FirstEnergy®

Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, Ohio 43449-9760

Docket Number 50-346

License Number NPF-3

Serial Number 1-1281

August 9, 2002

Mr. James E. Dyer, Administrator
United States Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, IL 60532-4351

Subject: Replacement of the Reactor Pressure Vessel Head at the Davis-Besse Nuclear Power Station

Ladies and Gentlemen:

The purpose of this letter is to provide the Nuclear Regulatory Commission (NRC) with information regarding the FirstEnergy Nuclear Operating Company (FENOC) plans to replace the Davis-Besse Nuclear Power Station, Unit No. 1 (DBNPS) reactor pressure vessel (RPV) head. On April 25, 2002, FENOC submitted to the NRC letter Serial Number 1-1271 that provided details on repairing the existing degraded RPV head. As the NRC staff was aware, a parallel FENOC effort to the repair plan had been underway since March 2002, evaluating the replacement of the RPV head. Initially, the repair plan was considered the most appropriate course of action. However, as additional information has become available, replacement of the RPV head has become the preferred plan over repairing the existing RPV head.

Recognizing the potential decision to replace the RPV head, the NRC issued a revised Confirmatory Action Letter (CAL) No. 3-02-001A on May 15, 2002, adding a statement to Action Item 4 to address the replacement of the RPV head in lieu of a repair or modification to the existing head. As discussed below, FENOC has submitted three 10 CFR 50.55a requests for alternatives to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) requirements for the replacement head.

FENOC is proceeding with plans to replace the existing RPV head at the DBNPS with a RPV head previously designated for use at the canceled Midland Plant. Similar to the DBNPS, the Midland Plant was a 177-fuel assembly Babcock & Wilcox Company (now Framatome-ANP) design. These plans to replace the existing DBNPS RPV head with the never-used Midland RPV head were presented to the NRC at a public meeting on June 4, 2002.

The Midland RPV head is being purchased from Framatome-ANP (FRA-ANP), who in turn has purchased the head from Consumers Energy, the owner of the Midland Plant. The Midland RPV head is an ASME Code Section III Class A component, certified with an ASME Code N-stamp. FRA-ANP is providing FENOC with the required documentation, supplemental examinations, analyses and ASME Code reconciliation necessary to ensure the original ASME Code N-Stamp documentation remains valid, and that the Midland RPV head complies with appropriate NRC rules and industry requirements. ASME Code related records for the Midland RPV head are located at the Framatome-ANP offices in Lynchburg, Virginia, and at the DBNPS site.

FRA-ANP activities will be governed by their safety-related Quality Assurance Program, including 10 CFR Part 21. The procurement of the RPV head by FRA-ANP from Consumers Energy is also subject to Part 21. In addition, the Authorized Nuclear Inservice Inspector (ANII), as described in Note 1 to Enclosure 1 of this letter, will be involved in various activities related to acceptance, installation and modification of the Midland RPV head.

As discussed in Enclosure 1 to this letter, licensing action requests RR-A26 and RR-A27 (reference: letter Serial Number 2797, dated August 1, 2002) have been submitted pursuant to 10 CFR 50.55a to address the unavailability of the original radiographic film and reader's sheets for the replacement head-to-flange weld and control rod drive nozzle-to-flange welds.

Like the DBNPS RPV head, the Midland RPV head was manufactured to the ASME Code, Section III, 1968 Edition, Summer 1968 Addenda. Following its manufacture, the Midland RPV head was hydrostatically tested at 3125 psig per ASME Code requirements.

The DBNPS service structure will be mounted on the Midland service structure support skirt. Inspection ports have been installed on the Midland support skirt to facilitate future RPV head inspections. In addition, minor differences in the Midland RPV head O-ring grooves will require new O-rings with a slightly smaller diameter to be procured and installed. Minor machining of the vessel-to-head keyway surfaces will also be performed for proper fit.

The existing DBNPS control rod drive mechanisms (CRDM) will be reused on the Midland RPV head. With the use of the Midland RPV head, modifications to the position locations of the CRDMs is not expected to be required. A modification to the CRDM flange index pins will be performed to provide for proper mating of the CRDM flange joint with the DBNPS CRDMs. A modification will also be performed to the CRDM split nut rings to provide ease of maintenance and to improve leak tight integrity of the flanged joint. This split nut ring modification had been previously performed on the DBNPS split nut rings. The changes discussed above and other changes are minor. They do not involve any change in the DBNPS Operating License Technical Specifications, and do not require a license amendment under 10 CFR 50.59.

Following cessation of construction at Midland, the Midland RPV head was left in an environment that was not subject to a quality assurance program under Appendix B to 10 CFR Part 50. This fact has been identified as a nonconformance, and is being resolved in accordance with the corrective action program of FRA-ANP. The examinations discussed below will be used to resolve this nonconformance and ensure the RPV can perform its design function.

