Joseph H. Plona
Site Vice President

6400 N. Dixie Highway, Newport, MI 48166
Tel: 734.586.5910 Fax: 734.586.4172

DTE Energy

10CFR50.55a

March 13, 2009
NRC-09-0015

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

Reference: Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Submittal of Inservice Inspection Program
Relief Requests, RR-A35 and RR-A36

Pursuant to 10CFR50.55a(a)(3)(i) and 10CFR50.55a(g)(5)(iii), Detroit Edison hereby requests NRC approval of the enclosed relief requests, RR-A35 and RR-A36, for the Fermi 2 Power Plant. Approval of relief request RR-A35 is requested in accordance with the alternative examination provisions of 10CFR50.55a(a)(3)(i). Approval of relief request RR-A36 is requested in accordance with the impractical provisions of 10CFR 50.55a(g)(5)(iii). Both relief requests are requested for the second Inservice Inspection (ISI) Nondestructive Examination (NDE) 10-year interval which began on February 17, 2000.

Relief request RR-A35 proposes the use of an alternative to the sample selection for circumferential welds subject to the examination requirements of the American Society of Mechanical Engineers (ASME) Class 2, Category C-F-2, of the 1989 Edition of ASME Section XI. Relief request RR-A36 proposes an alternative to the impractical pressure testing of the Reactor Pressure Vessel (RPV) flange seal leak detection system, subject to the examination requirements of ASME Section XI, Examination Category B-P, Item B15.11 along with the approved alternative test requirement of ASME Code Case N-498-1.

A047
NRR

Detroit Edison requests NRC approval of these two relief requests within one calendar year of the date of this letter.

Should you have any questions or require additional information, please contact Mr. Rodney W. Johnson of my staff at (734) 586-5076.

Sincerely,

M. J. Hlavaty
for J. H. Plona

Enclosure

cc: NRC Project Manager
Reactor Projects Chief, Branch 4, Region III
NRC Resident Office
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

RELIEF REQUEST
RR-A35

COMPONENT FUNCTION/DESCRIPTION

Circumferential welds subject to the examination requirements of the ASME Class 2, Category C-F-2, of the 1989 Edition of ASME Section XI.

ASME CODE COMPONENT(S) AFFECTED

Category C-F-2, Item C5.51, circumferential welds. The 17 welds below are in piping of less than 3/8 inch thick.

RHR (E11)	Core Spray (E21)	Fuel Pool Cooling (G41)	Containment Atmosphere Control (T48)
SW-E11-3035-5WE	FW-E21-3144-0W1	FW-G41-3669-0W9	FW-T48-04-2095-11W12
SW-E11-3035-7WB	FW-E21-3145-11W0	SW-G41-3669-3WB	FW-T48-04-2095-19W0
SW-E11-3161-1WH			FW-T48-04-2095-7W8
SW-E11-3148-5WD			SW-T48-04-2095-5WD
			FW-T48-04-2095-WSW3
			FW-T48-04-2097-20W21
			FW-T48-04-2097-8W9
			FW-T48-04-2097-18WC
			FW-T48-04-2097-20WD

ASME CODE CLASS

ASME Class 2, Examination Category C-F-2, of the 1989 Edition of ASME Section XI.

ASME SECTION XI REQUIREMENTS

ASME Section XI, Table IWC-2500-1, Examination Category C-F-2, Note (2) states the following:

"The welds selected for examination shall include 7.5%, but not less than 28 welds, of all carbon and low alloy steel welds not exempted by IWC-1220. (Some welds not exempted by IWC-1220 are not required to be nondestructively examined per Examination Category C-F-2. These welds, however, shall be included in the total weld count to which the 7.5% sampling rate is applied.) The examinations shall be distributed as follows:

(a) the examinations shall be distributed among the Class 2 systems prorated, to the degree practicable, on the number of nonexempt carbon and low alloy steel welds in each system (i.e., if a system contains 30% of the nonexempt welds, then 30% of the nondestructive

examinations required by Examination Category C-F-2 should be performed on that system);

(b) within a system, the examinations shall be distributed among terminal ends and structural discontinuities [See Note(3)] prorated, to the degree practicable, on the number of nonexempt terminal ends and structural discontinuities in that system; and

(c) within each system, examinations shall be distributed between line sizes prorated to the degree practicable."

