UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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

STATE OF UTAH)
) ss.
COUNTY OF SALT LAKE)

AFFIDAVIT OF DAVID B. COLE

I, DAVID B. COLE, being first duly sworn upon oath, depose and state as follows:

1. I am employed as Engineer Specialist IV at the Division of Water Resources (Division), Hydrology Section, Utah Department of Natural Resources, and have worked at this Division since November, 1971.

2. I earned a Bachelors of Science degree in Civil Engineering in 1976, from University of Utah and have been a licensed professional engineer since 1981.

3. I assisted in the preparation of, and have reviewed, the State of Utah's Contentions on flooding. The technical facts presented in those contentions are true and correct to the best of my knowledge, and the conclusions drawn from those facts are based on my best professional judgment.

4. My duties at work have included the calculation of probable maximum floods for the design of spillways. I have also written software to perform these calculations that is used by engineers in our Division and in the Division of Water Rights. Additionally, I have worked on flood studies for the Grantsville Reservoir, located in Tooele Valley with basin and range characteristics similar to those of Skull Valley and within 12 miles of the proposed ISFSI site, as well as other water supply studies.

5. I evaluated the surface runoff potential for probable maximum flood (PMF) in the area of the proposed independent spent fuel storage installation (ISFSI) site located in the center of Section 6, Township 5 South, Range 8 West, SLB&M, Tooele County, Utah. I also reviewed the Hydrology section (Chapter 2 at 2.5) of the Private Fuel Storage Facility Environmental Report (ER), the Surface Hydrology section (Chapter 2 at 2.4) of the Safety Analysis Report, and the applicant's calculation package relating to 100-year flood and probable maximum flood information.

6. The 26 square mile drainage area the applicant used to compute the PMF for what the ER calls Basin 1, which cuts across the access road east of the storage

facility (*see* SAR, figure 2.4-1), is far too small. Based on my experience and training and evaluation of United States Geological Survey 7.5 minute quadrangle sheets and other technical tools and reports, I have concluded a large drainage with an area of over 240 square miles will produce runoff that will cross the depression in the northeast part of Section 6, which otherwise is fairly flat east to west. Included in this large drainage are high canyons such as Indian Hickman and Deadman Canyon that drain the western slope of the Stansbury Mountains, canyons along the western slope of the Onaqui Mountains, the northern slope of the Sheeprock Mountains, the northeastern slope of the Davis Mountain, and much of the lower semi-arid land in the valley. *See* drainage map attached hereto as Attachment A. During wet years this drainage produces significant runoff which moves north toward the middle of the valley where it mixes with the discharge of numerous springs. Based on a 240 square mile drainage area, the 100- year flood has a peak more than twice the 2,065 cfs figure calculated by the applicant (*see* SAR at 2.4-11), and the probable maximum flood has a peak close to twice the 31,934 cfs figure calculated by the applicant (*see* SAR at 2.4-11). The access road and other structures designed for only half the expected flow of a 100-year flood would likely wash out as floodwaters impact the roadway culverts. Moreover, the retaining berms expected to protect the road and facility during the probable maximum flood may fail if they are under-designed.

7. I am aware of the conditions which have occurred in Skull Valley in much wetter than average years, such as the winter and spring of 1983-84, when the large depressions south of the access road filled with runoff, the ground became saturated, and most of Skull Valley produced runoff. The much wetter than normal conditions which would occur during a probable maximum flood event are expected to result in the depressions filling with runoff. The water produced from the southern end of Skull Valley could only drain through the depression near the northeast part of Section 6, the site of the proposed ISFSI.

8. In 1983 the Great Salt Lake started to rise sharply and peaked June 1, 1986, at an elevation of 4211.85 feet, which is the lake's historical high. This caused major flooding in some areas near the lake, including the loss of the Southern Pacific tracks which had been located on a causeway in the lake. The rail tracks on the southern shore of the lake were threatened with flooding on several occasions between 1983 and 1986 as the lake continued to rise.

9. The United States Geological Survey Timpie 7.5 minute quadrangle sheet shows the elevation of the underpass on Interstate 80 at Rowley Junction to be seven feet higher than the Great Salt Lake's historic high, and the elevations of the railroad north of Interstate 80 in the same vicinity to be between three and eight feet higher than the lake's historic high. Wind action on occasion has created

waves swamping areas near the shoreline, particularly in wetter than average years.

FURTHER AFFIANT SAYETH NOT.

DATED this November 21, 1997.

David B. Cole

DAVID B. COLE

Voluntarily signed and sworn to before me this 21st day of November, 1997, by the signer, whose identity is personally known to me or was proven to me on satisfactory evidence.

Karma L. Pathakis

NOTARY PUBLIC

Residing at: SLC Utah

My Commission expires: 5-15-2001

NOTARY PUBLIC
Karma L. Pathakis
160 East 300 South 5th Flr.
Salt Lake City, Utah 84114
My Commission Expires
May 15, 2001
STATE OF UTAH

EXHIBIT A

To Affidavit of David B. Cole

Drainage Area

Skull Valley Nuclear Waste Site