Examinations to supplement the ASME Code Data Packages include visual examinations, radiograph technique (RT) examination of the head-to-flange weld, RT and liquid penetrant technique (PT) examination of the CRDM flange-to-nozzle welds and PT of the CRDM nozzle J-groove welds. Pre-service examinations in accordance with ASME Code Section XI requirements will be completed and include magnetic particle examination (MT) of the head-to-flange weld, ultrasonic examination (UT) of the head-to-flange weld, and PT of the peripheral CRDM flange-to-nozzle welds. Additional non-destructive examinations include chemical smears, CRDM nozzle baseline UT and eddy current testing (EC) of the CRDM nozzles. A listing of the documentation included in the ASME Code Section III (construction) and Section XI (pre-service inspection) data packages is included as Enclosure 2.

The existing DBNPS reactor vessel closure studs, nuts and washers will be used to install the replacement RPV head. Each refueling outage 12 of the 60 existing DBNPS reactor vessel closure studs, nuts and washers are examined in accordance with the DBNPS Inservice Inspection Program to ensure their acceptability for use. This results in 100% of the closure studs, nuts and washers being inspected during a 10-year period. These inspections include UT and MT of the closure studs, and visual inspection (VT-1) of the nuts and washers. In addition, an evaluation will be performed by FRA-ANP to verify the design acceptability to use the existing DBNPS reactor vessel closure fasteners with the replacement Midland RPV head.

Enclosure 1 to this letter provides a discussion of implementation of the 1995 Edition with 1996 Addenda of the ASME Code, Section XI, IWA-4000, Repair/Replacement Activities, which governs the replacement of the RPV head at the DBNPS, along with details regarding the involvement of the ANII.

Following the completion of the installation of the replacement RPV head, the Reactor Coolant System will be filled and vented, and a visual inspection performed for leakage. System temperature will be less than 200 degrees F. The plant will then be brought to normal operating temperature and pressure (approximately 2155 psig) using Reactor Coolant Pump heat, and a second visual inspection performed for leakage. Prior to reactor restart, the safety and regulating control rod drop times will be measured pursuant to Technical Specification 3.1.3.4, "Reactivity Control Systems - Rod Drop Time".

The DBNPS Containment Vessel and Shield Building will require a temporary access opening in order to remove the existing RPV head and install the replacement RPV head. The current plan is to remove the existing DBNPS RPV head and temporarily store it on site until it can be properly disposed of at a licensed disposal facility. The temporary access opening in the Containment Vessel and Shield Building will be restored to design specifications and regulatory requirements. After restoration of the Containment Vessel, a 10 CFR Part 50, Appendix J, Type A Integrated Leak Rate Test will be performed.

Regarding related licensing action requests previously submitted to the NRC, FENOC has, under separate letters (letter Serial Number 2793 dated June 14, 2002, letter Serial Number 2794 dated June 14, 2002 and letter Serial Number 1-1276 dated June 14, 2002) requested the suspension of the current licensing action requests (repair plan and 10 CFR 50.55a approvals) for the repair of the existing RPV head.

As requested by the NRC, the Inservice Inspection Program for the Third Ten-Year Interval (letter Serial Number 2672 dated September 19, 2000, currently under review by the NRC) has been reviewed with regards to changes needed for use of the Midland RPV head. In particular, 10CFR50.55a requests RR-A8 (examination of the reactor vessel flange-to-shell circumferential weld (weld number RC-RPV-WR-19) using the Performance Demonstration Initiative protocol) and RR-A12 (examination schedule for the reactor vessel shell-to-flange circumferential weld (weld number RC-RPV-WR-19)) have been reviewed and FENOC has determined these remain appropriate with regards to the use of the replacement RPV head. FENOC continues to request NRC approval of these 10 CFR 50.55a requests. A revision to existing 10 CFR 50.55a request RR-A2 (reactor vessel head-to-flange weld (weld number WH-7)) was submitted under letter Serial Number 2798, dated August 1, 2002, to reflect the Midland RPV head.

If you have any questions or require additional information at this time, please contact Mr. Patrick J. McCloskey, Manager – Regulatory Affairs, at (419) 321-8450.

