



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

December 21, 2004

Ms. Elizabeth D. Sellers, Manager
U. S. Department of Energy
Idaho Operations Office
1955 Fremont Avenue
Idaho Falls, ID 83401

**SUBJECT: ADDENDUM TO NRC INSPECTION REPORT 072-00009/04-001; REVIEW OF
INFORMATION PROVIDED IN SUPPORT OF IFI 72-09/97207-22**

Dear Ms. Sellers:

This letter refers to the request by your staff for closure of Inspection Follow-up Item (IFI) 72-079/97207-22. The request for IFI closure, along with supporting documentation for the shipping cask, was transmitted to the NRC in your letter dated August 25, 2004.

An inspection was conducted at the Fort St. Vrain Independent Spent Fuel Storage Installation (ISFSI) on January 29, 2004. During this inspection, the shipping cask documentation associated with the two TN-FSV shipping casks were reviewed by the inspectors. The shipping cask documentation issues that remained unresolved included performance of liquid penetrant examinations of the cask lifting sockets; cask weight measurements; containment boundary leak rate tests; and impact limiter humidity tests. Sufficient documentation existed to close all the issues related to shipping cask #2. However, two open issues remained that were associated with shipping cask #1, consisting of the documentation for the lifting socket liquid penetrant exam and justification for the use of a linear regression technique for acceptance of the cask weight measurement. Therefore, the IFI remained open pending resolution of these two open issues. Additional details of the results of the shipping casks documentation review conducted during the inspection can be found in NRC Inspection Report 072-00009/04-001.

The inspectors have reviewed the supporting documentation contained in your letter dated August 25, 2004, for closure of the two remaining open issues for shipping cask #1. Based on this review we have concluded that the shipping cask documentation requirements have been sufficiently met so as to provide reasonable assurance that no significant safety issues remain. The enclosure to this letter provides additional details of the review. Therefore, IFI 72-079/97207-22 is closed.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Please note that on October 25, 2004, the NRC suspended public access to ADAMS, and initiated an additional security review of publicly available documents to ensure that potentially sensitive information is removed from the ADAMS database accessible through the NRC's web site. Interested members of the public may obtain copies of the referenced documents for review and/or copying by contacting the Public Document Room pending resumption of public access to ADAMS. The NRC Public Document Room is located at NRC Headquarters in Rockville, MD, and can be contacted at 800-397-4209 or 301-415-4737 or pdrc@nrc.gov.

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle and Decommissioning Branch

Docket No.: 072-00009
License No.: SNM-2504

Enclosure:
Review of Information Provided in
Support of IFI 72-09/97207-22

cc w/enclosure:
Mr. Mark D. Gardner
TMI/FSV Facility Director
Department of Energy
Idaho Operations Office
1955 Fremont Avenue
Idaho Falls, ID 83401

Mr. Jan Hagers
TMI/FSV Licensing Project Manager
Department of Energy
Idaho Operations Office
1955 Fremont Avenue
Idaho Falls, ID 83401

Ms. Mary J. Fisher
General Manager, Nuclear
Public Service Company of Colorado
P. O. Box 840
Denver, CO 80201-0840

Mr. M. H. Holmes
Project Assurance Manager
Public Service Company of Colorado
16805 Weld County Road 19-1/2
Platteville, CO 80651

Chairman
Board of County Commissioners
of Weld County, Colorado
Greeley, CO 80631

Regional Representative
Radiation Programs
Environmental Protection Agency
Region 8
1 Denver Place
999 18th Street, Suite 1300
Denver, CO 80202-2413

Director
Laboratory and Radiation Services Division
Colorado Department of Public Health
and Environment
8100 Lowry Boulevard
Denver, CO 80230-6928

bcc w/enclosure distrib by RIV:

MASatorius

JRHall, NMSS/SFPO

ERZiegler, NMSS/SFPO

DBSpitzberg

RLKellar

SPAtwater

KEGardin

FCDB File

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ENCLOSURE

REVIEW OF INFORMATION PROVIDED IN SUPPORT OF IFI 72-09/97207-22

During the January 29, 2004, Fort St. Vrain Independent Spent Fuel Storage Installation (ISFSI) inspection (NRC Inspection Report 072-00009/04-001), the licensee provided QA records for the two TN-FSV shipping casks. An inspection followup item (IFI 97207-22) had been previously opened to resolve questions dealing with completeness and legibility of documentation for the two TN-FSV shipping casks. The shipping cask documentation issues that remained unresolved included performance of liquid penetrant examinations of the cask lifting sockets; cask weight measurements; containment boundary leak rate tests; and impact limiter humidity tests.

