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OPPD
Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

May 1, 2003
LIC-03-0062

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

Reference:
1. Docket No. 50-285
2. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 1989 Edition and 1998 Edition through 2000 Addendum
3. ASME Section XI, Appendix VIII

Subject: Relief Request Pertaining to Visual Inspection of Inaccessible Piping and Components

Pursuant to the provision specified in 10 CFR 50.55a(a)(3)(ii), the Omaha Public Power District (OPPD) requests relief from certain requirements of the ASME Boiler and Pressure Vessel Code. This relief request pertains to IWA-5240, Visual Examination. During Code required Pressure Testing, VT-2 visual examination shall be conducted by examining the accessible external exposed surfaces of pressure retaining components for evidence of leakage. The specifics of the relief requests are detailed in the attachment to this letter and are intended to be applied to the performance of the ISI examination for the Third and Fourth Ten Year ISI Interval.

No commitments are made to the NRC in this letter. If you have any questions or require additional information, please contact Dr. R. L. Jaworski at (402) 533-6833.

Sincerely,

R L Phelps 5-1-03

R. L. Phelps
Division Manager
Nuclear Engineering

RLP/rlj

A047

Attachment: Fort Calhoun Station Relief Request

c: E. W. Merschoff, NRC Regional Administrator, Region IV
A. B. Wang, NRC Project Manager
J. G. Kramer, NRC Senior Resident Inspector
Winston & Strawn (w/o Attachment)

ATTACHMENT

Fort Calhoun Station
Relief Request
for
Third and Fourth Ten Year Intervals

ISI PROGRAM RELIEF REQUEST
NUMBER: RR-8

System: Reactor Coolant, Safety Injection and Chemical and Volume Control

Class: Class1, 2 and 3 piping

Test Requirements: IWA-5240, Visual Examination. During Code required Pressure Testing, VT-2 visual examination shall be conducted by examining the accessible external exposed surfaces of pressure retaining components for evidence of leakage.

Basis for Justification: This relief request is submitted pursuant to 10 CFR 50.55(a)(3)(ii). Several piping or component sections in these systems at Fort Calhoun Station are considered to have inaccessible external surfaces during the time frame and plant conditions required to reach acceptable test pressure. Several factors are considered when evaluation of a piping inspection area results in an inaccessible area determination. These factors may include ALARA or radiological conditions (both dose rate and contamination level), the amount of useful information gained should the visual inspection be conducted, amount of work and effort required to obtain access to the area to be inspected, other testing and/or practices which may contribute to assurances that plant piping systems or components are intact and not leaking.

Areas for which relief is requested

1) Area under the Reactor Vessel:

Radiological Conditions: Access to this area is posted as a Restricted High Radiation Area and a Surface Contamination Area. Access is currently restricted when fuel is loaded in the core. Maintenance and inspection activities are scheduled and performed under the Reactor Vessel during periods when the fuel is off-loaded. Estimated exposure for conduct of a VT-2 inspection of this area, with insulation in place and fuel in the vessel is 1R. This is a recurring dose estimate and does not include additional intermittent exposure for decontamination and radiological monitoring of the area for entrance and inspection.

Information Gained by Visual Inspection: Direct visual access of the Reactor Vessel is not available without removal of insulation panels protected by stainless steel sheathing. The best information gained by the VT-2 inspection would be discoloration on sheathed insulation surfaces or evidence of Boric Acid residue on these surfaces.

Other Inspections, Practices and or Design Features: Reactor Vessel welds are inspected both by visual and UT methods from the interior of the vessel at ASME code required intervals. The most recent ultrasonic (UT) examination in 1992 showed no significant

indications and no evidence of indication growth when compared to the previous inspection results. The FCS Reactor Vessel has no penetrations in the lower area. Unknown leakage from the Reactor Coolant System is closely monitored on a daily basis by a surveillance test. Sump levels and alarms also provide a measure of unexpected leakage. A general visual inspection of the insulation under the Reactor Vessel was performed with the fuel off-loaded during the 2001 RFO concurrent with an insulation maintenance activity, and no evidence of Reactor Coolant System leakage was observed.

