

Duquesne Light Company

Beaver Valley Power Station
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July 29, 1998

L-98-163

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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

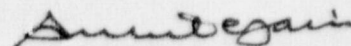
**Subject: Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, License No. NPF-73
Response to Request for Additional Information Regarding Review of the
Second 10-Year Interval Inservice Inspection (ISI) Program Plan and
Associated Relief Requests (TAC No. MA0333)**

This submittal forwards the Duquesne Light Company response to the NRC request for additional information (RAI) dated June 1, 1998, regarding the Beaver Valley Unit No. 2 (BV-2) Second Ten-Year ISI Plan. The RAI resulted from the NRC review of the December 9, 1997 submittal of the BV-2 Second Ten-Year Interval ISI Plan and associated relief requests.

The enclosure provides the restatement of the NRC questions (RAI Items 1 through 9, J and K), followed by a response to each.

If you have any questions regarding this submittal, please contact Mr. S. Hobbs at (412) 393-5203.

Sincerely,



Sushil C. Jain

c: Mr. D. S. Brinkman, Sr. Project Manager
Mr. D. M. Kern, Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator
Mr. M. T. Anderson, INEEL Research Center

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ENCLOSURE

Response to NRC Request for Additional Information Second 10-Year Interval Inservice Inspection Program Plan and Associated Relief Requests

Question 1:

The licensee's submittal includes an implementation schedule for performance of examinations as required by IWA-2420(b). To determine compliance with Tables IWB-2412-1, IWC-2412-1, and IWD-2412-1, it is necessary to know the total number of components eligible for examination as well as the total number of components to be examined. Provide an examination summary that includes each Examination Category, the total number of components in each category, and the total number of examinations to be performed in periods 1, 2 and 3 for each Examination Category.

Response 1:

See attachment titled, "Beaver Valley Power Station Unit 2 ASME XI Percentage Reconciliation," dated 12/17/97.

Question 2:

In accordance with 10 CFR 50.55a(c)(3), 10 CFR 50.55a(d)(2), and 10 CFR 50.55a(e)(2), ASME Code cases may be used as alternatives to Code requirements. Code cases that the NRC has approved for use are listed in Regulatory Guide 1.147, Inservice Inspection Code Case Acceptability, with any additional conditions that the NRC may have imposed. When used, these Code cases must be implemented in their entirety. The licensee may adopt an approved Code case by notifying the NRC in writing. Published Code cases awaiting approval and subsequent listing in Regulatory Guide 1.147 may be adopted only if the licensee requests, and the NRC authorizes, their use on a case-by-case basis. The licensee has provided a list of Code cases that will be used during the Unit 2 second 10-year interval. Two of the Code cases listed, N-416-1, and N-498-1, reference NRC approval letters dated 12/7/94 and 1/12/95, respectively. These Code cases were approved for use during the Unit 1 second 10-year interval and the Unit 2 first 10-year interval. When inservice inspection programs are updated and submitted for a new interval, requests for relief that were approved for previous intervals, including requests for use of Code case not approved in Regulatory Guide 1.147, must be resubmitted for evaluation. Provide an appropriate request for relief to use Code Cases N-416-1 and N-498-1 for the Unit 2 second 10-year interval.

Response 2:

The noted NRC approval letters stated that each of these Code cases were "authorized until such time as the Code Case is published in a future revision of Regulatory Guide (RG) 1.147." Based on these words, Duquesne Light Company (DLC) regarded this authorization as the same as if the Code cases were listed in RG 1.147, and therefore, only reference to the use of these Code cases was included in the updated ten-year plan. It is DLC's understanding that no subsequent re-submittals of the original requests are required.

Question 3:

Provide a list of all ultrasonic calibration blocks to be used during the second 10-year interval; including calibration block identification, material specifications, and sizes. Also, provide a list of all ultrasonic examination procedures that will be used in the implementation of the ISI Program Plan, including the procedure identification (e.g. number), title, and a general description of the components to which it applies.

Response 3:

See attachment titled, "Response 3." Included are calibration blocks and NDE procedures.

Question 4:

IWB-1220, IWC-1220, and IWD-1220 of ASME Section XI provide rules for exemption of certain Class 1, 2 and 3 components from examination. Appendix F gives nonmandatory guidance for inspection plan development. F-2500(b) states that inspection plans should include the specific exemptions applied to each system covered by Section XI. To complete the review of the Beaver Valley Power Station, Unit 2, Program Plan, provide the specific exemption criteria applied to each system exempted from volumetric and surface examination.

Response 4:

See attachment titled, "Response 4." This attachment includes a matrix identifying the exemptions of IWB-1220, IWC-1220, and IWD-1220 that have been applied to systems covered by Section XI.

Question 5:

Augmented examinations have been established by the NRC when added assurance of structural reliability is deemed necessary. Examples of documents that address augmented examinations are:

- (1) Branch Technical Position MEB 3-1, High Energy Fluid Systems, Protection Against Postulated Piping Failures in Fluid Systems Outside Containment;
- (2) Regulatory Guide 1.150, Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations;

Address the degree of compliance with these documents and any other augmented examinations that may have been incorporated in the second 10-year ISI Program Plan.

