.F.R. §§ 2.740b, 2.741, 2.742.

II. GENERAL INTERROGATORIES

GENERAL INTERROGATORY NO. 1. State the name, business address, and job title of each person who was consulted and/or who supplied information for responding to interrogatories, requests for admissions and requests for the production of documents. Specifically note for which interrogatories, requests for admissions and requests for production each such person was consulted and/or supplied information.

If the information or opinions of anyone who was consulted in connection with your response to an interrogatory or request for admission differs from your written answer to the discovery request, please describe in detail the differing information or

opinions, and indicate why such differing information or opinions are not your official position as expressed in your written answer to the request.

APPLICANT'S RESPONSE: In addition to counsel for PFS, the following persons were consulted and/or supplied information in responding to the discovery requests for the contentions in the State's Fourth Discovery Requests:

Paul Trudeau
Lead Geotechnical Engineer
Stone & Webster
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Boston, MA 02210
Utah Contention GG

Jerry Cooper
Project Engineer
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Denver, CO 80111-2137
Utah Contention GG

Alan Soler, Ph.D.
Executive Vice-President
Holtec International
Holtec Center
555 Lincoln Drive West
Marlton, NJ 08053
Utah Contention GG

In response to whether the information or opinions of anyone who was consulted in connection with PFS's response to an interrogatory or request for admission differs from the PFS's written answer to the discovery request, PFS is unaware of any such difference among those consulted.

III. UTAH CONTENTION GG (Cask-Pad Stability)

A. REQUEST FOR ADMISSIONS – Utah Contention GG

REQUEST FOR ADMISSION NO. 1. Do you admit that the upper soil layer at the PFS site is a soft thin layer over a competent soil layer? *See, e.g.,* Geomatrix Calculation: Soil and Foundation Parameters for Dynamic Soil Structure Interaction Analyses [05996.02-G(PO18)-1 (Rev. 1)], at § 2 (Subsurface Conditions).

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material, in that Utah GG, as admitted by the Board, is limited to (1) whether the tipover analysis considers that the coefficient of friction may vary over the surface of the pad and (2) whether the analysis considers the different coefficients associated with the shift from static case to kinetic case once a cask begins to slide. The soil layering at the site is not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case.

REQUEST FOR ADMISSION NO. 2. Do you admit that for dynamic analysis NUREG 0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, SRP No. 3.7.2, *Seismic System Analysis*, requires that when a thin soft soil layer is present at the site, the input motion should be specified at the top of the competent soil layer?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The soil layer that the input motion is specified at is not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 3. Do you admit that in the Holtec Report on TranStor Dynamic Response, the input motion used for dynamic analysis represents the motion of the ground at the ground surface level at the top of the soft soil layer?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The soil layer that the input motion is specified at is not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 4. Do you admit that for nonlinear analysis, in order to consider the effect of phasing in ground motion, it is a conservative approach, and common industry practice, to use multiple time histories?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. Neither the choice of time histories nor the analysis of multiple time histories is relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 5. Do you admit that PFS relies on only one set of time histories for its non-linear analysis?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The time history used is not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 6. Do you admit that (a) impinging seismic waves will approach the foundation in an angle because of the proximity of the site to a major active fault; (b) such wave motion would result in an unbalanced rocking and torsional motion of the pad contributing to the displacement results; and (c) PFS has not considered the effects of such wave motion in its overall design?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. Neither the angle of the seismic wave nor the motion of the pad is relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 7. Do you admit that PFS has not described how fault-normal and fault-parallel components of the motion are aligned with the pad orientation?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The orientation of fault components is not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 8. Do you admit that in a layered system the foundation springs and damping coefficients are highly frequency dependent?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. Whether or not the foundation springs and the damping coefficients are frequency dependent is irrelevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 9. Do you admit that PFS has selected foundation lumped properties (*e.g.*, representation of the soil-foundation system by a set of constant soil springs and the stiffness of a rigid foundation resting on a uniform elastic halfspace) without examining the soil-structure interaction frequency and frequency dependency of the spring and damping coefficients?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The soil-structure interaction frequency and frequency dependency of the spring and damping coefficients are not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 10. Do you admit the concrete pad will behave as a flexible member when the stiffness of the concrete pad relative to the soil stiffness for all three soil cases is taken into consideration?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. Whether or not the concrete pad will behave as a flexible member is irrelevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 11. Do you admit that taking the flexible behavior of the concrete pad into consideration in a dynamic response analysis may result in the out-of-phase motion of the pad contributing to additional displacements of the casks?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. Neither the flexible behavior nor the out-of-phase motion of the pad is relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 12. Do you admit that PFS has inappropriately assumed that the concrete pad will remain rigid under all the conditions it has analyzed?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. Whether the concrete pad is rigid or flexible has no relevance to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 13. Do you admit that PFS has inappropriately applied the damping coefficients for a rigid foundation to a flexible foundation?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The damping coefficients are not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 14. Do you admit that PFS has presented no data to quantify the effect of the soil-structure interaction on the cask responses, including pad-to-pad interaction on the displacement results?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The effect of the soil-structure interaction on the cask responses has no relevance to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 15. Do you admit that in the nonlinear calculation PFS has provided no data to justify its representation of linear elements in the foundation and the supporting soil medium?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The linear elements in the

