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2420 W. 26th Avenue, Suite 100D, Denver, Colorado 80211

November 17, 1989
Fort St. Vrain
Unit No. 1
P-89450

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

ATTN: Mr. Seymour H. Weiss, Director
Non-Power Reactor, Decommissioning
and Environmental Project Directorate

Docket No. 50-267

SUBJECT: Inservice Inspection
Program For Fuel Handling
Machine And Fuel Storage
Wells

REFERENCES: 1. PSC letter, Crawford
to Hebdon, dated
6/16/89 (P-89218)
2. PSC letter, Crawford
to Weiss, dated
9/14/89 (P-89344)

Dear Mr. Weiss:

This letter provides additional information about the Inservice Inspection and Testing (ISIT) Program that Public Service Company of Colorado (PSC) will maintain for the fuel handling machine and fuel storage wells at Fort St. Vrain (FSV).

PSC provided a description of the ISIT Program to be used during defueling in Reference 1. In response to NRC questions during telephone conversations on July 7 and July 21, 1989, a more detailed discussion about this program is attached.

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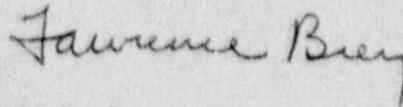
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If you have any questions regarding this information, please contact
Mr. M. H. Holmes at (303) 480-6960.

Very truly yours,



H. L. Brey, Manager
Nuclear Licensing and
Resource Management Division

HLB/SWC/lmb

Attachment

cc: Regional Administrator, Region IV
ATTN: Mr. T. F. Westerman, Chief
Projects Section B

Mr. Robert Farrell
Senior Resident Inspector
Fort St. Vrain

INSERVICE INSPECTION AND TESTING PROGRAM
FOR FUEL STORAGE WELLS AND
FUEL HANDLING MACHINE
DURING FORT ST. VRAIN DEFUELING

This attachment addresses questions raised by the NRC regarding the Inservice Inspection and Testing Program for the Fuel Storage Wells (FSW) and Fuel Handling Machine (FHM), that PSC will implement during the Fort St. Vrain defueling. As described in PSC's letter of June 16, 1989 (Reference 1), PSC proposed a program that includes the following:

- Exercising valves used to isolate cooling water to the fuel storage wells and FHM,
- Functionally testing the FSW ventilation system, and
- Performing a comprehensive preventive maintenance (PM) program on the FHM that includes functional tests and inspections of various mechanical components and their controls.

The NRC questions were raised in a telephone conversation between Ken Heitner (NRC) and Dave Goss (PSC) on July 7, 1989, and were addressed by PSC in a subsequent telephone conversation on July 21, 1989. This attachment documents those conversations and provides additional information where requested.

A. Questions regarding the Fuel Handling Machine:

1. Does PSC perform pressure tests of helium and water systems for leak tightness?

PSC Response:

PSC performs leak tests of the helium pressure boundary of the FHM. On an annual basis the FHM is evacuated to a vacuum condition and held there for a short period of time to verify leak-tight integrity of the helium pressure boundary. With each use on the PCRV, the FHM's Cask Isolation Valve Seal is verified leak-tight.

FHM cooling water is supplied from the reactor plant cooling water system (System 46), which is a low pressure (150 psig) system. Consistent with other low pressure systems, no specific leak test or direct examination is performed.

In the event of a water leak in the FHM cooling system, the FHM has a water leak detector that provides an alarm in the fuel handling control room. The FHM water leak detector is basically a conductivity cell located in a low point in the FHM. Any water leakage would accumulate there, cover the leak detector contacts, and complete the alarm circuit. This water leak detector will be functionally tested annually.

There are two independent cooling loops in the FHM, either of which is capable of providing adequate cooling. Should a water leak occur, the other redundant cooling loop could be utilized for FHM cooling, either with its normal cooling equipment or with firewater backup, if required.

2. Does PSC perform tests associated with the purge system vacuum pumps and control valves?

PSC Response:

The purge vacuum pumps are used to evacuate the FHM and are included in the defueling preventive maintenance (PM) program. This PM program includes an annual verification of performance capability and oil levels.