Response 5:

The following augmented examinations, in excess of ASME XI requirements, are included in the BV-2 Ten-Year Plan (2TYPP-2) for ease of administration:

- High Energy Line Break Inspection Program, based on UFSAR Section 6.6; the Ten-Year Plan includes the examinations specified in this Section of the UFSAR for postulated high energy line break points.
- Regulatory Guide 1.150, Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations; DLC will ensure compliance with this RG at the time of the RV examination. The impact of impending rulemaking activities and ongoing Code changes shall be included in the evaluation for compliance to this RG.
- Reactor Coolant Pump Flywheel Examinations; these examinations are based on the NRC letter from B. W. Sheron to S. C. Jain dated September 12, 1996.

The Program Description Section of the Plan shall be revised to include this information.

Question 6:

Request for Relief No. 2-TYP-2-B3.110-1, Revision 0. The licensee seeks relief from the requirements of Table IWB-2500-1, Category B-D, Item No. B3.110 for Welds 2RCS*PRE21-N-10, -11, -12, -13, and -14. Table 1 in the relief request provides examination coverage percentages for these welds. Do the examination percentages listed in Table 1 represent the actual first 10-year interval examination coverages for these welds? It appears that relief was not requested for these examinations during the first interval. Discuss the status of the first interval examinations and clarify the coverage estimates.

Response 6:

The examination percentages listed in Table 1 of the relief request are the actual first 10-year interval examination coverages. The limitations for welds 2RCS*PRE21-N-10, -11, -12, -13, and -14 were previously identified during the first 10-year interval in Relief Request BV-2-B3.110-2, Rev 0. This request was transmitted to the NRC by DLC letter dated March 25, 1997. The NRC approval was provided in the SER dated October 8, 1997.

The confusion over this issue may be due, in part, to the consolidation of all the Pressurizer nozzle welds onto one relief request. During the first 10-year interval, one request (BV2-B3.110-1) was submitted early in the interval for the surge nozzle weld and a subsequent request (BV2-B3.110-2) was submitted for the remaining five nozzle welds. This was necessary since the examinations were scheduled at different times during the interval. The second 10-year interval relief request (2-TYP-2-B3.110-1) includes all six of the Pressurizer nozzle welds and provides the examination coverage percentages obtained during the first 10-year interval.

Question 7:

Request for Relief No. 2-TYP-2-APP-I-1, revision 0. The licensee seeks relief from Appendix I, Paragraph I-2300, which requires that ultrasonic inspection of bolts and studs be conducted in accordance with Appendix VI.

The licensee states in "Alternative Qualification" that "DLC personnel will be qualified using the PDI Performance Demonstration Initiative Program and DLC written practice QSP2.11 which meets the requirements of Section XI, Appendix VII (1989 Edition)." This request for relief is specifically written for the Class 1 (Category B-G-1) bolts and studs. However, it should be noted that implementation of Appendix VIII is imminent for ultrasonic examination systems. Is it the intent of DLC to use the PDI qualification for all UT applications or for bolting only? Discuss DLC's plans regarding the implementation of Appendix VIII.

Response 7:

Since September 1997, DLC has used only PDI qualified UT personnel (both in-house and contractors) for UT examinations of items governed by existing PDI procedures. This includes the following components:

1. Class 1 and 2 Austenitic piping (except CCSS and Dissimilar Metal Welds)
2. Class 2 ferritic piping
3. Class 1 and Class 2 bolting (>2")

DLC intends to continue using PDI qualified UT personnel for these applications at BV-2.

Refer to Request for Relief No. 2-TYP-2-UT-1, Revision 0 for the current DLC position on the scope of Appendix VIII implementation. This position may be revised in response to published proposed rulemaking.

Question 8:

Request for Relief No. 2-TYP-2-C6.10-1, Revision 0. The licensee seeks relief from performing the surface examinations on the Recirculating Spray Pump Casing Welds as required by ASME XI, Item C6.10.

The licensee states that "Access to these welds requires disassembly of the pump casing for those welds located in the floor sleeve; disassembly and removal from the sump for the lower casing section; removal of welded gusset plates for welds 9, 10, 17 and 18. This evolution risks damage to the pump, in order to examine plant components that have a proven reliability record throughout the industry." Are these pump casings designed to be removed for normal maintenance, repair, and inspections? Provide additional information concerning the risk of damage to the pump if the casing is removed.

It appears from the weld numbers provided and the referenced drawing that the licensee is seeking relief for only a portion of the welds. The licensee states in the "Alternative Examination" portion of the request for relief that a complete examination is performed on eleven other casing welds. Provide the "Weld Number" and "Examinable Amount" for the other eleven casing welds.

Using the referenced drawing, 10080-ISI-E-2M, it is difficult to locate Welds 2RSS*P21A-C-21 and C-24 (circumferential welds). However, Welds 2RSS*P21A-L 21 and L-24 (longitudinal welds) are identified. To evaluate this request for relief, it is necessary to obtain the correct identity for the subject welds. Verify that all welds requiring relief are identified.

Response 8:

The pumps were designed to require no preventive maintenance. If repairs to the pumps are required, pump dismantling and re-installation instructions are available. These instructions are quite involved, and include special cautions for handling the pressure chamber assembly and fabrication of special tools to preclude diaphragm and piston damage. The potential exists during disassembly and re-assembly for foreign materials entry into the pump suction well causing damage during subsequent pump operation. Multiple lifts (raising and lowering the same portion of pump) are required for pump disassembly, which increases the potential risk of bumping and springing of shafts. Special care must be taken to support the shafts to preclude bowing and to insure straightness of shafts. Proper clearances between pump components during reassembly are critical to avoid alignment problems and potential pump damage. Due to cleaning requirements of the disassembled parts, flammable solvents are used which create a restricted and potentially dangerous work environment. Due to headroom limitations, ceiling plugs in the Safeguards Building must be removed to allow disassembly of the pump, causing security, radiation control, and cleanliness complications. The three seismic supports for the pump require removal along with girders above the pump which support intermediate levels within the Safeguards Building. Crane access to this area of the Safeguards area is difficult and necessitates special loading requirements due to the extended angle of the lift. Since there has been no evidence of generic industry problems with welds on these types of pumps, the effort to gain access to these welds and the increased potential for damage incurred, for the sole purpose of performing the surface examinations is considered a hardship and unusual difficulty without a compensating increase in the level of quality and safety.