RELIEF REQUESTED

The 1989 Edition of the ASME Code did not include an item number for piping less than 3/8 inch thickness in Category C-F-2; therefore, those welds would not be credited towards the 7.5% selection rate. Whole systems such as Containment Atmosphere Control (T48) or functions of systems that may have thin wall welds (i.e. suction lines, minimum flow lines, spray lines, etc.) would receive no examination based on design wall thickness. The T48 system at Fermi 2 contains 113 welds. These welds would need to be counted in the total population of this category of welds but receive no examination. This would result in skewing the selection in some areas while neglecting other important piping. This would also defeat the purpose of their inclusion in the ISI Program.

The T48 Hydrogen Recombiner welds are part of the containment atmosphere control system. Regulatory Guide 1.26 does not address air systems; however, Detroit Edison included this system in the program due to the possibility that it may contain condensed radioactive liquid in the event it was used. The T48 welds account for more than half of the thin wall examinations.

Detroit Edison is requesting NRC approval of the proposed alternative described below.

PROPOSED ALTERNATIVE AND BASIS FOR RELIEF

Detroit Edison proposes to include the thin wall piping welds in the prorating methodology specified in Table IWC-2500-1, Note (2). A uniform 7.5% sampling rate will be applied to all non-exempt Examination Category C-F-2 piping welds regardless of nominal wall thickness. The examination requirements shall be as follows:

1) 54 welds in piping greater than or equal to 3/8 inch nominal thickness will be subject to volumetric and surface examinations as stated in ASME Section XI.

2) 17 welds in piping less than 3/8 inch thick will be subject to a surface examination only, which is consistent with previous Editions and Addenda of Section XI that required inclusion of the thin wall piping. The reason that ASME Section XI does not include the thin wall piping welds in the 1989 Edition and the reason it does not require volumetric examination in that Edition or in earlier

Editions is because ultrasonic examination cannot usually be performed in the first half 'vee' path due to relatively wide weld crowns in relation to pipe thickness. Additionally, counter bore and weld crown profiles make examinations on reflected portions of the beam unpredictable. Removing the weld crown on these thin welds is not recommended because it could reduce the pipe wall thickness below the minimum requirements.

3) 9 welds of the branch connection code item C5.81 will be included and receive the code required surface examination.

The proposed alternative will result in inspection of thin wall piping welds in all non-exempt systems. The proposed alternative will still result in a minimum of 7.5% of all non-exempt welds and will still result in nearly twice the ASME Code minimum number of 28 selections receiving both surface and volumetric methods specified for Category C-F-2, Item No. C5.51 welds. The percentage of examinations performed with the volumetric examination technique is sufficient to detect any Inside Diameter (ID) initiated degradation mechanisms. However, there are no known ID initiated degradation mechanisms for this thin wall carbon steel piping.

Pursuant to 10 CFR 50.55a(a)(3)(i), NRC approval is requested to use the proposed alternative described above in lieu of the ASME Class 2, Examination Category C-F-2, of the 1989 Edition of ASME Section XI. Compliance with the proposed alternative will provide an adequate level of quality and safety for examination of the affected welds.

APPLICABLE TIME PERIOD

Relief is requested for the Second 10-year interval.

RELIEF REQUEST
RR-A36

COMPONENT FUNCTION/DESCRIPTION

Reactor Pressure Vessel (RPV) flange seal leak detection system, subject to the examination requirements of ASME Section XI, Examination Category B-P, Item B15.11 along with the approved alternative test requirement of ASME Code Case N-498-1.

ASME CODE COMPONENT(S) AFFECTED

Examination Category B-P, Item B15.11 along with the approved alternative test requirement of ASME Code Case N-498-1, for the one inch nominal pipe size (NPS) RPV flange seal leak detection piping.

ASME CODE CLASS

Examination Category B-P of the 1989 Edition ASME Section XI.

ASME SECTION XI REQUIREMENTS

ASME Section XI, Table IWB-2500-1, Examination Category B-P (All Pressure Retaining Components), Item B15.11, requires the performance of a system hydrostatic test in accordance with IWB-5222. The NRC approved the alternative test requirement of ASME Code Case N-498-1which allows the performance of a system leakage test as an alternative to the hydrostatic test.