Very truly yours,

Lew W. Myers
Chief Operating Officer
FirstEnergy Nuclear Operating Company

Enclosures

cc: USNRC Document Control Desk
D.V. Pickett, DB-1 NRC/NRR Project Manager
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Utility Radiological Safety Board

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
IWA-4100	GENERAL REQUIREMENTS	
IWA-4110	**SCOPE**	
IWA-4110(a)	The requirements of this Article apply regardless of the reason for the repair/replacement activity or the method that detected the condition.	The requirements of IWA-4000 will be applied to the installation of the Midland RPV head.
IWA-4110(b)	This Article provides requirements for repair/replacement activities associated with pressure retaining components and their supports, ... These requirements are applicable to procurement, design, installation, examination, and pressure testing of items within the scope of this Division.	The requirements of IWA-4000 will be applied to the installation, preservice examination, and pressure testing of the Midland RPV head.
IWA-4110 (c)	This Article provides requirements for repair/replacement activities performed on concrete containments	Not Applicable
IWA-4110(d)	This Article does not provide requirements for addition of complete systems.	The requirements of IWA-4000 are applicable to the installation of the Midland RPV head as the RPV head does not represent a complete system.
IWA-4120	**APPLICABILITY**	
IWA-4120(a)	The requirements of this Article apply to items classified by the Owner in accordance with IWA-1400(a) as Code Class 1, 2, 3, MC, or CC, and associated supports.	The Davis-Besse RPV head is Code Class 1.
IWA-4120(b)	The requirements of this Article do not apply to the following, except as provided in IWA-4120(c) through (g).	The exemptions of the IWA-4120(b) are not applicable to the RPV head.
IWA-4120(c)	When repair/replacement activities are performed on items identified in IWA-4120(b)	The exemptions of the IWA-4120(b) are not applicable to the RPV head.
IWA-4120(d)	If items in IWA-4120(b)(6) are replaced	The exemptions of the IWA-4120(b) are not applicable to the RPV head.
IWA-4120(e)	If items in IWA-4120(b) require welding	The exemptions of the IWA-4120(b) are not

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
	....	applicable to the RPV head.
IWA-4120(f)	Applicable Construction Code requirements, such as ...., shall be met for items identified in IWA-4120(b).	The exemptions of the IWA-4120(b) are not applicable to the RPV head.
IWA-4120(g)	Appendix J provides guidance in determining applicability of this Article.	The requirements of IWA-4000 are applicable to the installation of the Midland RPV head.
IWA-4130	**ALTERNATIVE REQUIREMENTS**	
IWA-4131	Small Items	This paragraph is not applicable to the installation of the Midland RPV head.
IWA-4132	Items Rotated From Stock	This paragraph is not applicable to the installation of the Midland RPV head.
IWA-4140	**RESPONSIBILITIES**	
IWA-4141	Owner's Responsibility It is the responsibility of the Owner to provide or cause to be provided the following:	
IWA-4141(a)	Repair/Replacement Program and Plans required by IWA-4150.	The Midland RPV head will be installed on the Davis-Besse Reactor Vessel using the Davis-Besse and Framatome ANP Repair/Replacement Programs and Plans which meet the requirements of IWA-4150.
IWA-4141(b)	Specification requirements for repair/replacement activities.	FirstEnergy Purchase Order 7094336 requests Framatome ANP to procure and certify that the Midland RPV head meets the requirements of ASME Section III, Class A, 1968 Edition, Summer 1968 Addenda.
IWA-4142	**Repair/Replacement Organization's Quality Assurance Program**	
IWA-4142(a)	The organization that performs repair/replacement activities shall establish a Quality Assurance Program for control of their activities in accordance with the Repair/Replacement	

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
	Program and Plans. The Quality Assurance Program shall comply with either of the following:	
IWA-4142(a)(1)	IWA-1400(n), when the Owner is the Repair/Replacement Organization.	The FENOC Quality Assurance Program and the Davis-Besse ASME Quality Assurance Manual (Davis-Besse Nuclear Repair (NR) Program) will be used during installation of the Midland RPV head. These programs are in accordance with IWA-1400(n).
IWA-4142(a)(2)	When the Repair/Replacement Organization is other than the owner, the Repair/Replacement Organization's Quality Assurance Program shall be documented and shall comply with the applicable quality assurance program criteria of 10CFR50 Appendix B supplemented as necessary to be consistent with the Owner's Quality Assurance Program; NQA-1, Parts II and III, Basic Requirements and Supplements; or NCA-4000. The Repair/Replacement Organization's Quality Assurance Program shall be documented in sufficient detail for the Owner to assure that the requirements of this Article will be met for the activities to be performed. The program shall be reviewed and accepted by the Owner.	The procurement and certification that the Midland RPV head meets the requirements of ASME Section III, Class A, 1968 Edition, Summer 1968 Addenda are being performed in accordance with the Framatome ANP Safety Related QA Program which is in compliance with 10CFR50 Appendix B. Supplemental NDE is being performed in accordance with the Framatome ANP Safety Related QA Program. Replacement of the Davis-Besse RPV head with the Midland RPV head as well as any modifications to the pressure retaining portions of the Midland RPV head are being performed in accordance with the Framatome ANP Nuclear Repair (NR) Program. Both the Framatome ANP Safety Related QA Program and the Framatome ANP NR Program have been reviewed and accepted by FENOC.
IWA-4142(b)	When the performance of repair/replacement activities is split between the Owner and a Repair/Replacement Organization, each organization's Quality Assurance Program shall comply with IWA-4142(a)(1) or (a)(2) for their respective activities. The Owner shall be responsible for establishing interfaces and for assuring that the requirements of this	As noted above the Framatome ANP Safety Related Quality Assurance Program will be used to procure, perform supplemental NDE, and perform any required modifications to the non-pressure retaining portions of the Midland RPV head. The Framatome ANP NR Program will be used to install and perform any required modifications to the pressure retaining portions of the Midland RPV head.