As requested in Question 8, the following is a listing of the other eleven casing weld numbers. The examination coverage percentage for each of these welds was essentially 100%. Note: Weld N-20 is located below the floor level, but the configuration of the floor and walls allows access for examination.

Enclosure

Response to NRC Request for Additional Information

Second 10-Year Interval Inservice Inspection Program Plan and Associated Relief Requests

Page 6

2RSS*P21A-C-01

2RSS*P21A-N-02

2RSS*P21A-C-03

2RSS*P21A-C-04

2RSS*P21A-C-05

2RSS*P21A-L-06

2RSS*P21A-C-07

2RSS*P21A-L-08

2RSS*P21A-C-19

2RSS*P21A-N-20

2RSS*P21A-L-22

Relief Request 2-TYP-2-C6.10-1, Rev. 0 contains two typographical errors. Welds listed as 2RSS*P21A-C21 and -C24 are actually longitudinal welds as shown on drawing 10080-ISI-E-2M. This request for relief will be revised to show these welds as L21 and L24.

Question 9:

Request for Relief/Alternate Examination No. 2-TYP-2-UT-1, Revision 0. The licensee has proposed to use ultrasonic examination procedures meeting the requirements of the PDI Program Description, Revision 1, for volumetric UT examination of austenitic piping welds, ferritic piping welds and bolting as an alternative to the 1989 Edition of ASME XI.

Identify the specific requirements of the 1989 Edition of ASME XI that will not be met if ultrasonic examination procedures meeting the requirements of the PDI Program Description, Revision 1, are used. Also, provide a copy of PDI Program Description, Revision 1 as referenced in the request for relief.

Response 9:

Relief Request No. 2-TYP-2-APP-I-1, Revision 0 and Request for Relief/Alternative Examination No. 2-TYP-2-UT-1, Revision 0, both describe the scope and details of the proposed alternatives. Section XI, 1989 Edition, Paragraph IWA-2240 provides requirements for alternative examination methods. The proposed alternative examinations have been demonstrated to be equivalent or superior to those specified in the 1989 Edition of ASME Section XI.

Both of the above referenced documents propose the use of Appendix VIII as implemented by PDI to govern Performance Demonstration of UT Examination Systems on the specific components listed within the documents. There are no Appendix VIII requirements in the 1989 Edition of the Code. The PDI Program Description (Revision 1, Change 1, dated 12/30/96) provides a paragraph by paragraph comparison of Appendix VIII and the PDI Implementation of those requirements.

Since both proposed alternatives comply with Paragraph IWA-2240 criteria, there are no specific requirements of the 1989 Code that will not be met. The alternatives proposed (Appendix VIII as implemented by PDI) are superior to the ultrasonic techniques delineated in Appendix I of the 1989 Code.

Attached is a copy of the PDI Program Description, Revision 1, Change 1, as requested.

Question J:

Request for Relief/Alternative Examination No. 2-TYP-2-N-521, Revision 0, proposes an alternative schedule for reactor pressure vessel nozzle examinations. Code Case N-521, Alternative Rules for Deferral of Inspections of Nozzle-to-Vessel Welds, Inside Radius Sections, and Nozzle-to-Safe End Welds of a Pressurized Water Reactor Vessel, states that examination of RPV nozzles, IR sections, and nozzle-to-safe end welds may be deferred provided a) no inservice repairs or replacements by welding have ever been performed on any of the subject areas, b) none of the subject areas contain identified flaws or relevant conditions that currently require successive inspections in accordance with IWB-2420(b), and c) the unit is not in the first interval. An additional requirement imposed by the NRC is that all subject areas be scheduled for examination such that the time lapse between examinations will not exceed 10 years, except as adjusted by IWA-2430(a). Confirm that all of the above conditions will be met.

Response J:

Regarding the BV-2 Reactor Vessel Nozzle-to-Vessel Welds, Inside Radius Sections, and Nozzle-to-Safe End Welds, it is confirmed that: a) no inservice repairs or replacements by welding have ever been performed on any of the subject areas, b) none of the subject areas contain identified flaws or relevant conditions that currently require successive inspections in accordance with IWB-2420(b), and c) the unit is not in the first interval. Further, all of the noted welds were examined during the final 40-month period of the first ten-year interval (2R06, 1996), and are scheduled for examination in the final 40-month period of the second ten-year interval (i.e., July 2004 to November 2007). Note, half of the examinations performed on these welds in the third period of the first interval, were in excess of the ASME XI requirements, but were performed in preparation for implementation of Code Case N-521.

Question K:

Verify that there are no requests for relief in addition to those submitted. If additional requests for relief are required, the licensee should submit them for staff review.

