



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

March 9, 2001

Enclosure 3

Mr. John D. Parkyn  
Chairman of the Board  
Private Fuel Storage, L.L.C.  
P.O. Box C4010  
La Crosse, WI 54602-4010

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (TAC L22462)

Dear Mr. Parkyn:

Enclosed is a request for additional information (RAI) regarding the supplements to your license application for the proposed Private Fuel Storage Facility (PFSF), by letters dated January 19 and 25, 2001, and other documents related to aircraft hazards. The U.S. Nuclear Regulatory Commission (NRC) staff needs this additional information to complete its review of the supplements, which could affect the probability of military aircraft accidents at the proposed PFSF. Upon receipt of a complete and accurate response to this RAI, the staff will continue its review and determine whether it will be necessary to supplement the September 29, 2000, "Safety Evaluation Report Concerning the Private Fuel Storage Facility."

Please provide your responses to this RAI within 21 days of the date of this letter. You should also provide updates to the PFSF safety analysis report, as appropriate, to the extent that your responses reflect new safety information.

If you have any comments or questions regarding this matter, please contact me at (301) 415-8518.

Sincerely,

*Michael D. Waters*  
*for*

Mark S. Delligatti, Senior Project Manager  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Enclosure: Request for Additional Information

Docket No.: 72-22  
cc: Service Lists

**REQUEST FOR ADDITIONAL INFORMATION  
- PRIVATE FUEL STORAGE FACILITY APPLICATION -**

By letters dated January 19 and 25, 2001, Private Fuel Storage L.L.C., provided supplements to the license application for the proposed Private Fuel Storage Facility (PFSF). This request for additional information (RAI) identifies additional information needed by the U.S. Nuclear Regulatory Commission (NRC) in connection with its review of these supplements and other documents related to aircraft hazards. Each individual RAI describes information that will be used by the staff to complete its review and determine whether the information affects the staff's findings regarding compliance with the requirements of 10 CFR 72.90, 72.94, and 72.106(b), as documented in the September 29, 2000, "Safety Evaluation Report Concerning the Private Fuel Storage Facility."

## **AIRCRAFT DEPLOYMENT AND SORTIES**

1. Provide the following items which are related to the effect on the aircraft crash probability at the proposed PFSF from the additional F-16 aircraft and resulting sorties at Hill Air Force Base:

- (a) Clarify the total number of F-16 aircraft that would be stationed at Hill Air Force Base as a result of the addition of 12 new F-16 aircraft.

Exhibit 9a of the Declaration of James L. Cole, Jr., Wayne O. Jefferson, Jr., and Ronald E. Fly before the Atomic Safety and Licensing Board, December 30, 2000 (Cole et al.), indicates the total number could be 84 rather than 81 which is referenced in your letter dated January 19, 2001.

- (b) Discuss whether the number of F-16 aircraft deployed at Hill Air Force Base is directly proportional to the number of sorties flown through Skull Valley and the UTTR. For example, discuss whether an increase in the number of deployed F-16 aircraft could actually result in a less-than or more-than proportional increase in the number of sorties flown each year.
- (c) Discuss the relationship (e.g. proportional increase) of the deployment of additional aircraft at Hill Air Force Base to the assignment of additional flight crews and maintenance personnel to operate and maintain the additional aircraft. Specify whether the assignment of additional flight crews and maintenance personnel is a determining factor in the number of sorties flown.
- (d) Provide an estimate of the number of flights through Skull Valley and to the UTTR South over the proposed life of the facility based on the new data for additional F-16 deployment.
- (e) Provide data on the number of F-16 sorties flown through Skull Valley each year from FY 1998 to FY 2000 and the number of aircraft stationed at Hill AFB for the same years.
- (f) Provide a breakdown of the number of flights to the UTTR South area including number of hours spent in each discrete area of restricted air space in FY 1999 and FY 2000.
- (g) Discuss whether the number of hours spent in air-to-air and air-to-ground combat training on the UTTR South area increases proportionally with the total number of F-16 sorties flown through Skull Valley.

2. Provide the following items which are related to the effect on the aircraft crash probability at PFSF from aircraft sorties flown in IR-420:

- (a) Specify the number of flights through IR-420 in FY 2000.
- (b) Identify and describe any routes other than Skull Valley and IR-420 by which aircraft enter the UTTR South area and provide the associated traffic rates in relation to the known air traffic rate for Skull Valley.

- (c) Specify whether all of the aircraft going to Michael Army Air Field through IR-420 are transport aircraft.

### **CALIBRATION AND TARGETING**

- 3. Provide the following items which are related to the effect on the aircraft crash probability at the proposed PFSF from turning point maneuvers of F-16 aircraft:
  - (a) Define and discuss the meaning of "turning point in Skull Valley" and discuss the maneuvers associated with this term, as referenced in Cole et al.
  - (b) Verify whether the Air Force will use the proposed PFSF as a turning point in Skull Valley and if this would result in flights directly over the proposed PFSF.
- 4. Provide the following items which are related to the effect on the aircraft crash probability at the proposed PFSF from navigation sensor calibrations on F-16 aircraft:
  - (a) Define and discuss the meanings of "sensor alignment," "reference point for navigation," and "navigational system steer points," as referenced in Cole et al.
  - (b) Discuss whether it is a standard practice for pilots to calibrate aircraft sensors during flight or during pre-flight on the ground.
  - (c) Discuss whether pilots currently calibrate aircraft navigational sensors and the targeting pod during flight.
  - (d) Describe the pilot's current actions while flying through Skull Valley, including activities associated with the calibration of navigational instruments.
  - (e) Discuss and analyze the impact on the pilot's actions, if the proposed PFSF is constructed.  
  