RELIEF REQUESTED

The 1989 Edition of the ASME Code, Section XI, Table IWB-2500-1, Examination Category B-P, Note 2, and the alternative allowed in paragraph (a)(2) of Code Case N-498-1 both require that the boundary subject to test pressurization during the system pressure test be extended to all Class 1 pressure retaining components. The RPV flange seal leak detection piping is separated from the reactor coolant pressure boundary by one passive membrane, which is an O-ring located on the inner side of the RPV head flange. A second O-ring is located on the outside of the tap in the RPV head flange. Failure of the inner O-ring is the only condition under which this line is pressurized; therefore, the line is not expected to be pressurized during the system pressure test following a refueling outage.

The configuration of this piping precludes system pressure testing when the RPV head is removed because the odd configuration of the RPV flange tap coupled with the high test pressure requirements prevents the tap in the flange from being temporarily plugged or connected to other piping. The opening in the flange is smooth walled, making the effectiveness of a temporary seal very limited. Failure of a temporary test seal could possibly cause ejection of the device used for

plugging the tap or the line connected to the tap. Performance of the system leakage test in accordance with the Code requirements would require a design modification of the RVP flange seal detection piping. This would impose a severe and unnecessary burden.

The current configuration also precludes pressurizing the line with the RPV head installed because the seal prevents complete filling of the piping, which is not equipped with a vent. The RPV head contains two grooves that hold the O-rings. The O-rings are held in place by a series of retainer clips that are housed in recessed cavities in the RPV flange face. If a pressure test were to be performed with the RPV head installed, the inner O-ring would be pressurized in a direction opposite to its design function. This test pressure would result in an inward force on the inner O-ring that would tend to push it into the recessed cavity that houses the retainer clips. The thin O-ring material would very likely be damaged by the inward force. The design of this line makes the ASME Code required system leakage test impractical either with the RPV head installed or removed.

Performing the pressure test with the inner O-ring purposely uninstalled is not recommended since it is different from the design configuration of the RPV and would require additional removal and reinstallation of the RPV head to reinstall the inner O-ring, which would result in additional dose and time.

Detroit Edison is requesting NRC approval of the proposed alternative described below.

PROPOSED ALTERNATIVE AND BASIS FOR RELIEF

The RPV flange seal leak detection line is essentially a leakage collection and detection system. The line would only function as a Class 1 pressure boundary if the inner O-ring fails and pressurizes the line. This will result in a Control Room annunciator alarm. If the annuciator ceases to be in alarm, it would indicate that the outer O-ring or the leak detection line had failed and resulted in a reactor coolant pressure boundary leak. This would require immediate plant shutdown.

Code Article IWA-5243 states: "When leakages from components are normally expected and collected (such as valve stems, pump seals, or vessel flange gaskets), the visual examination VT-2 shall be conducted by verifying that the leakage collection system is operative."

Detroit Edison has implemented a periodic Preventive Maintenance Event (PM Event B564) to pressurize an isolable section of the leak detection line to verify that the pressure switch is functional and in calibration. Performance of this event satisfies the intent of IWA-5243 visual examination requirement of the leakage collection systems.

This line is also inspected during the VT-2 system leakage test. There has been no report of gross structural defect to date. Additionally, the line is filled at static head pressure during refueling outages while the reactor cavity is flooded. Any gross leakage would be easily

detected during drywell entries. The VT-2 is considered to be met by PM Event B564 along with a visual inspection of the line during flood-up.

Based on the above, Detroit Edison has determined that conformance with the ASME Section XI, Examination Category B-P, Item B15.11 along with the alternative test requirement of ASME Code Case N-498-1 for the RPV flange seal leak detection piping is impractical for Fermi 2. Therefore, pursuant to 10 CFR 50.55a(g)(5)(iii), approval is requested to use the proposed alternative described above in lieu of the Code requirement. Compliance with the proposed alternative will provide an adequate level of quality and safety for examination of the RPV flange seal leak detection system.

APPLICABLE TIME PERIOD

Relief is requested for the Second 10-year interval.

PRECEDENT

A similar relief request has been approved for Limerick Generating Station on January 27, 2009.

REFERENCE

NRC Letter dated January 27, 2009, "Limerick Generating Station, Units 1 and 2 – Evaluation of Relief Requests RR-33, RR-34 and RR-35, Associated with the Second Inservice Inspection Interval (TAC Nos. MD8071, MD8073, MD8074, MD8075, and MD8076)"
[ADAMS Accession No. ML090060218]