Response K:

Currently, there are no further relief requests, beyond those submitted with the Ten-Year Plan (2TYPP-2). All Relief and Alternative Requests prepared to date for the Second Ten-Year Interval were provided with the Plan. In addition to these requests, the Program Description Section of the Plan provided a listing of approved Code Cases to be used, along with the bases for the Plan and descriptions and clarifications to assist in implementation of the Plan. As examination coverage limitations are identified during the interval, or Code requirements are identified as impractical to meet, additional requests shall be submitted in accordance with 10 CFR 50.55a.

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|------------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| | | | | | | INTERVAL | TO DATE | % | TO DATE |
| | | | | | | | | | |
| ** CATEGORY: B-A | | | | | | | | | |
| B01.011 | 3 | 3 | 0 | 0 | 3 | 3 | 0 | 100.0 | 0.0 |
| B01.012 | 7 | 7 | 0 | 0 | 7 | 7 | 0 | 100.0 | 0.0 |
| B01.021 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 100.0 | 0.0 |
| B01.022 | 4 | 4 | 0 | 0 | 4 | 4 | 0 | 100.0 | 0.0 |
| B01.030 | 1 | 2 | 1 | 0 | 1 | 2 | 0 | 100.0 | 0.0 |
| B01.040 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 200.0 | 0.0 |
| Partial Def. | | | | | | | | | |
| ** Subtotal ** | | | | | | | | 100.0 | 0.0 |
| | 17 | 18 | 2 | 0 | 16 | 18 | 0 | | 0.0 |

Permissible Deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | REMAINING COMPLETED | | EXAMS SCHEDULED % | COMPLETED % |
|------------------|-------------------------|--------------------------|-------|---------------------|---------------------|---------------------|----------------------|------------------|-------------------------|----------------|
| | | SCHEDULED IN INTERVAL | EXAMS | | | | EXAMS IN INTERVAL | EXAMS TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-B | | | | | | | | | | |
| B02.011 | 2 | 2 | 0 | 1 | 1 | 2 | 0 | | 100.0 | 0.0 |
| B02.012 | 2 | 2 | 0 | 1 | 1 | 2 | 0 | | 100.0 | 0.0 |
| B02.040 | 3 | 1 | 1 | 0 | 0 | 1 | 0 | | 33.3 | 0.0 |
| ** Subtotal ** | 7 | 5 | 1 | 2 | 2 | 5 | 0 | | | 0.0 |

20%

40%

40%

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60%

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100%

PAGE NO. 3A
12/18/97

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|------------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| | IN | INTERVAL | | | | INTERVAL | TO DATE | | TO DATE |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-D | | | | | | | | | |
| 803.090 | 6 | 6 | 0 | 0 | 6 | 6 | 0 | 100.0 | 0.0 |
| 803.100 | 6 | 6 | 0 | 0 | 6 | 6 | 0 | 100.0 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 12 | 12 | 0 | 0 | 12 | 12 | 0 | | 0.0 |

Code Case N-521 : Perm. deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|------------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ===== | ===== | ===== | ===== | ===== | ===== | INTERVAL | TO DATE | ===== | ===== |
| ** CATEGORY: B-D | | | | | | | | | |
| B03.110 | 6 | 6 | 2 | 0 | 4 | 6 | 0 | 100.0 | 0.0 |
| B03.120 | 6 | 6 | 2 | 0 | 4 | 6 | 0 | 100.0 | 0.0 |
| B03.140 | 6 | 6 | 2 | 2 | 2 | 6 | 0 | 100.0 | 0.0 |
| ** Subtotal ** | 18 | 18 | 6 | 2 | 10 | 18 | 0 | | 0.0 |
| | | | 33% | 11% | 56% | | | | |

% Requirement: At least 25%, but no more than 50% in 1st period,
remainder by the end of interval

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | COMPLETED EXAMS | EXAMS SCHEDULED % | COMPLETED % |
|------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|------------------|--------------------|-------------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | EXAMS TO DATE | | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-E | | | | | | | | | | |
| B04.012 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 100.0 | | 0.0 |
| B04.013 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 100.0 | | 0.0 |
| B04.020 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 100.0 | | 0.0 |
| ** Subtotal ** | | | | | | | | | | |
| | 3 | 3 | 0 | 0 | 3 | 3 | 0 | | | 0.0 |

Perm. deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | COMPLETED EXAMS TO DATE | EXAMS SCHEDULED % | COMPLETED % |
|------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|------------------|-------------------------------|-------------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | EXAMS TO DATE | | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: 6-F | | | | | | | | | | |
| 805.010 | 6 | 6 | 0 | 0 | 6 | 6 | 0 | 100.0 | | 0.0 |
| ** Subtotal ** | | | | | | | | | | |
| | 6 | 6 | 0 | 0 | 6 | 6 | 0 | | | 0.0 |

Code Case N-521 - Perm deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|------------------|------------|-------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| | | IN INTERVAL | | | | INTERVAL | TO DATE | % | TO DATE |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-F | | | | | | | | | |
| B05.040 | 6 | 6 | 2 | 0 | 4 | 6 | 0 | 100.0 | 0.0 |
| B05.070 | 6 | 6 | 2 | 2 | 2 | 6 | 0 | 100.0 | 0.0 |
| ** Subtotal ** | 12 | 12 | 4 | 2 | 6 | 12 | 0 | | 0.0 |

