UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC (Independent Spent Fuel Storage Installation)	)	ASLBP No. 97-732-02-ISFSI
	)	November 22, 1999

STATE OF UTAH'S SUPPLEMENTAL RESPONSE TO APPLICANT'S SECOND SET OF DISCOVERY REQUESTS FOR UTAH CONTENTION O

As ordered by the Board in its ruling on PFS's Motion to Compel the State to more fully answer Interrogatories 2, 3, 4, and 6, the State now supplements it July 30, 1999 discovery response. *See* Memorandum and Order (Granting Motion to Compel Interrogatory Answers) dated November 12, 1999. PFS complained that the State's responses had not addressed:

1. Specific contaminants from specifically noted site locations;
2. The contaminant means for entering each pathway;
3. Technical/scientific basis for the State's contentions;
4. The likelihood that each contaminant would enter surface water and ground/water including the technical basis for probability conclusions;
5. Specific surface water bodies that could be contaminated; and
6. The measurable or adverse downgradient hydrologic resources impacts.

See Id at 1-2.

The State is surprised that PFS's technical experts are unable to identify specific contaminants from the State's July 30, 1999 discovery responses. A review of the State's responses will show at least six specific contaminants or contaminant groups were identified. However, the State will attempt to expand this list and make it more clear for those who have little or no technical experience with these issues.

In addition, the State identified at least five specific pathways for pollutants to enter waters of the state and eleven mechanisms for entering pollutant pathways. The State will attempt to address each of these items again in a manner that will be more clear for non-environmental professionals to follow.

The State has previously, and will further demonstrate that the construction and operation of the PFS facility can very easily result in ground water contamination and possibly surface water contamination. The State recognizes that PFS is intending to operate a clean facility if everything is done properly as planned. However, the State has, and continues to show that there is potential for releases of pollutants when things do not occur exactly as planned. PFS has naively refused to provide reasonable preventive measures that are both economical and beneficial to its successful operations. The validity of the potential for contamination is manifest, in part, in PFS's own contingency plan for detecting and cleaning contaminated casks, testing certain plant waters (sumps, stormwater, and laboratory waters), and plans for decommissioning contaminated storage pads. PFS asserts that the probability of the

foregoing contamination is low, however, PFS has planned for these events and we agree that it should. All of the above, as well as the additional means which we mention again in this response, pose potential for ground water contamination. PFS, however, has proposed absolutely no reasonable and prudent preventative precautions to protect the ground water resource. The State believes that reasonable measures would at least include: 1) Ground water characterization and monitoring at the site to detect any possible release and to allow PSF to refute any future allegations of pollution problems; 2) prevention of seepage from the storage pad area and the stormwater retention pond; and 3) proper siting and design of wastewater drainfields and isolation/control of discharges thereto.

The above precautions are basic. If the PFS operations were simply a minor industrial application, these measures might not be necessary.[1] However, the nature of materials being handled and stored by PFS are not inconsequential and warrant that even low probability events be planned for and mitigated. PFS's repeated failure to provide for these basic pollution control strategies, and PFS's continued refusal to address these issues raised by the State, calls into question the integrity and technical capability of those involved in planning and operating such a facility.

The State now supplements its responses to Interrogatories No. 2, 3, 4, and 6. These supplemental responses are supported by the Declaration of Don A. Ostler, PE,

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[1] Many industrial operations, however, do adopt such practices.

attached hereto as Exhibit 1. *See* State of Utah's Response to Applicant's Motion to Compel Answers to Interrogatories for Utah Contention O, Exhibit 1, which describe Mr. Ostler's experience, qualifications and training.

INTERROGATORY NO. 2 - UTAH O: For each pathway identified in response to Interrogatory No. 1, identify each of the specific contaminants from PFS's sewer/wastewater system, the detention basin, ISFSI operations, and ISFSI construction activities that the State contends could enter the surface water and groundwater in Skull Valley, the means or mechanism by which each contaminant would enter each pathway, and the technical and scientific bases for the State's contentions.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 2

1. Sewer/wastewater system:

The sewer/wastewater systems for PFS will include building sewers, septic tanks and subsurface soil absorption systems to infiltrate liquid wastes into the ground and ultimately the ground water. These systems have been and are again identified as **pollutant pathways.**