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
	Article are met by the combination of the two Quality Assurance Programs.	An engineering work package will be prepared in accordance with the FENOC QA Program and Davis-Besse NR Program to provide the engineering requirements related to installation of the Midland RPV head on the Davis-Besse Reactor Vessel.
IWA-4143	Stamping for Installation Application of the ASME NA Symbol Stamp is neither required or prohibited for installation. When stamping is performed it may be performed by either of the following: (a) the Owner, provided the Owner is in possession of the appropriate Certificate of Authorization; (b) the Owner's designee, provided the designee is in possession of the appropriate Certificate of Authorization.	No Code Symbol Stamp will be applied following installation of the Midland RPV head. As noted above, the Framatome ANP NR and the Davis-Besse NR Programs will be used during the installation of the Midland RPV head. Framatome ANP holds National Board Certificate of Authorization NR-64. Davis-Besse holds National Board Certificate of Authorization NR-20.
IWA-4150	**REPAIR/REPLACEMENT PROGRAM AND PLAN**	
IWA-4150(a)	Repair/replacement activities shall be completed in accordance with the Repair/Replacement Program. The Program is a document or set of documents that defines the managerial and administrative control for completion of the repair/replacement activities.	The installation, including any modifications to the Midland RPV head will be performed in accordance with the Framatome ANP NR Program. The engineering work package for the installation of the Midland RPV head will be performed under the FENOC QA Program Manual and the Davis-Besse NR Program.
IWA-4150(b)	The Edition and Addenda of Section XI used for the Repair/Replacement Program shall correspond with the Edition and Addenda identified in the inservice inspection program applicable to the inspection interval. Alternatively, ...	Davis-Besse is in its Third 10-Year Inservice Inspection Interval. The Code Edition of ASME Section XI applicable to this interval is the 1995 Edition, through the 1996 Addenda. This same Code Edition will be used for the installation and any modifications to the Midland RPV head.
IWA-4150(c)	As part of the Repair/Replacement Program, repair/replacement activities shall be accomplished in accordance with Repair/Replacement Plans that include the essential requirements for completion of the repair/replacement activities. A	The Repair/Replacement Plans will be documented in the engineering and field work packages prepared for the installation of the Midland RPV head. An engineering work package will be prepared in accordance with the Davis-Besse NR Program to document the technical requirements

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
	Repair/Replacement Plan shall identify the following:	for the installation of the Midland RPV head. Framatome ANP will provide engineering expertise in the development of the engineering work package. The engineering and field work packages will address the activities addressed in IWA-4150(c).
IWA-4150(d)	The Repair/Replacement Program, Plans, and evaluations required by IWA-4160 shall be subject to review by enforcement and regulatory authorities having jurisdiction at the plant site.	The documents will be available for review by the NRC and State of Ohio.

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
IWA-4160	VERIFICATION OF ACCEPTABILITY If an item does not satisfy the requirements of this Division, the Owner shall determine the cause of unacceptability. Prior to returning the item to service the Owner shall evaluate the suitability of the item subjected to the repair/replacement activity. If the requirements for the original item are determined to be deficient, appropriate corrective provisions shall be included in the Owner's Requirements and Design Specification, as applicable. Any such corrective provisions shall be consistent with the Construction Code or Section III, in effect at that time. The report of the evaluation shall be made part of the record (IWA-4180).	The Verification of Acceptability will be included in the engineering work package for the installation, including modifications of the Midland RPV head.
IWA-4170	INSPECTION The services of an Authorized Inspection Agency shall be used. The Owner shall notify the Authorized Inspection Agency prior to starting a repair/replacement activity and keep the Inspector informed of progress so that necessary inspections may be performed.	The Authorized Nuclear Inservice Inspector (ANII) reviews all Framatome ANP process travelers, including revisions thereto, to establish hold/witness points. To date, the site ANII has been, and will be actively involved in the acceptance, installation, and modifications to the Midland RPV head. Note 1 provides a listing of activities with which the ANII has been or will be involved with.
IWA-4180	**Documentation**	
IWA-4180(a)	The reports and records required by IWA-6000 shall be completed for all repair/replacement activities.	The records, as applicable to the installation and modification of the Midland RPV head on the Davis-Besse Reactor Vessel will be retained in the Davis-Besse Records Management System. The data package demonstrating compliance with the original Construction Code will be compiled by Framatome ANP and retained in the Davis-Besse Records Management System. (See Note 2)