33%

17%

50%

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50%

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100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|--------------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| | | | | | | INTERVAL | TO DATE | | TO DATE |
| ** CATEGORY: B-G-1 | | | | | | | | | |
| 006.010 | 3 | 3 | 1 | 1 | 1 | 3 | 0 | 100.0 | 0.0 |
| 806.030 | 3 | 3 | 1 | 1 | 1 | 3 | 0 | 100.0 | 0.0 |
| 806.040 | 3 | 3 | 0 | 0 | 3 | 3 | 0 | 100.0 | 0.0 |
| 806.050 | 3 | 3 | 1 | 1 | 1 | 3 | 0 | 100.0 | 0.0 |
| 806.180 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 33.3 | 0.0 |
| 806.190 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 33.3 | 0.0 |
| 806.210 | 6 | 1 | 0 | 0 | 1 | 1 | 0 | 16.7 | 0.0 |
| 806.220 | 6 | 1 | 0 | 0 | 1 | 1 | 0 | 16.7 | 0.0 |
| 806.230 | 6 | 1 | 0 | 0 | 1 | 1 | 0 | 16.7 | 0.0 |
| ** Subtotal ** | 36 | 17 | 3 | 3 | 11 | 17 | 0 | | 0.0 |

Perm. deferral except when leakage is detected.

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|--------------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| | | INTERVAL | | | | INTERVAL | TO DATE | % | TO DATE |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-G-2 | | | | | | | | | |
| B07.020 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 100.0 | 0.0 |
| B07.030 | 6 | 2 | 2 | 0 | 0 | 2 | 0 | 33.3 | 0.0 |
| B07.050 | 9 | 9 | 3 | 2 | 4 | 9 | 0 | 100.0 | 0.0 |
| B07.060 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 33.3 | 0.0 |
| B07.070 | 32 | 8 | 2 | 2 | 4 | 8 | 0 | 25.0 | 0.0 |
| B07.080 | 4 | 4 | 1 | 0 | 3 | 4 | 0 | 100.0 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 55 | 25 | 8 | 5 | 12 | 25 | 0 | | 0.0 |

32% 26% 48%

↓

52%

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100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | SCHEDULED IN INTERVAL | EXAMS | | | REMAINING COMPLETED | | EXAMS SCHEDULED % | COMPLETED % |
|------------------|-------------------------|--------------------------|------------|------------|------------|---------------------|---------|-------------------------|----------------|
| | | | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | EXAMS IN | EXAMS | | |
| | | | EXAMS | EXAMS | EXAMS | INTERVAL | TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-J | | | | | | | | | |
| 809.011 | 452 | 114 | 44 | 31 | 39 | 114 | 0 | 25.2 | 0.0 |
| 809.021 | 687 | 174 | 47 | 60 | 67 | 174 | 0 | 25.3 | 0.0 |
| 809.031 | 13 | 4 | 2 | 1 | 1 | 4 | 0 | 30.8 | 0.0 |
| 809.032 | 48 | 12 | 4 | 4 | 4 | 12 | 0 | 25.0 | 0.0 |
| 809.040 | 177 | 45 | 14 | 14 | 17 | 45 | 0 | 25.4 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 1377 | 349 | 111 | 110 | 128 | 349 | 0 | | 0.0 |

32% 32% 37%

↓ ↓

63% 100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | EXAMS SCHEDULED % | COMPLETED % TO DATE |
|--------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|-------------------------------|-------------------------|---------------------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | COMPLETED EXAMS TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-K-1 | | | | | | | | | |
| B10.010 | 5 | 1 | 1 | 0 | 0 | 1 | 0 | 20.0 | 0.0 |
| B10.020 | 20 | 3 | 0 | 1 | 2 | 3 | 0 | 15.0 | 0.0 |
| ** Subtotal ** | 25 | 4 | 1 | 1 | 2 | 4 | 0 | | 0.0 |

25%

25%

50%

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↓
100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|--------------------|------------|-------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| | | IN INTERVAL | | | | INTERVAL | TO DATE | | TO DATE |
| | | | | | | | | | |
| ** CATEGORY: B-L-1 | | | | | | | | | |
| B12.010 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 33.3 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 3 | 1 | 0 | 0 | 1 | 1 | 0 | | 0.0 |

Perin deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | | REMAINING | | COMPLETED | | EXAMS SCHEDULED % | COMPLETED % |
|--------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|------------------|------------------|------------------|-------------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | EXAMS TO DATE | EXAMS TO DATE | EXAMS TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-L-2 | | | | | | | | | | | |
| B12.020 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | ***** | ***** |
| ** Subtotal ** | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | ***** | ***** |

Perm. Deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | COMPLETED EXAMS | EXAMS SCHEDULED | COMPLETED % |
|--------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|---------|--------------------|--------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | TO DATE | | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-M-2 | | | | | | | | | | |
| B12.050 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | ***** | |
| ** Subtotal ** | | | | | | | | | | |
| | 37 | 0 | 0 | 0 | 0 | 0 | 0 | | ***** | |

Perm. deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | SCHEDULED % | COMPLETED % |
|----------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | COMPLETED TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |

** CATEGORY: B-W-1

| | | | | | | | | | |
|---------|---|---|---|---|---|---|---|-------|-----|
| B13.010 | 1 | 3 | 1 | 1 | 1 | 3 | 0 | 300.0 | 0.0 |
|---------|---|---|---|---|---|---|---|-------|-----|

** Subtotal **

| | | | | | | | | | |
|--|---|---|---|---|---|---|---|--|-----|
| | 1 | 3 | 1 | 1 | 1 | 3 | 0 | | 0.0 |
|--|---|---|---|---|---|---|---|--|-----|

