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

Subject: Waterford 3 SES
Docket No. 50-382
License No. NPF-38
Request to Delete Surface Examination of the Reactor Pressure Vessel Support Integral Attachment Welds

Gentlemen:

Entergy Operations, Inc. requests approval to delete the Code required surface examination on the Reactor Pressure Vessel (RPV) support integral attachment welds as defined by ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-H, Item No. B8.10. This code requires examination of Waterford's integral attachment welds by the surface examination method.

This relief is requested based on personnel exposure concerns and limited examination area access. Because of the difficult access conditions, the necessity for insulation removal and the necessary surface preparation, it is estimated that a minimum of 12 man-hours is required to prepare and examine the welds using the magnetic particle method. Based on the 600 mr/hr dose rates (with shielding installed and working at least 30 cm from the bearing), an accumulated personnel exposure to perform surface examination is estimated to be 7.2 man-rem.

Additionally, the examination area is limited. The integral attachment weld surface facing the reactor vessel is completely inaccessible for base metal preparation. This is due to the close proximity of the reactor vessel wall and the underlying vessel support structure. Approximately 50% of the two sides of each integral

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attachment weld surface is blocked due to the close proximity of the six inch hold down studs on the spherical bearings and containment support plates. This obstruction prevents access for base metal preparation required for either Magnetic Particle Test (MT) or dye Penetrant Test (PT).

Elimination of the Code required surface examination does not significantly affect the assurance of continued structural integrity of the vessel support.

Based on the foregoing discussion and that which is provided in Appendix 1: Relief Request, Waterford 3 requests approval to delete the Code required surface examination on the RPV support integral attachment welds. This request has been discussed with the Waterford 3, NRR, Project Manager and is similar to relief granted to other facilities, such as Grand Gulf Nuclear Station. Waterford 3 respectfully requests a timely review of this Relief Request to allow for appropriate planning of Refuel 8 ISI inspection activties, currently scheduled for April, 1997.

Should you have any questions regarding this matter, please contact me at (504) 739-6774 or Tim Gaudet at (504) 739-6666.

Very truly yours,

James J. Fisicaro

James J. Fisicaro
Director
Nuclear Safety

JJF/WHP/tjs

Attachment
cc: L.J. Callan, NRC Region IV
C.P. Patel, NRC-NRR
R.B. McGehee
N.S. Reynolds
NRC Resident Inspectors Office

APPENDIX 1
RELIEF REQUEST

1. Component:

Surfaces of the four reactor pressure vessel (RPV) cold leg nozzle to vessel support pad integral attachment welds.

2. Code:

The RPV support welds are designed, fabricated and certified to the 1971 Edition, Summer 1971 Addenda of ASME Section III, Subsection NB (Class 1).

3. Code requirements:

ASME Section XI, 1980 Edition, Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-H, Item No. B8.10 requires examination of the W3 integral attachment welds by the surface examination method.

4. Relief Requested:

Relief is requested to delete the Code required surface examination on the RPV support integral attachment welds.

5. Basis for relief:

The Reactor Pressure Vessel is supported by four pads welded to the underside of the four inlet nozzles. These pads rest on spherical bearings. The spherical bearings rest on the containment support plates. The spherical bearings and the containment support plates are held down by four six inch diameter studs/nuts. The spherical bearings contain Stellite. The cobalt in the Stellite becomes a radioactive source (becomes "activated") when exposed to core radiation. From surveys taken during Refuel 7, contact dose rates at the spherical bearings near the integral attachments are 10 to 20 R/hr. These high dose rates are attributed to the activation of the cobalt in the spherical bearing. Installation of lead shielding reduced the contact dose rates to 1 R/hr. General area dose rates are 300 mr/hr. The dose rates at 30 cm from the spherical bearing (with shielding installed) are 600 mr/hr.

Direct visual examination (VT-3) of two of the four integral attachment welds revealed the as-found surface conditions were not adequate for the performance of either magnetic particle (MT) or dye penetrant (PT) examination. The surfaces had small patches of tightly adhering scale, a general coating of tightly adhering rust and minor surface irregularities. The

scale and rust could not be removed by manual means. The surface condition is expected to create non-relevant indications that would interfere with the interpretation of the MT or PT exam results. At minimum, power tool preparation of the weld surfaces is required. Due to the extremely high dose rates on the two attachment welds, the remaining two welds were not un-insulated for visual examination. A VT-3 examination of the two attachment welds was conducted. The results of the VT-3 examination were acceptable. There was no loss of integrity at the welded connection, no abnormal corrosion products and the general mechanical and structural condition of the connection was acceptable.

Because of the difficult access conditions, the necessity for insulation removal and the amount of surface preparation, it is estimated that a minimum of 12 man-hours is required to prepare and examine the welds using the magnetic particle method. Based on the 600 mr/hr dose rates (with shielding installed and working at least 30 cm from the bearing), accumulated exposure to perform surface examination is estimated to be 7.2 man-rem.

Additionally, the examination area is limited in two ways. First, the integral attachment weld surface facing the reactor vessel is completely inaccessible for base metal preparation due to the close proximity to the reactor vessel wall and the underlying vessel support structure. Secondly, approximately 50% of each of the two sides of the integral attachment weld surface is blocked due to the close proximity of the six inch studs which hold down the spherical bearings and containment support plates. This obstruction prevents access for base metal preparation required for either MT or PT. The only area with unobstructed access for surface preparation/examination is the attachment weld surface facing outward from the vessel. Therefore, the best possible surface examination coverage is estimated to be 50%. Since "hands-on" access is not required for visual examination, the surface exam limitations did not affect the adequacy of the VT-3 exam.

During fabrication, the vessel to support skirt weld was required to be surface examined in accordance with ASME III Class 1 requirements.

All support pad base and weld materials were procured in compliance with ASME III NB-2300 to assure adequate protection against non-ductile failure. Integral attachment weld material was required to exhibit a reference nil-ductility transition temperature of not greater than 10° F as established by Charpy V-notch and/or dropweight tests. Rapid crack propagation from service conditions is unlikely.

During normal operating conditions (including heat-up and cooldown) and during design basis earthquakes, the support pads are primarily loaded in compression. The only occurrence that produces tensile stresses in the

attachment weld is a reactor coolant system pipe rupture. The integral attachment weld is E8018-C3 shielded metal arc and Manganese Molybidenum Nickel (MnMoNi) submerged arc weld metal. Weld metal material test reports indicate these materials have at least 25% elongation. In general, ductile materials do not fail (by fracture) in compression but tend to deform in response to imposed loads. Therefore, the most likely failure mode of the support is distortion failure (deformation) caused by compressive stress. Any normal service induced degradation would be evidenced by structural deformation and would be apparent during visual examination. Elimination of the Code-required surface examination does not significantly affect the assurance of continued structural integrity of the vessel support.

6. Alternate Testing:

Two of the four inlet nozzle support pad welds are to be visually (VT-3) inspected.

7. Schedule for Implementation:

First and Remaining Ten Year Intervals

8. NRC discussion statement (Revision 0):

Upon receipt of the SER from the NRC, NRC discussion statements contained in the SER are added later, as applicable.