Contaminants which will/may enter the ground water via this **pathway** include domestic waste from toilets, sinks and kitchens. These contaminants would include nitrates, phosphates, organic matter, bacteria, virus and other pathogenic

organisms. To be effective in treating these conventional pollutants which are ultimately discharged to the ground water, the drainfield must be engineered properly and located in acceptable soils. If the system is located in excessively permeable soils, no treatment will occur and the pollutants will be directly discharged to ground water. PFS has not provided engineering details for the drainfields nor provided any evidence of on-site soil and ground water evaluations to establish feasibility of using such a system for wastewater disposal at this site. This information was previously requested by the State many months ago. The operation of a drainfield with improper engineering or inadequate site soil and ground water conditions constitute a direct means of ground water pollution. Any basic ground water text adequately demonstrates the scientific basis for ground water pollution originating from such systems. Furthermore, any competently trained environmental engineer should be well aware of these fundamental principles.

In addition, such sewer systems are proposed to serve the laboratory and likely will include the possibility of various floor drains, etc. PFS has not provided detailed plumbing plans nor has it provided a list of laboratory chemicals to be stored or used at the site. These chemicals are contaminants which are unsuitable for discharge to a drain field. Laboratory chemicals routinely contain toxics, corrosives, etc. which pass untreated through a drainfield and can cause significant ground water contamination even at very low concentrations. This is a pollutant mechanism and the scientific

basis of such is again well documented in the literature. The State of Utah is currently involved in a ground water clean-up most likely resulting from laboratory chemicals discharged to a drainfield.

Other contaminants which could enter the drainfield and pass untreated to the ground water include cleaning and disinfection chemicals, detergents, gasoline, diesel, solvents, paint or any radiologic contaminant dripping off from contaminated casks, equipment, etc. PFS has provided no detailed plumbing plans. However, these contaminants could enter the pathway by means of floor drains, sinks, eye-wash stations, sumps, etc.

A sump will be installed in the Canister Transfer Building. PFS appears to sample for radiologics but there is no mention of sampling for other contaminants. Some or all of the water in the sump will be "released" (a term that is not explained). Presumably the sump water will be disposed of in the drainfield, or conceivably even on the ground (a practice not condoned by State regulations). Such sump water may contain a variety of contaminants that have been washed off the casks (*e.g.*, from snow melt on the transportation cask).

The scientific basis for these contaminates reaching ground water through these mechanisms is based upon the State's experience with many industrial operations where similar practices are observed.

2. Retention Pond: The purpose of the retention pond is to capture runoff

from the storage pads. The exterior of casks stored on the pad may contain some contamination which could be washed off by rainwater and stored in the retention pond. In addition, PFS will use a vehicle (cask transporter) to move casks onto the pad. Rainwater falling on the storage areas and all other areas of the operation may be contaminated by means of spills, leaks, accidents, poor housekeeping, and other inappropriate activities. Essentially any liquid or solid spilled in the storage area could be washed down to the retention pond. The specific contaminates may include petroleum products (*e.g.*, oil, diesel fuel, gasoline, benzene, hexane, etc.), solvents, or radiologics. In addition, rainfall, snow melt, or flooding would wash any spilled or residual contaminants into the retention pond. The technical basis for such contaminant mechanisms lies in PFS's own contingency and monitoring plans for just such contamination as well as the State's broad experience with industrial operations in general.

3. ISFSI Operations: Some of the activities described above also apply to ISFSI Operations. Chemicals used at the PFS on-site lab may contain many contaminants that could degrade ground water. In response to the State's April 9, 1999 discovery request, PFS stated "it is premature to provide a detailed list of chemicals." Applicant's Objections and Non-Proprietary Responses to State's First Requests for Discovery, dated April 21, 1999 at 48 (hereafter "Applicant's April 21, 1999 Discovery Response"). Thus, PFS has not provided the State with any details of type, quantities, or

concentration of chemicals that would be used at PFS, or what lab tests would be performed. While PFS says it will have procedures in place to detect radioactive contamination, it has not disclosed those procedures to the State. Also there is no hint that PFS will test for contaminants other than radiologics. More importantly, PFS will not monitor the wastewater system or ground water and thus will be unaware if any chemicals enter ground water through drains, spills, etc. Contaminants that could enter ground water include the intentional or unintentional disposal of improper materials such as laboratory chemicals, solvents, petroleum products (*e.g.*, oil, diesel fuel, gasoline, benzene, hexane, etc), radiologics, and cleaning chemicals.