33% 33% 33%

Handwritten: DG 12/18/97 ~~Percent reconciled~~
66%
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100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|--------------------|------------|-------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| | | IN INTERVAL | | | | INTERVAL | TO DATE | | TO DATE |
| ** CATEGORY: B-N-2 | | | | | | | | | |
| B13.060 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 100.0 | 0.0 |
| ** Subtotal ** | 1 | 1 | 0 | 0 | 1 | 1 | 0 | | 0.0 |

Person Inferred

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | COMPLETED EXAMS SCHEDULED % | COMPLETED % |
|--------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|------------------|--------------------------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | EXAMS TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-N-3 | | | | | | | | | |
| B13.070 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 100.0 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 1 | 1 | 0 | 0 | 1 | 1 | 0 | | 0.0 |

Per.m. deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | COMPLETED | | EXAMS SCHEDULED % | COMPLETED % |
|------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|------------------|-------------------------|------------------|-------------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | EXAMS TO DATE | EXAMS IN INTERVAL | EXAMS TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: B-0 | | | | | | | | | | | |
| B14.010 | 24 | 3 | 0 | 0 | 3 | 3 | 0 | | | 12.5 | 0.0 |
| ** Subtotal ** | 24 | 3 | 0 | 0 | 3 | 3 | 0 | | | | 0.0 |

Perm. deferral

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|------------------|------------|-------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| | | IN INTERVAL | | | | INTERVAL | TO DATE | % | TO DATE |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: C-A | | | | | | | | | |
| C01.010 | 13 | 6 | 1 | 3 | 2 | 6 | 0 | 46.2 | 0.0 |
| C01.020 | 7 | 4 | 1 | 2 | 1 | 4 | 0 | 57.1 | 0.0 |
| C01.030 | 11 | 4 | 1 | 1 | 2 | 4 | 0 | 36.4 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 31 | 14 | 3 | 6 | 5 | 14 | 0 | | 0.0 |

21% 43% 36%

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64% 100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING | | | EXAMS SCHEDULED % | COMPLETED % |
|------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|----------------------|-------------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | COMPLETED TO DATE | | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: C-B | | | | | | | | | |
| C02.011 | 16 | 4 | 0 | 0 | 4 | 4 | 0 | 25.0 | 0.0 |
| C02.021 | 14 | 6 | 2 | 4 | 0 | 6 | 0 | 42.9 | 0.0 |
| C02.022 | 6 | 2 | 2 | 0 | 0 | 2 | 0 | 33.3 | 0.0 |
| ** Subtotal ** | 36 | 12 | 4 | 4 | 4 | 12 | 0 | | 0.0 |

33% 33% 33%
 ↓ ↓
 66% 100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|------------------|------------|-----------------------|------------|------------|------------|-------------------|---------------|-------------|-----------|
| NUMBER | CANDIDATES | SCHEDULED IN INTERVAL | EXAMS | EXAMS | EXAMS | EXAMS IN INTERVAL | EXAMS TO DATE | SCHEDULED % | % TO DATE |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: C-C | | | | | | | | | |
| C03.010 | 38 | 3 | 3 | 0 | 0 | 3 | 0 | 7.9 | 0.0 |
| C03.020 | 155 | 16 | 4 | 6 | 6 | 16 | 0 | 10.3 | 0.0 |
| C03.030 | 62 | 8 | 1 | 3 | 4 | 8 | 0 | 12.9 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 255 | 27 | 8 | 9 | 10 | 27 | 0 | | 0.0 |

30% 33% 37%

↓ ↓

63% 100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|--------------------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: C-F-1 | | | | | | | | | |
| C05.011 | 1365 | 101 | 31 | 28 | 42 | 101 | 0 | 7.4 | 0.0 |
| C05.021 | 706 | 59 | 20 | 18 | 21 | 59 | 0 | 8.4 | 0.0 |
| C05.030 | 497 | 42 | 7 | 10 | 25 | 42 | 0 | 8.5 | 0.0 |
| C05.041 | 13 | 2 | 0 | 1 | 1 | 2 | 0 | 15.4 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 2581 | 204 | 58 | 57 | 89 | 204 | 0 | | 0.0 |

28%

28%

44%

↓
5%

↓
100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|--------------------|------------|-------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| | | IN INTERVAL | | | | INTERVAL | TO DATE | | TO DATE |
| ** CATEGORY: C-F-2 | | | | | | | | | |
| C05.051 | 193 | 29 | 10 | 8 | 11 | 29 | 0 | 15.0 | 0.0 |
| C05.052 | 29 | 11 | 3 | 6 | 2 | 11 | 0 | 37.9 | 0.0 |
| C05.081 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 33.3 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 225 | 41 | 13 | 14 | 14 | 41 | 0 | | 0.0 |

32% 34% 34%

↓ ↓

66% 100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM NUMBER | NUMBER OF CANDIDATES | EXAMS | | | REMAINING COMPLETED | | EXAMS SCHEDULED % | COMPLETED % |
|------------------|-------------------------|--------------------------|---------------------|---------------------|---------------------|----------------------|-------------------------|----------------|
| | | SCHEDULED IN INTERVAL | 1ST PERIOD EXAMS | 2ND PERIOD EXAMS | 3RD PERIOD EXAMS | EXAMS IN INTERVAL | EXAMS TO DATE | |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| ** CATEGORY: C-G | | | | | | | | |
| C06.010 | 96 | 16 | 4 | 6 | 6 | 16 | 0 | 16.7 |
| ** Subtotal ** | 96 | 16 | 4 | 6 | 6 | 16 | 0 | 0.0 |