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
		The replacement of the Davis-Besse RPV head will be included in the summary report required by IWA-6230.
IWA-4180(b)	The following reports and records shall, to the extent required by the Construction Code, Owner's Requirements, and this Article, be maintained by the Owner, as applicable: (1) Design Specification	The following records will be included in the engineering work package for the installation of the Midland RPV head on the Davis-Besse Reactor Vessel. 1. Report of Reconciliation 2. Verification of Acceptability (IWA-4160) 3. Applicability and disposition of Midland RPV head nonconformances to Davis-Besse 4. Updates, as necessary, to the Davis-Besse Design Report, Design Drawings, and Design Specification A Midland RPV head QA Documentation Package with Manufacturer's Data Report, Material Certifications, and fabrication records will be furnished.
IWA-4180(c)	Revisions or updates to existing reports, records, and specifications shall be traceable to and from the original record or report to provide a record of the current status of the item. The review and certification requirements for these revisions or updates shall be in accordance with the Owners' Requirements and the Construction Code.	Updates, as necessary, to the Davis-Besse Design Report, Design Drawings, and Design Specification will be included in the engineering work package. These documents will be updated after installation of the Midland RPV head during closeout of the engineering work request. Framatome ANP will certify that the Midland RPV head meets the requirements of ASME Section III, Class A, 1968 Edition, Summer 1968 Addenda.
IWA-4180(d)	Form NIS-2 shall be completed for all repair/replacement activities	Form NIS-2 will be prepared to document the repair/replacement activities.
IWA-4200	**ITEMS FOR REPAIR/REPLACEMENT ACTIVITIES**	
IWA-4210	GENERAL REQUIREMENTS In course of preparation.	
IWA-4220	**CODE APPLICABILITY**	

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
IWA-4221	**Construction Code and Owner's Requirements**	
IWA-4221(a)	An item to be used for repair/replacement activities shall meet the Owner's Requirements and the applicable Construction Code to which the original item was constructed, except as provided in IWA-4221(b) and (c).	The Davis-Besse RPV head was fabricated as a Class A vessel to the 1968 Edition, Summer 1968 Addenda of ASME Section III. The Midland RPV head was also fabricated as a Class A vessel to the 1968 Edition, Summer 1968 Addenda of ASME Section III. RR-A26 and RR-A27 have been submitted to address the unavailability of the original radiographic film and reader's sheets for the replacement RPV head-to-flange weld and CRDM nozzle-to-flange welds.
IWA-4221(b)	The item may meet all or portions of the requirements of different Editions and Addenda of the Construction Code, ...	This paragraph is not applicable. Both the Davis-Besse and Midland RPV head's were fabricated to the same Code Editions and Addenda.
IWA-4221(c)	Revised Owner's Requirements may be used provided they are reconciled in accordance with the IWA-4222. A Report of Reconciliation shall be prepared.	The Midland RPV head Design Specification will be reconciled with the Davis-Besse RPV head Design Specification in accordance with IWA-4222. The Report of Reconciliation will be included in the engineering work package.
IWA-4222	**Reconciliation of Code and Owner's Requirements**	
IWA-4222(a)	Code Requirements and Owner's Requirements may be technical or administrative	
IWA-4222(a)(1)	Only technical requirements that could affect materials, design, fabrication, or examination, and affect the pressure boundary, or core support or component support function, need be reconciled.	The Midland RPV head will be reconciled with the Davis-Besse RPV head. This will include: 1. Reviews and evaluations to confirm that materials, fabrication, and examination techniques are consistent between the two RPV heads 2. Reviewing any Midland RPV head non-conformances for applicability to Davis-Besse and dispositioning these non-conformances for Davis-Besse 3. Comparing the Midland and Davis-Besse Design Specifications, Design Reports, and

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
		Drawings to identify and resolve any differences. 4. Reconciliation of all dimensional differences between the Midland RPV head and the Davis-Besse RPV head. The results of the reconciliation will be included in the engineering work package. Any modifications to the Midland RPV head will be documented in Framatome ANP modification packages and implemented via either the Framatome Safety Related QA Program (for non-pressure boundary modifications) or the Framatome NR Program (for pressure boundary modifications).
IWA-4222(a)(2)	Administrative requirements, i.e. those that do not affect the pressure boundary or core support or component support function, need not be reconciled. Examples of such requirements include quality assurance, certification, Code Symbol Stamping, Data Reports, and Authorized Inspection.	See Note 2.
IWA-4222(b)	The administrative requirements of either the Construction Code of the item being replaced or the Construction Code of the item to be used for replacement shall be met.	Both the Midland RPV head and the Davis-Besse RPV head were fabricated to the 1968 Edition, Summer 1968 of ASME Section III. The signature on the Manufacturer's Data Report (Form N-1A) by B&W and the Authorized Nuclear Inspector certify that the Code Requirements, including the administrative requirements have been met.
IWA-4223	**Reconciliation of Components**	
IWA-4223(a)	Reconciliation of later Editions and Addenda	This paragraph is not applicable. Both the Davis-Besse and Midland RPV heads were fabricated to the same Code Editions and Addenda.
IWA-4223(b)	An earlier Edition and Addenda	This paragraph is not applicable. Both the Davis-Besse and Midland RPV heads were fabricated to the same Code Editions and Addenda.
IWA-4224	**Reconciliation of Material**	This paragraph is not applicable. The RPV head is considered a piece of the component, Reactor