Another operational concern is the effect of rainfall, snow melt, or flooding that could wash contaminants off the storage area and infiltrate into the ground water. In addition, liquid spills could directly permeate the soil into the ground water. Furthermore, any cracks or lack of seals in the container transfer building sumps could cause seepage of contaminants into the ground water.

4. ISFSI Construction Activities: Contaminants include the intentional or unintentional disposal of improper materials such as solvents, petroleum products (*e.g.*, oil, diesel fuel, gasoline, benzene, hexane, etc.), cleaning chemicals, sediment, or soil erosion. Rainfall or snow melt could wash construction contaminants into intermittent streams or directly infiltrate the ground water. In addition, construction spills could directly permeate the soil and reach the ground water.

INTERROGATORY NO. 3 - UTAH O: Identify the likelihood that, in the State's belief, each of the contaminants identified in response to Interrogatory No. 2 would enter the surface water or groundwater in Skull Valley through each of the pathways identified in response to interrogatory No. 1, and the technical and scientific bases therefor, including, but not limited to, the scientific and technical basis for any radiological releases that the State asserts are likely to result in groundwater or surface water contamination.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 3

Based on what PFS has disclosed to date about the ISFSI operations, there is a reasonable potential that the contaminants that the State has identified in the above interrogatory responses would enter ground water, and to a lesser extent surface water. The State would first note that spills, unauthorized practices and other human errors occur at even the cleanest facility. PFS's philosophy of "start clean stay clean" has no built in contingency measures to detect or prevent any mishap that results in contamination of ground water.

The nature of the PFS ISFSI, where vast quantities of high level nuclear waste will be stored, creates a high threshold for concern. PFS has not even proposed any fundamental and relatively inexpensive preventative contingency measures to protect ground water. Such measures include installing liners in the retention pond, under the storage pads, and at or around the perimeter of the storage pads; and installing ground

water sampling and monitoring wells on site. The State questions the judgment, expertise and competence of PFS's operational scheme when such basic measures are ignored. PFS does not even have the means of identifying whether any ground water pollutants that may be found on its site are from its facility or not because PFS has not proposed to undertake any pre-operational and background monitoring.

The sewer/wastewater system is likely to contaminate ground water. Experience has shown that whatever is on site can go down the drain, toilet or sink. For example, employees, in spite of any company policy to the contrary, may dispose of improper materials such as laboratory chemicals, solvents, petroleum products, radiologics, etc. through accidents, negligence or poor housekeeping practices. Furthermore, spills anywhere on site are unavoidable and inevitable and these too could end up in the wastewater system. Laboratory wastes are not appropriate for disposal in the wastewater system and will result in ground water pollution. Ground water monitoring, in addition to enforcement of strict company policies, is needed.

It is also likely that the retention pond will leach contaminants to ground water. PFS states that the retention pond will be unlined. Furthermore, "PFS considers it prudent to obtain samples of water from the detention basin to verify that storm-water runoff is contaminant-free." Applicant's April 21, 1999 Discovery Response at 54. Thus, PFS recognizes that there is a potential for contamination to enter the retention pond but PFS does not appear to have any means to remove any

contaminated waste in the pond. As the pond is unlined, there is a direct means of contaminating ground water. Furthermore, PFS has not disclosed when sampling will take place or what constituents will be analyzed. Unless sampling occurs after every rain event, PFS will not know whether contaminants will be washed off the pads into the retention pond. Moreover, PFS has no plans for ground water sampling or monitoring, and thus, would have no early detection of a ground water contaminant problem. Thus, contamination of ground water from the retention ponds is to be expected. These facilities should be properly lined to prevent seepage and ground water should be monitored to verify performance.

During the phased construction of the storage pads, there is a reasonable potential for sediment, soil erosion, chemicals from construction vehicles and petroleum contaminants to be released. Moreover, operational activities described in Response to Interrogatory No. 2 will enter the wastewater system or the retention pond. Refer to the discussion in the preceding two paragraphs about the likelihood of contaminants entering ground water through the wastewater system or the retention pond.

In addition, in its decommissioning plan PFS itself recognizes the potential for contamination of ten percent of the storage pad area. If it is contemplated that part of the storage pad may become contaminated, there is every reason to believe that such contamination will enter ground water – directly through the unlined pads, the

unlined areas surrounding the pad or from the retention pond.