25% 38% 38%

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63% 100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|--------|------------|-----------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ===== | ===== | ===== | ===== | ===== | ===== | INTERVAL | TO DATE | ===== | ===== |

** CATEGORY: D-A

| | | | | | | | | | |
|----------------|-----|----|----|----|----|----|---|------|-----|
| D01.010 | 26 | 12 | 10 | 1 | 1 | 12 | 0 | 46.2 | 0.0 |
| D01.020 | 405 | 47 | 9 | 17 | 21 | 47 | 0 | 11.6 | 0.0 |
| ** Subtotal ** | | | | | | | | | |
| | 431 | 59 | 19 | 18 | 22 | 59 | 0 | | 0.0 |

32% 31% 37%

↓ ↓

63% 100%

BEAVER VALLEY POWER STATION UNIT 2
ASME XI PERCENTAGE RECONCILIATION

| ITEM | NUMBER OF | EXAMS | 1ST PERIOD | 2ND PERIOD | 3RD PERIOD | REMAINING | COMPLETED | EXAMS | COMPLETED |
|------------------|------------|-------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| NUMBER | CANDIDATES | SCHEDULED | EXAMS | EXAMS | EXAMS | EXAMS IN | EXAMS | SCHEDULED | % |
| ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** | ***** |
| | | IN INTERVAL | | | | INTERVAL | TO DATE | | TO DATE |
| ** CATEGORY: F-A | | | | | | | | | |
| F01.10A | 24 | 8 | 3 | 3 | 2 | 8 | 0 | 33.3 | 0.0 |
| F01.10R | 173 | 47 | 12 | 16 | 19 | 47 | 0 | 27.2 | 0.0 |
| F01.10S | 72 | 19 | 5 | 7 | 7 | 19 | 0 | 26.4 | 0.0 |
| F01.10T | 75 | 21 | 8 | 7 | 6 | 21 | 0 | 28.0 | 0.0 |
| F01.20A | 85 | 17 | 6 | 6 | 5 | 17 | 0 | 20.0 | 0.0 |
| F01.20R | 488 | 79 | 25 | 20 | 34 | 79 | 0 | 16.2 | 0.0 |
| F01.20S | 89 | 17 | 4 | 5 | 8 | 17 | 0 | 19.1 | 0.0 |
| F01.20T | 100 | 19 | 7 | 5 | 7 | 19 | 0 | 19.0 | 0.0 |
| F01.30A | 87 | 13 | 4 | 5 | 4 | 13 | 0 | 14.9 | 0.0 |
| F01.30H | 16 | 2 | 0 | 1 | 1 | 2 | 0 | 12.5 | 0.0 |
| F01.30R | 414 | 48 | 14 | 14 | 20 | 48 | 0 | 11.6 | 0.0 |
| F01.30S | 38 | 6 | 1 | 3 | 2 | 6 | 0 | 15.8 | 0.0 |
| F01.30T | 56 | 8 | 3 | 1 | 4 | 8 | 0 | 14.3 | 0.0 |
| F01.40E | 136 | 61 | 16 | 16 | 29 | 61 | 0 | 44.9 | 0.0 |
| ** Subtotal ** | 1853 | 365 | 108 | 109 | 148 | 365 | 0 | | 0.0 |

30% 30% 40%

↓

60%

↓

100%

The following list of calibration blocks are scheduled for use during the second 10-year interval. Additional blocks may be used if augmented or modified techniques are desired or mandated during the interval.

Piping Blocks

| <u>Identification</u> | <u>Material</u> | <u>Diameter / Schedule</u> | <u>"T" (in.)</u> | <u>Application</u> |
|-----------------------|----------------------------------|--------------------------------|------------------|---|
| PP-22 | SA376, TP 316 | 02/160 | 0.343 | CHS/SIS |
| PP-19 | SA106, GR B | 03/80 | 0.308 | MSS |
| PP-22 | A376, TP 316 | 02/160 | 0.343 | SIS |
| PP-21 | SA376, TP 316 | 03/160 | 0.438 | CHS/SIS |
| PP-18 | SA106, GR B | 04/80 | 0.340 | MSS |
| PP-8 | SA376, TP316 | 04/160 | 0.531 | RCS/PZR. SPRAY LINE |
| PP-17 | SA106, GR B | 06/80 | 0.426 | SVS |
| PP-7 | SA312, TP316 | 06/160 | 0.766 | RCS/CHS/SIS/PZR SPRAY NOZZLE |
| PP-15 | SA106, GR B | 08/80 | 0.458 | SVS |
| PP-6 | A376, TP316 | 08/160 | 0.906 | RCS LOOP BY-PASS, PZR SAFETY NOZZLES |
| PP-16 | SA106, GR B | 09/SPL | 1.45 | MSS |
| PP-14 | SA106, GR B | 10/80 | 0.506 | SVS |
| PP-5 | SA376, TP316 | 10/160 | 1.125 | RHS/SIS |
| PP-20 | SA312, TP304 | 12/40 | 0.440 | RHS/RSS/QSS |
| PP-4 | A376, TP316 | 12/160 | 1.260 | RHS/SIS |
| PP-3 | SA376, TP16 | 14/160 | 1.38 | RCS/PZR SURGE & NOZZLE |
| PP-12 | SA106, GR.B | 16/80 | 0.788 | FVS |
| PP-13 | SA106, GR.B | 16/100 | 1.30 | FWS |
| PP-10 | SA106, GR B | 32.5/SPL | 1.37 | MSS |
| PP-11 | A155, KC70, CL 1 | 32.5/SPL | 1.38 | MSS |
| BV1-55 | A508, CLASS 2 | N/A | 3 | MAIN STEAM HEADER |
| PP-9 | SA106, GR C | 34 | 1.85 | MAIN STEAM |
| PP-2 | SA351, GR CF8A | 34/SPL | 2.500 | RCS LOOP PIPING |
| BV-12X29SI | SA351, GR CF8A & A182, TP304N | N/A (MOCK-UP) | N/A | RCS BRANCH CONNECTIONS |