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
		Vessel.
IWA-4225	**Reconciliation of Parts, Appurtenances, and Piping Subassemblies**	This paragraph is not applicable. The RPV head is considered a piece of the component, Reactor Vessel.
IWA-4226	Reconciliation of Design Requirements	
IWA-4226.1	**Design to All Requirements of a Later Edition or Addenda of the Construction Code.**	This paragraph is not applicable. Both the Davis-Besse and Midland RPV heads were designed to the same Code Editions and Addenda.
IWA-4226.2	**Design to Portions of the Requirements of a Later Edition or Addenda of the Construction Code.**	This paragraph is not applicable. Both the Davis-Besse and Midland RPV heads were designed to the same Code Editions and Addenda.
IWA-4300	DESIGN	
IWA-4310	**GENERAL REQUIREMENTS**	
IWA-4311	Material, Design, or Configuration Changes When a change is made to the design or configuration of an item or system, including material substitution, the change shall meet the following requirements:	The installation of the Midland RPV head, including any modifications are being reconciled in accordance with IWA-4220. Included in this reconciliation is a review to determine if analyses need revised.
IWA-4312	Rerating The provisions of this paragraph shall apply for rerating	This paragraph is not applicable. Rerating is not being performed.
IWA-4320	**Piping**	This paragraph is not applicable.
IWA-4400	**WELDING, BRAZING, METAL REMOVAL, AND INSTALLATION**	No welding or brazing activities are planned on the pressure retaining portions of the Midland RPV head. Metal removal, when necessary, will be conducted in accordance with the Framatome ANP NR Program.
IWA-4500	**EXAMINATION AND TEST**	
IWA-4510	GENERAL REQUIREMENTS (In course of preparation)	

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
IWA-4520	**EXAMINATION**	
IWA-4520(a)	Welding or brazing areas and welded joints made for installation	No welding or brazing activities are planned on the pressure retaining portions of the Midland RPV head nor its installation on the Reactor Vessel.
IWA-4520(b)	Welding, brazing, or metal removal areas associated with flaw correction	No welding, brazing, or metal removal activities to correct flaws are planned. Should any such activities be required on the pressure retaining portions of the Midland RPV head, they will be performed in accordance with the Framatome ANP NR Program.
IWA-4520(c)	These examinations may be performed concurrently with the preservice inspections required by IWA-4530.	No examinations related to this section are planned.
IWA-4530	**PRESERVICE INSPECTION AND TESTING**	
IWA-4530(a)	When portions of items requiring preservice or inservice inspection are affected by repair/replacement activities, or for items being installed, including welded joints made for installation of items, preservice inspections shall be performed in accordance with IWB-2200, IWC-2200, IWD-2200, IWE-2200, IWF-2200, or IWL-2200 prior to return of the system to service. The preservice inspection may be performed either prior to or following the pressure test required by IWA-4540.	The following preservice examinations are being performed on the Midland RPV head. 1. UT of the head-to-flange weld (Code Item No. B1.40). The UT examination of this weld is limited due to the lifting lugs, directional arrow, and the configuration of the weld. Request RR-A2 is being revised to reflect this limitation.. 2. MT of the head-to-flange weld (Code Item No. B1.40). 3. PT of the peripheral CRDM nozzle body-to-flange welds (Code Item No. 14.10).
IWA-4530(b)	Prior to returning a valve to service	This paragraph is not applicable.
IWA-4530(c)	During the first inservice test performed after a pump is put into service	This paragraph is not applicable.
IWA-4530(d)	For repair/replacement activities on a snubber	This paragraph is not applicable.