The analysis should consider any potential narrowing of the effective width of the flying area as a result of the proposed PFSF.
- 5. Provide the following items which are related to the effect on the aircraft crash probability at the proposed PFSF from targeting actions on F-16 aircraft:
  - (a) Discuss whether the pilots would point and target their aircraft instruments on the proposed PFSF and the circumstances for performing such action (e.g., only for updating instruments for turning, G-awareness maneuvers).
  - (b) Discuss the range of distance(s) from the proposed site and length of time that the pilots would initiate and continue the point and target action.
  - (c) Describe the pilots subsequent actions and aircraft maneuvers after pointing and targeting the proposed PFSF.

## **AIRCRAFT MANEUVERS**

6. Provide the following items which are related to the effect on the aircraft crash probability at the proposed PFSF from certain aircraft maneuvers:
  - (a) Discuss whether regrouping after maneuvering in a simulated engagement is similar to normal flight activities and whether it is consistent with the definition given in the DOE ACRAM study.
  - (b) Specify whether the air space in Sevier B MOA near the proposed PFSF is authorized for conducting low altitude training, air-to-air combat training, and major exercises and if such exercises have been performed.
  - (c) Describe the consequences if a pilot fails to withstand G forces or if the pilot's anti-G suit does not operate properly during G-awareness maneuvers in Skull Valley.

## **AIRCRAFT ORDNANCE**

7. Provide the following items which are related to the effect on the aircraft crash probability at the proposed PFSF from aircraft ordnance:
  - (a) Provide a breakdown of the live and inert ordnance (e.g., numbers of each type such as MK84, CBU, etc.) carried by F-16 aircraft while transiting through Skull Valley in FY 2000, including the number of flights that carried each type.
  - (b) Specify whether the same types and proportional mix of ordnance were used in both FY 2000 and FY 1998.
  - (c) Describe a typical impact angle of an ordnance dropped from an F-16 and compare it to the impact angle of an F-16 crash.

## **WIDTH OF USABLE AIR SPACE**

8. Specify the width of usable air space in Skull Valley at the navigational latitude where the proposed site would be located and at a point 10 miles north of the proposed site.

This information pertains to the relationship of usable air space to the aircraft crash probability at the proposed PFSF.

## **CLOUD COVER**

9. Provide the following items which are related to the aircraft crash probability at the proposed PFSF from cloud cover in the Skull Valley region:
  - (a) Define and discuss the meaning of "5/10 cloud cover" as referenced in Cole et al.
  - (b) Discuss whether pilots fly under IFR or VFR rules if there is cloud cover in Skull Valley.

- (c) Discuss whether the pilot can use radar to seek through cloud cover and aim the aircraft at a particular target.
- (d) Discuss whether expected cloud cover at Skull Valley would be dense enough to prevent the pilots from visually locating PFSF and whether similar cloud cover would be present in ranges at UTTR South at the same time.
- (e) Examine the historical records for cloud cover in the UTTR and determine whether the UTTR South range would remain open for combat training under such weather events.
- (f) Discuss the flight restrictions during cloud cover and state whether a pilot has to fly at least 1000 ft below a cloud cover.
- (g) Discuss whether a pilot experiencing engine trouble could avoid the proposed PFSF if there were a cloud cover at 3000 ft above ground level.
- (h) Provide the basis for the assertion that pilot positional awareness would be maintained when flying above the highest cloud cover by reliance on visual references to mountain ranges that are used for visual reference (e.g. will the mountain ranges extend above the highest cloud cover in Skull Valley).

#### **BIRD STRIKES**

- 10. Provide the following items which are related to the effect on the aircraft crash probability at the proposed PFSF from potential bird strikes:
  - (a) Discuss the extent to which crashes caused by bird strikes were considered in using historical crash data for estimating the F-16 aircraft crash frequency under Skull Valley type conditions.
  - (b) Indicate the bases for exclusion if bird strike induced crashes in the historical crash database were excluded on the basis of non-applicability to Skull Valley. For example, describe specific factors, such as bird size, and flight altitude and frequency, which would form a basis for including or excluding a specific crash in estimating the aircraft crash frequency in Skull Valley.

#### **CRUISE MISSILES**

- 11. Provide the following items which are related to the effect on the potential cruise missile hazard at the proposed PFSF from cruise missile flights in the UTTR:
  - (a) Specify which cruise missile crashes listed in Table 1 of the cruise missile risk assessment report (letter dated January 25, 2001) occurred outside the UTTR ground or air boundaries.
  - (b) Describe the planned routes (ground or air) for the cruise missiles that crashed outside the UTTR boundaries and the distance between the crash location and the nearest point to the planned trajectory (i.e., lateral distance).

- (c) Clarify whether the cruise missiles crashed within their lateral limits and whether controllers took control and redirected the missiles once a malfunction was realized.
- (d) Discuss whether there is a difference between the tests of stockpile (i.e. operational) cruise missiles and developmental cruise missiles that incorporate some new features or characteristics, as discussed on page 32 of the cruise missile risk assessment report.