The QA records, gathered during the inspection, provided sufficient documentation for closure of all issues related to shipping cask #2. However, for shipping cask #1, inadequate documentation had been provided for closure of the issues related to the lifting socket liquid penetrant exam and justification for the use of a linear regression technique for acceptance of the cask weight measurements. Therefore, IFI 97207-22 remained open, pending resolution of the two remaining issues associated with cask #1.

In a letter dated August 25, 2004, the licensee provided additional information for the remaining two open issues associated with shipping cask #1. Region IV has reviewed this information and concluded the following:

Issue #1: Lifting Socket Liquid Penetrant Exam

Inspection Report 072-00009/04-001 documented that the liquid penetrant exam performed by a certified Level II Inspector on the lifting sockets on June 27, 2002, did not specify the acceptance criteria used for the exam. The acceptance criteria to be used for this exam was specified in Section 8.1.2.2 (b) of the TN-FSV Package safety analysis report as ASME NF 5350, but this acceptance criteria had not been documented on the inspection form.

A copy of DOE deficiency report ICARE Number 36425 and a quality inspection report completed by the certified inspector that had performed the liquid penetrant exam was provided with the August 25, 2004, letter. The quality inspection report documented the use of ASME NF 5350 as the acceptance criteria utilized for the liquid penetrant exam of the lifting sockets performed by the certified Level II Inspector. The deficiency report documented the QA review of the condition discrepancy and the interview with the certified inspector that had performed the liquid penetrant examinations. Based on the documentation contained in the quality inspection report and in the deficiency report, the inspectors concluded that the proper ASME Code acceptance criteria had been utilized during the liquid penetrant exam.

Issue #2: Cask Weight Measurements

Section 8.1.2.4 of the safety analysis report required the assembled cask, as well as major individual components, to be weighed with a precision of +/- 0.5 percent. However, the weight measurement for the cask shell and lid (identified as cask #1) had been made using a dynamometer with a calibration tolerance of +/- 2 percent of full scale. The licensee had utilized a mathematical analysis technique to demonstrate compliance with the safety analysis

report precision requirement that was not justified through reference to a national standard or other accepted practice for use of this technique.

A copy of engineering design file Number 3593 was provided along with the August 25, 2004, letter, to address the dynamometer tolerance utilized to perform the weight measurements of cask #1. This document utilized guidance from the National Institute of Standards and Technology (NIST) document TN-1297, "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results" for evaluation of compliance with the safety analysis report requirements. Table 1 of this engineering design file provided calibration data and calculated 90 percent confidence intervals from data obtained during dynamometer #703520 calibrations performed during 2002 and 2003. The data contained in Table 1 showed that the dynamometer readings consistently under predicted the standard force applied to the dynamometer. Utilizing this calibration data, a linear regression technique was applied by the licensee that predicted the standard force or anticipated weight for a dynamometer reading indicating 36,500 pounds to be 36,862 pounds. The weight reported by the licensee utilizing an uncorrected data reading from dynamometer #703520 for the cask, lid and attached rigging was documented as 36,500 pounds, during the weight measurement activities conducted on July 1, 2002. The estimated precision for this predicted weight of 36,862 pounds was listed as +/- 0.43 percent in the licensee engineering design file.

In normal practice, a dynamometer would be adjusted by the calibration laboratory to provide the required precision during the calibration process. Based on data measurements contained in engineering design file Number 3593, dynamometer #703520 could have been adjusted prior to the cask measurement and would have provided a precision within the required tolerance of +/- 0.50 percent. As this adjustment was not performed by the calibration laboratory, the linear regression analysis was necessary to show compliance with the safety analysis report precision requirement.

The licensee had performed a linear regression analysis over the entire dynamometer range based on calibration readings performed at 10,000 pound increments. The staff assumed a linear correlation between the dynamometer readings and the standard force applied between the dynamometer calibration points at 30,000 and 40,000 pounds. This assumption would limit random error and variance between the two data points that bounded the dynamometer reading of 36,500 pounds obtained by the licensee for the cask and lid weight measurements performed on July 1, 2002.

The predicted value of the standard or actual weight for a dynamometer reading of 36,500 pounds was calculated by the staff to be 36,866 pounds. This result was compared to the licensee prediction of 36,862 pounds and found to be within the precision of +/- 0.50 percent required by the safety analysis report.

Conclusions:

The inspectors reviewed the data provided by the licensee in the August 25, 2004, letter. This data was found to be sufficient to close the remaining two issues associated with IFI 97207-22.