INTERROGATORY NO. 4 - UTAH O: Identify each specific body of surface water – perennial and intermittent – that the State contends would be contaminated by the construction, operation, or decommissioning of the PFS ISFSI, and the technical and scientific bases therefor.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 4:

Rain storms and especially flood conditions at the PFS site would cause stormwater to run off the site into intermittent or permanent streams. In addition, there are 56 intermittent streams that the Low rail corridor must cross to reach the PFS site. During wet conditions, these intermittent streams may connect with permanent water bodies thereby transporting any contaminants that rainwater may be washed off the casks. In addition to the 56 intermittent steams already identified by PFS, the following surface waters are down gradient of the PFS site and the Low rail corridor and thus could receive contaminants from the construction, operation, or decommissioning of the PFS site: Multiple Spring Creek, Multiple Spring Canal, Horseshoe Spring Creek, Timpie Springs Waterfowl Management Area, and the Great Salt Lake.

INTERROGATORY NO. 6 - UTAH O: Identify and fully explain any measurable or adverse impacts on downgradient hydrological resources, and the mechanisms by which the State asserts such impacts would occur, that the State contends would result from the asserted contaminants and pathways identified in response to Interrogatories 1 and 2 above, and the technical and scientific bases therefor.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 6

The State objects to Interrogatory No. 6 as over broad to the extent that it requires the State to identify "measurable" impacts on downgradient hydrological resources. Contention O, as admitted, charges that "[t]he Applicant has failed to adequately assess the health, safety and environmental effects from the construction, operation, and decommissioning of the ISFSI ... with respect to the ... [p]otential for ground water and surface water contamination [and the] [i]mpact of potential ground water contamination on downgradient hydrological resources." In the matter of Private Fuel Storage (Independent Spent Fuel Storage Installation), LBP-89-7, App A, 47 NRC 142, 254 (1998). The Applicant is now, inappropriately, trying to turn the burden onto the State to measure impacts to ground water that the Applicant has failed to assess. Notwithstanding these objections and based on PFS's description of the construction, operation and decommissioning of the proposed ISFSI, and the contaminants and means and mechanisms of entering ground water described in the

above supplemental responses, there is a reasonable potential that there will be degradation of the State's ground water resources by the Applicant. Experience elsewhere with other sites predicts that the PFS proposal may cause ground water contamination. PFS has no redundant systems or contingency measures to prevent degradation of ground water. PFS merely relies on a company philosophy of "start clean, stay clean" as the mechanism by which ground water will be protected and ignores typical industrial operations and human errors that will release contaminants to ground water. PFS does not contain waters on the storage pad or in the retention pond. Furthermore, there is no ground water monitoring of the retention pond or anywhere on the site. Without monitoring, PFS will not be aware of potential ground water problems which may be corrected if detected early. It is not possible to quantify the adverse impacts from the pathways and contaminants previously mentioned because PFS has not completed sufficient site characterization, including ground water depth, quality, flow direction, etc. In addition, PFS has not provided sufficient information to estimate pollutant quantities or concentrations. If such information were available it would be incumbent on PFS to model such impacts given PFS's refusal to adopt preventative measures to protect ground water. Nevertheless, as described in the above response, the State has identified a number of specific contaminants. It is clear that these contaminants can render ground water unsuitable for drinking water, irrigation or stock use. The contaminants identified an cause blue

baby syndrome, disease, cancer, toxicity and other adverse health effects. Some contaminants can be a serious problem even at very low concentrations. The mechanism for these impacts include any current or future use of this ground water. Since ground water contamination could exist for centuries if unmitigated, the potential for adverse impact is real.

DATED this 22nd day of November, 1999.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a copy of STATE OF UTAH'S SUPPLEMENTAL RESPONSE TO APPLICANT'S SECOND SET OF DISCOVERY REQUESTS FOR UTAH CONTENTION O was served on the persons listed below by electronic mail (unless otherwise noted) with conforming copies by United States mail first class, this 22nd day of November, 1999:

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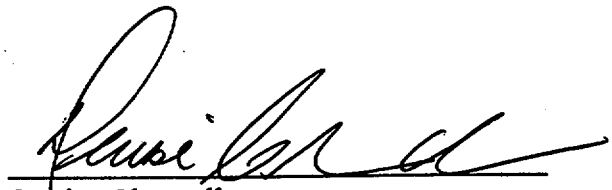

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