ARTICLE IWA-4000 REPAIR/REPLACEMENT ACTIVITES		
Code Paragraph	**Code Requirement – ASME Section XI, 1995 Edition through the 1996 Addenda**	**Discussion**
IWA-4540	**PRESSURE TESTING OF CLASS 1, 2, AND 3 ITEMS**	
IWA-4540(a)	After welding on a pressure retaining boundary or installation of an item by welding or brazing, a system hydrostatic test shall be performed in accordance with IWA-5000.	The Midland RPV head was hydrostatic tested to 3125 psig after fabrication in accordance with ASME Code requirements. No welding or brazing activities are planned on the pressure retaining portions of the Midland RPV head nor its installation on the Reactor Vessel. Therefore additional hydrostatic testing is not required.
IWA-4540(b)	The following may be exempted from the system hydrostatic tests:	As noted in IWA-4540(a), additional hydrostatic testing is not required.
IWA-4540(c)	Mechanical joints made in installation of pressure retaining items shall be pressure tested in accordance with IWA-5211(a). Mechanical joints for component connections, piping, tubing (except heat exchanger tubing), valves, and fittings, NPS-1 and smaller, are exempt from the pressure test.	A system leakage test as required by IWA-5211(a) will be performed while in Mode 3 at full Reactor Coolant System temperature and pressure.
IWA-4550	CLASS MC AND METALLIC PORTIONS OF CLASS CC CONTAINMENTS	This paragraph is not applicable.
IWA-4600	**ALTERNATIVE WELDING REQUIREMENTS**	No welding activities are planned on the pressure retaining portions of the Midland RPV head.
IWA-4700	**HEAT EXCHANGER TUBING**	This paragraph is not applicable.

Note 1: The ANII has been or will be involved in the following activities related to acceptance, installation, and modification of the Midland RPV head.

1. Review and acceptance of the Midland RPV head documentation package prepared by Framatome ANP.
2. Witnessing RPV flange-to-dome weld radiography, including review and acceptance of the radiographs.
3. Witnessing CRDM flange-to-nozzle welds (69 welds) radiography. Also, reviewing and accepting these radiographs.
4. Review and acceptance of the PT exams of all 69 J-groove welds.
5. Review and acceptance of the PT exams of all 69 CRDM flange-to-nozzle welds.
6. Review and acceptance of the PT exams of the clad inspection sampling areas.

7. Review and acceptance of the Framatome ANP Process Traveler for the Modification and Preparation of Midland RPV head. This step includes the establishment of ANII Hold Points associated with traveler NDE sequences.
8. Witness, review and accept all future revisions to the Process Traveler sequences.
9. Review and acceptance of NDE Procedures used on the Midland Head Project.
10. Review and acceptance of NDE Personnel Certifications for NDE examiners working at Midland or Davis-Besse.
11. Final Review and Closeout of the Framatome ANP Process Traveler when activities are completed.
12. Final review and acceptance of Framatome ANP "NR-1" Form and Certificate of Conformance.

Note 2: The Midland RPV head is an ASME Section III Code Stamped Class A Vessel meeting the requirements of the 1968 Edition, Summer 1968 Addenda of ASME Section III. This is attested to by the Manufacturer's Data Report for Nuclear Vessels (Form N-1A) for the Midland Reactor Vessel, of which the RPV head is a piece. This Manufacturer's Data Report is signed by both Babcock & Wilcox (B&W) and the Authorized Nuclear Inspector indicating that all 1968 Edition, Summer 1968 Addenda ASME Section III design, fabrication, and examination requirements have been met. It should be noted that the original radiographic film and reader's sheets for the Midland RPV head center disc-to-flange weld (also called head-to-flange weld) and the CRDM nozzle body-to-flange welds are not available. However, a log indicating the performance and acceptance of the radiographs is available. This, coupled with the signed Manufacturer's Data Report signifying compliance with ASME Section III, provides assurance that the radiographic examination of the RPV head head-to-flange weld and the CRDM nozzle body-to-flange welds were performed and accepted. Request RR-A26 was submitted to address the unavailability of the original radiographic film and reader's sheets for the replacement RPV head head-to-flange weld.

Upon cessation of construction activities at Midland, the Midland RPV head was left in an environment not subject to a 10 CFR 50, Appendix B quality assurance program. To assess the health of the Midland RPV head, FENOC is performing an extensive sequence of inspections and nondestructive examinations. These inspections include:

1. A visual examination of the entire RPV head to identify any signs of degradation or evidence of welding while the RPV head was in storage.
2. RT of the center disc-to-flange weld. RT of this weld is limited by the three lifting lugs that were installed after the construction radiograph. These lugs limited the examination to approximately 95% of the weld surface.
3. RT and PT of the CRDM flange-to-nozzle welds.
4. PT of the CRDM clad inspection sampling areas.
5. PT of the CRDM nozzle to RPV head J-groove welds.
6. EC of the CRDM nozzle internal surfaces.
7. UT of the CRDM nozzles to include the area up to and including the portion extending through the RPV head base material.
8. UT and MT of the RPV head head-to-flange weld to satisfy the preservice examination requirements