foundation and the supporting soil medium have no relevance to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 16. Do you admit that PFS has not evaluated the following: (a) separation between the concrete pad and the underlying soil during excitation, (b) the extent of the separation, and (c) how the separation impacts cask responses?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. The separation, if any, that occurs between the pad and soil has no relevance to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1. PFS also objects to this request as vague, Dubin v. E.F. Hutton Group, Inc., 125 F.R.D. 372, 376 (S.D.N.Y. 1989), in that the term "separation" is undefined.

Nevertheless, without waiving these objections, PFS denies that it did not evaluate vertical separation of the concrete pad and underlying soil during excitation. As indicated on Page 7 of Calculation 05996.01-G(B)-04, Rev 4, the weight of the pad (864 kips) + casks ($356.5 \text{ kips /cask} \times 8 \text{ casks} = 2,852 \text{ kips}$) is 3,716 kips. The maximum vertical inertial force due to accelerations from the design basis ground motion is only $0.533 \times$ this value, or 1,981 kips. Thus, the net downward normal force is 1,735 kips. Id. at 14. Therefore, the cask storage pads always exert a net downward load on the subgrade, and there is no separation between the concrete pad and the underlying soil during excitation.

REQUEST FOR ADMISSION NO. 17. Do you admit that PFS has not described how the equations of motion for the basic formulation of the cask system are solved?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. How the equations of motion are solved is not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 18. Do you admit that in its nonlinear spring rates, used to model behavior of the cask and the concrete pad, PFS has not described (a) the frictional elements and the compression only elements around the cask and (b) whether the frictional forces are a function of compressive loads in the spring as a function of time?

APPLICANT'S RESPONSE: Deny. PFS has described both the frictional elements and the compression only elements around the cask, and whether the frictional forces are a function of compressive loads in the documents incorporated by reference into the "TranStor Dynamic Response to 2000 Year Return Seismic Event," Holtec Report No. HI-992295 (1999). These documents include "Multi-Cask Response at the PFS ISFSI from 2000 Year Seismic Event," Holtec Report HI-992277 (1999); "Multi-Cask Seismic Response at the PFS ISFSI," Holtec Report HI-971631 (1997); and "Seismic Response of Casks at the PFS ISFSI from a 1000-Year Return Seismic Event," Holtec Report HI-992242 (1999).

REQUEST FOR ADMISSION NO. 19. Do you admit that PFS has not presented a quantification of the amount of lift off in its results of final displacements, such as the amplitude and duration of the separation between the pad and the cask and its subsequent impact?

APPLICANT'S RESPONSE: PFS objects to this request as not reasonably calculated to lead to the discovery of relevant material. Neither the amplitude nor duration of lift off is relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

REQUEST FOR ADMISSION NO. 20. Do you admit that (a) PFS's calculation assumes a range of sliding coefficients and (b) the calculation does not account for the condition that cold bonding may occur over time resulting in full contact between the cask and the pad?

APPLICANT'S RESPONSE: With regards to part (a), admit. PFS objects to part (b) of this request as not reasonably calculated to lead to the discovery of relevant material. The effects of bonding are not relevant to either the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. See Response to Request for Admission No. 1.

B. INTERROGATORIES – Utah Contention GG

INTERROGATORY NO. 1. To the extent that PFS denies, in whole or in part, Requests for Admissions Nos. 1 through 20, please describe the reason for the denial or partial denial.

APPLICANT'S RESPONSE: PFS objects to this request as exceeding the limit of 10 interrogatories allowed the State of Utah on Contention Utah S. See Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), 47 NRC 142, 245 (1998). An interrogatory that asks for the bases for the admissions or denials of a series of requests for admission is equivalent to a number of interrogatories equal to the number of requests for admission in the series. See Safeco of America v. Rawstron, 181 F.R.D. 441,

444-46 (C.D. Cal. 1998); Fed. R. Civ. P. 33(a) (the limit on the number of interrogatories includes all discrete subparts). To allow the State to file an unlimited number of requests for admission and to ask for the basis for denial or admission of each one with a single interrogatory, would, in effect, allow the State to file an unlimited number of interrogatories. The Board has clearly limited the number of interrogatories per contention available to each party. The State's formulation of its requests for admission and interrogatories here is a clear and impermissible attempt to exceed the Board's limits.