The lower vessel hemisphere is not susceptible to cracking for the following reasons:

a) There are no bottom hemisphere penetrations which could create stress concentration factors/leakage sources or bimetallic effects.
b) The fluence to the welds and plate material is less than 10^{17} n/cm^2, which is below the GALL Report threshold of evaluation.
c) A Pressurized Thermal Shock (PTS) analysis (Reference CEN-636, Revision 02, 7/19/00 which was reviewed and approved in FCS Technical Specification Amendment 199) concludes that the FCS Reactor Vessel beltline welds have conservative chemistry factors for PTS. These welds bound the welds and plate material of the lower hemisphere.
d) The pressure stresses, that are governing, in a hemisphere are ½ that of the cylindrical shell.

Alternative Testing: FCS proposes that continued reliance on reactor vessel volumetric weld examination at code required frequency and daily Reactor Coolant System Leakage Tests provide reasonable assurance that reactor vessel through wall leakage is not occurring and is not eminent at FCS. The area under the Reactor Vessel will be inspected for evidence of leakage if this area is entered for other reasons.

2) Safety Injection Piping in "Sub-hulls" (SI-9 & SI-10):

Other Inspections, Practices and or Design Features: Sub-hulls are special enclosures for valves HCV-383-3 and HCV-383-4 (Containment Sump Suction Valves). These Containment vessels receive a Type B Leakage Rate Test in accordance with 10CFR50 Appendix J (at 60 psig) each refueling outage. The access openings are large bolted manway covers. Removal of these covers solely for inspection would result in undue hardship with no corresponding increase in plant safety. Type B testing would have to be performed after closure of the manway. Additionally, Type B leakage rate testing is conducted on the piping from the sump strainer to the associated valve on a schedule determined by the FCS Containment Leakage Rate Test Program.

Alternative Testing: Continue to inspect piping in the sub-hulls during containment leakage rate testing from strainer to isolation valve if sub-hull manway is open for valve maintenance.

3) Ion Exchanger Room 62 & Purification Filter Vault:

Radiological Conditions: Access to this area is posted as a Restricted High Radiation Area. Estimated exposure for conduct of a VT-2 inspection of this area is significantly greater than 1R. General Area dose rate has been estimated at 800R/hr. Operations (resin sluicing, backwash, etc.) result in intermittent pressurization of piping segments in this area. Several entries would be required to complete inspection of all piping.

Other Inspections, Practices and or Design Features: Radiation Monitoring, including trending analysis, would indicate leakage in this area. The Reactor Coolant inventory daily monitoring surveillance testing would also lead to quick and positive identification of leakage from this piping.

Alternative Testing: Leakage inspection will be made when entering these spaces for maintenance or operation. Special entry for VT-2 inspection is not warranted.