All of the control valves associated with the FHM purge system are stroked during the normal use and evacuation of the FHM. This normal use is anticipated to be much more frequent than the quarterly valve exercise guidance provided in ASME Code Section XI, and no further exercise program is planned.

3. Are there checks of position instruments and control systems?

PSC Response:

The FHM position instruments and controls are extensively tested in accordance with existing plant procedures. These tests are a part of the FHM functional tests and are required by proposed Technical Specification surveillance requirement SR 5.7.1 (Reference 2).

4. Are there checks on the filters for the purge system?

PSC Response:

There is no provision in the PM program addressing filters and historically they have not presented problems during refueling use. There are 3 micron filters in the line that exhausts FHM purge gas to the gas waste system. These filters are internal to the FHM and can be serviced by the core service manipulator attached to the fuel transfer mechanism. If these filters become plugged, the FHM can be pumped down to a stable condition where servicing can be performed.

There are also 3 micron filters in the fuel storage well exhaust lines to the gas waste system. These filters can be backflushed if they become plugged and their malfunction would not prevent fulfillment of any safety function.

There is an oil mist filter downstream of each of the two purge vacuum pumps. These filters are not serviceable by design and their malfunction would not prevent fulfillment of any safety function.

B. Fuel Storage Wells

1. Are there pressure tests for helium and water systems for leak tightness? These are explicitly called out in Table H.2-1 in the FSAR as Class I.

PSC Response:

Prior to the initial use during defueling, each Fuel Storage Well (FSW) closure seal on the FSW helium pressure boundary will be tested for leakage. Also, on a daily basis, FSW pressure is verified subatmospheric per the requirements of proposed Technical Specification SR 5.7.2 (Reference 2). Any FSW pressure greater than atmospheric is detected by an alarm. No further tests are planned for the helium pressure boundary of the FSWs.

As with the FHM water cooling system, the FSW cooling water system is a low pressure (150 psig) system and no specific leak test or direct examination is performed. If a cooling system leak occurred, depending on its size, it could be detected during the daily monitoring of temperature and flow per proposed Technical Specification SR 5.7.2 (Reference 2), or by the alarms for low cooling flow or high cooling system temperature. As with the FHM, the FSWs are cooled by two completely independent cooling system loops, only one of which is normally in service at any given time. In the event of a water leak, the redundant cooling loop could be placed in service with either normal system equipment or with firewater backup, if required.

It is noted that even if an undetected water system leak did occur, it would not result in criticality in the stored fuel. As described in FSAR Section 9.1.2, there are two steel barriers between the cooling water and the stored fuel, and drains are provided for the fuel storage compartments. Also, even when all storage spaces are filled with maximum reactivity fuel and completely flooded with water, nuclear criticality is prevented.

2. Is there a test for the pressure relief valves?

PSC Response:

PSC will test the relief valves that protect each FSW and its associated Loop II cooling water piping prior to storing irradiated fuel in the well. A single cooling loop is sufficient for FSW cooling and PSC plans to use Loop II as long as fuel is stored in the fuel storage facility. These valves will be re-tested at five year intervals, provided the FSWs are still required operable per proposed Technical Specification LCO 4.7.3 (Reference 2).

It is noted that the FSW helium relief valves serve as a backup to the pressure control system that relieves excess storage well pressure to the gas waste vacuum tank; this pressure control system is surveilled by existing plant procedures.

3. Is there some procedure for inspecting the fuel storage well boundary for leakage?

PSC Response:

PSC does not have a procedure for inspecting the FSW boundaries for leaks as the boundaries are largely inaccessible. The wells are normally maintained at atmospheric pressure or below and the contents are vented to the gas waste system. PSC does not plan to provide a leak inspection procedure for the FSW boundaries.

4. What checks are done on ventilation supply system fans and dampers?

PSC Response:

The operability checks that PSC plans to perform on the FSW ventilation systems are all included in proposed Technical Specification SR 5.7.2 (Reference 2). These include daily verification that FSW pressure is subatmospheric, monthly operation of the emergency booster fan, and a once per 18 months flow verification.