Nevertheless, without waiving its objection, see Applicant's Responses to Request for Admissions – Nos. 16 and 18.

C. DOCUMENTS REQUESTS – Utah Contention GG

DOCUMENT REQUEST NO. 1. Please provide all documents relating to the assumptions, calculations and conclusions underlying the input motion used for the dynamic analysis of the displacement of the TranStor cask system.

APPLICANT'S RESPONSE: PFS has produced all such reports or studies relevant to the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case that it has. PFS will notify the State upon updating its repository of documents relevant to contention Utah GG.

DOCUMENT REQUEST NO. 2. Please provide all documents relating to the assumptions, calculations and conclusions used by PFS in its foundation modeling.

APPLICANT'S RESPONSE: PFS has produced all such reports or studies relevant to the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. To the extent the State requests additional documents on its foundation modeling, PFS objects on the grounds of relevance.

DOCUMENT REQUEST NO. 3. Please provide all documents relating to the assumptions, calculations and conclusions used by PFS in its cask modeling.

APPLICANT'S RESPONSE: PFS has produced all such reports or studies relevant to the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case that it has. To the extent the State requests additional documents on its cask modeling, PFS objects on the grounds of relevance.

DOCUMENT REQUEST NO. 4. To the extent that PFS denies Requests for Admissions No. 1 through 20, in whole or in part, please provide all documents that relate to those denials.

APPLICANT'S RESPONSE: PFS has produced and made available any relevant documents in its possession, custody, or control relating to the cask stability analysis of the TranStor cask concerning the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. PFS is aware of no additional documents to produce at this time. PFS will notify the State upon updating its repository of documents relevant to contention Utah GG maintained at Parsons Behle & Latimer.

DOCUMENT REQUEST NO. 5. To the extent that PFS admits Requests for Admissions No. 1 through 20, in whole or in part, please provide all documents that relate to those admissions.

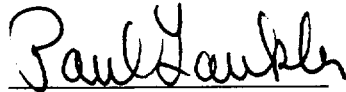
APPLICANT'S RESPONSE:

PFS has produced and made available any relevant documents in its possession, custody, or control relating to the cask stability analysis of the TranStor cask concerning the variation of the coefficient of friction over the pad's surface or the shift from static case to kinetic case. PFS is aware of no additional documents to produce at this time.

PFS will notify the State upon updating its repository of documents relevant to contention

Utah GG maintained at Parsons Behle & Latimer.

Respectfully submitted,



Jay E. Silberg

Ernest L. Blake, Jr.

Paul A. Gaukler

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Dated: December 13, 1999

Counsel for Private Fuel Storage L.L.C.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
Before the Atomic Safety and Licensing Board

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicant's Objections and Responses to State of Utah's Fifth Set of Discovery Requests" and the Declarations of Paul Trudeau, and Paul Gaukler were served on the persons listed below (unless otherwise noted) by e-mail with conforming copies by U.S. mail, first class, postage prepaid, this 13th day of December, 1999. The Declaration of Alan Soler will follow tomorrow.

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Paul A. Gaukler

December 13, 1999

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

DECLARATION OF PAUL A. GAUKLER

Paul A. Gaukler states as follows under penalties of perjury:

1. I am with Shaw Pittman in Washington, D.C.
2. I am duly authorized to verify Applicant's Response to State's Fifth Requests for Discovery; specifically, the responses to General Interrogatory No. 1.
3. I certify that the statements in such responses are true and correct to the best of my personal knowledge and belief.

I declare under penalty and perjury that the foregoing is true and correct.
Executed on December 13, 1999.


Paul A. Gaukler

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
PRIVATE FUEL STORAGE L.L.C.) Docket No. 72-22
(Private Fuel Storage Facility)) ASLBP No. 97-732-02-ISFS1

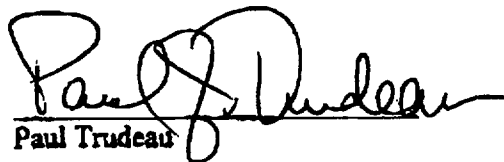
DECLARATION OF PAUL TRUDEAU

Paul Trudeau states as follows under penalties of perjury:

1. I am the Lead Geotechnical Engineer with Stone & Webster Engineering Corporation (Stone & Webster) for the Private Fuel Storage Facility ("PFSF") project.
2. I am duly authorized to verify Applicant's Response to State's Fifth Requests for Discovery; specifically, Request for Admission No. 16 and Interrogatory No. 1.
3. I certify that the statements and opinions in such responses are true and correct to the best of my personal knowledge and belief.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on December 13, 1999.


Paul Trudeau