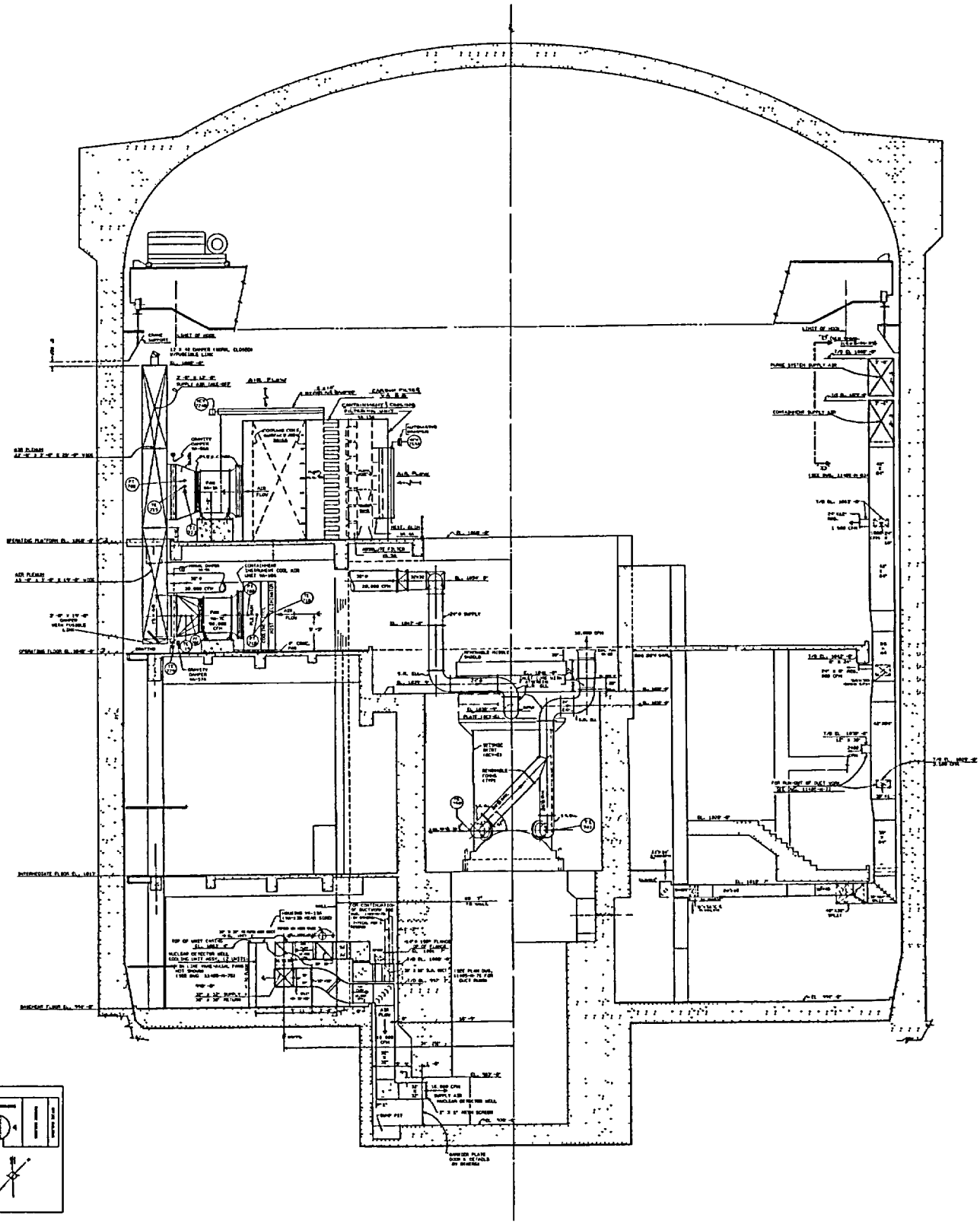
4) Entrenched Piping:

- **Between purification filters and VCT**
- **Between Charging Pumps and Regenerative Heat Exchanger**
- **Between RCP Bleed-off and VCT**
- **Between TCV-211-2 and Letdown Strainer**
- **Between Charging Pumps and HPSI header**
- **Between ion exchangers and purification filters**

Other Inspections, Practices and or Design Features: This piping is contained in a piping trench covered by large concrete plugs that, although removable, require in excess of 48 man-hours to lift and set aside. This also creates a significant disruption in the Corridor 26 area inside the Auxiliary Building since open trenches may create both safety and access problems. This entrenched piping is used for several fluid transfer operations. These operations are monitored to verify correct flows and volume changes insuring piping runs are intact.

Alternative Testing: Piping in the trench is treated as buried piping. Areas will be checked for evidence of leakage if opened for other reasons. Indications of flow decrease during operation in piping systems contained in the trench will be promptly investigated.

Period for which Relief is requested: This relief is requested for the remainder of the Third Interval and for the Fourth Interval as described in ASME Section XI Code. Code of reference for 3rd and 4th Ten Year intervals are ASME XI 1989 Edition and 1998 Edition, 2000 Addenda respectively.



SECTION "B-B"

FORT CALHOUN STATION

CONTAINMENT VENTILATION SECTION B-B

C H O R

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