MIDLAND REPLACEMENT REACTOR PRESSURE VESSEL CLOSURE HEAD
ASME B&PV CODE SECTION III DATA PACKAGE

1. Quality Assurance Certification Records
   a. B&W Manufactured Equipment Supplier Certificate of Conformance
   b. Form N-1A Manufacturers' Data Report for Nuclear Vessels
   c. Section III Code Data Stamp Rubbing
   d. Certification of Meeting Design Specifications and ASME Code Section III, 1968 Edition, Summer 1968 Addenda
2. Contract Variations and Original Disposition*
3. Weld Numbers and Records of Radiographic and Surface Examinations
   (Note: Radiographic film is not available.)
   a. Weld No. 7: Closure Head to Head Flange Weld (RT/MT)
   b. Weld No. 9: CRDM Body to Stainless Steel Flange Weld (RT/PT)
   c. Weld No. 13: J-Groove Buttering Weld (PT)
   d. Weld No. 15: Service Structure Segments to Closure Head Weld (MT)
   e. Weld No. 17: Lift Lug to Closure Head Weld (MT)
   f. Weld No. 25: CRDM Nozzle J-Groove Weld (PT)
   g. Weld No. 27: Arrow to Closure Head Weld (PT)
4. Record of Section III Hydrostatic Test
5. As-Built Drawings of Closure Head to Satisfy Equipment Specification
6. List of Technical Procedures
7. List of Materials, including Post Weld Heat Treat Times
8. Certified Material Test Reports
   a. Closure Head Flange
   b. Closure Head (Center Disc)
   c. CRDM Nozzle Body
   d. CRDM Stainless Flange
   e. CRDM Split Nut Rings
   f. Closure Head Lift Lug
   g. Service Structure Segments
9. Weld Material Records
   a. CRDM J-Groove Buttering
   b. CRDM J-Grooves
   c. Weld No. 7: Closure Head to Head Flange Weld
   d. Weld No. 17: Lift Lug to Closure Head Weld
   e. Weld No. 15: Service Structure Segments to Closure Head Weld
   f. Weld No. 27: Arrow to Closure Head Weld

*The variations which affected the Midland closure head will be reconciled to the Davis-Besse design requirements in the Section XI reconciliation phase. These variations were acceptable for Midland and the Davis-Besse requirements are similar to the Midland requirements.

MIDLAND REPLACEMENT REACTOR PRESSURE VESSEL CLOSURE HEAD
ASME B&PV CODE SECTION XI DATA PACKAGE

1. Framatome ANP Certificate of Compliance

2. Framatome ANP NR-1 Form for Section XI Modifications

3. Midland Closure Head Dedication Plan

4. Applicable Documents Listing including List of Non-Destructive Examination Procedures

5. Signature Log

6. Completed Framatome ANP Process Traveler for Modification and Preparation of the Midland RVCH which includes the following records:
   a. Liquid Penetrant (PT) Examination Records of all CRDM J-Groove Welds (Weld WH-26)*
   b. Ultrasonic Examination (UT) Examination Records of all CRDM Nozzles*
   c. PT Examination Records of Cladding Inspection Sampling Areas*
   d. PT* and Radiographic* (RT) Examination Records of all 69 CRDM Flange-to-Nozzle Welds (Weld No. WH-9)
      Note: The PT examination of the Peripheral CRDM Flange-to-Nozzle Welds satisfied the Section XI Preservice Examination Requirements
   e. RT* Examination Records of Closure Head-to-Flange Weld (Weld No. WH-7)
   f. Magnetic Particle (MT) of the Lifting Lug Attachment Welds*
   g. UT and MT Examination Records of the Closure Head-to-Flange Weld (Weld No. WH-7) to satisfy Section XI Preservice Examination Requirements
   h. Modification of CRDM Index Pin Hole Plugs
   i. Modification of the CRDM Nut Rings
   j. Machining of keyways
   k. Eddy Current (EC) Records of all 69 CRDM Nozzles*
   l. 100% Visual Inspection of Closure Head*

7. Nonconformance Reports

*Supplemental examination

COMMITMENT LIST

The following list identifies those actions committed to by the Davis-Besse Nuclear Power Station (DBNPS) in this document. Any other actions discussed in the submittal represent intended or planned actions by the DBNPS. They are described only for information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs (419-321-8450) at the DBNPS of any questions regarding this document or associated regulatory commitments.

COMMITMENTS	DUE DATE
The Authorized Nuclear Inservice Inspector (ANII), as described in Note 1 to Enclosure 1, will be involved in various activities related to acceptance, installation, and modification of the Midland RPV head.	Ongoing
An evaluation will be performed by Framatome-ANP to verify the design acceptability to use the existing DBNPS reactor vessel closure fasteners with the replacement Midland RPV head.	Prior to restart
After restoration of the Containment Vessel, a 10 CFR Part 50, Appendix J, Type A Integrated Leak Rate Test will be performed.	Prior to restart