Vessel Blocks

| <u>Identification</u> | <u>Material</u> | <u>Diameter / Schedule</u> | <u>"T" (In.)</u> | <u>Application</u> |
|-----------------------|--------------------------------|--------------------------------|------------------|---|
| BV-IR-1 | A508, CLASS 2 | N/A | VARIOUS | STEAM GEN MS AND FW NOZZLE INNER RADIUS, PRESSURIZER NOZZLE INNER RADIUS |
| SG-1 | SA508, CLASS 2 (CLAD) | N/A | 5.40 | STEAM GENERATOR (CHANNEL HEAD) |
| SG-2 | SA533, CLASS 1 | N/A | 3.52 | STEAM GENERATOR SHELL |
| PR-1 | SA533, CLASS 1 (CLAD) | N/A | 4 | PRESSURIZER |
| PR-2 | SA533, CLASS 1 (CLAD) | N/A | 2.80 | PRESSURIZER NOZZLE-TO- HEAD WELDS |
| RV-1 | SA533, GR. B CLASS 1 (CLAD) | N/A | 9.06 | RV INTERMEDIATE SHELL |
| RV-2 | SA533, GR. B CLASS 1 (CLAD) | N/A | 7 | RV CLOSURE HEAD |
| RV-3 | SA533, GR. B CLASS 1 (CLAD) | N/A | 5 | LOWER HEAD |
| RV-4 | SA533, GRADE B (CLAD) | N/A | 10.31 | RV NOZZLE BELT SHELL |
| RV-5 | SA 508 CL2 / SA182, F316 | N/A | 2.6 | RV NOZZLE TO SAFE-END WELDS |
| RV-6 | SA508, CLASS 2 (CLAD) | N/A | 18 & 36 | RV FLANGE & NOZZLE TO SHELL |
| BV1-16 | A312, TP304 | 10/140 | 1.00 | SEAL WATER INJ. FILTERS |
| HE-1 | SA240, TP304 | N/A | 1.00 | RHS/NON-REGEN HX |
| HE-7 | SA240, TP304 | N/A | 0.322 | VOLUME CONTROL TANK |
| HE-9 | SA240, TP304 | N/A | 0.375 | RSS HX/RSS PUMP CASING |

Bolting Blocks

| <u>Identification</u> | <u>Material</u> | <u>Diameter / Schedule</u> | <u>Size</u> | <u>Application</u> |
|-----------------------|-----------------|--------------------------------|----------------|----------------------------|
| BS-1 | SA-540, GR. B24 | 6" DIA. | 55.75" LONG | RV STUDS |
| BS-2 | A453 GR 660 | 3.0 DIA | 20" LONG | LOOP ISOLATION VALVE STUDS |
| BS-3 | SA540, GR. B24 | 4.5" DIA | N/A | RCP FLANGE BOLTS |

The following NDE procedures are planned for use during the second 10-year interval. Additional (or revised) procedures may be used if augmented or modified techniques are desired or mandated during the interval.

| <u>Number</u> | <u>Rev</u> | <u>Title</u> | <u>Application</u> |
|---------------|------------|---|---|
| GP-101 | 11 | Requirements for Data Recording | General procedure for recording ISI data |
| GP-104 | 9 | Establishment of Reference Points for Data Recording | Provides instructions to install ISI datum and reference points. |
| GP-105 | 6 | Evaluation of PSI/ISI Flaw Indications | Provides sequence and protocol instructions for evaluation of NDE indications |
| LP-101 | 15 | Solvent Removable Visible Dye | Provides requirements and acceptance criteria for Class 1,2 and 3 PT (surface) examinations |
| LP-102 | 9 | High Temperature Removable Dye | Provides requirements and acceptance criteria for high temperature (125° -350°) PT (surface) examinations |
| MT-201 | 13 | Magnetic Particle Examination | Provides requirements and acceptance criteria for Class 1,2 and 3 MT (surface) examinations. |
| UT-301 | 9 | Linearity for Ultrasonic Instruments | Self-explanatory |
| UT-304 | 8 | Manual Ultrasonic Examination of RCP Flywheel | Self-explanatory |
| UT-305 | 8 | Manual Examination of Studs and Bolting Less than 2 inches Diameter (High Gain Technique) | Applicable only to items less than 2" in diameter |
| UT-306 | 9 | Manual Ultrasonic Examination of Vessel Welds Greater than 2" Thickness | (Class 1 and 2) Self-explanatory |
| UT-308 | 11 | Component Weld Profiling and Thickness Measurements Using Straight Beam Ultrasonic Techniques | Self-explanatory |
| UT-309 | 4 | Ultrasonic Examination of RV Closure Head Studs from Central Bore | Secondary procedure to allow augmented examination from nozzle bore (if required) |
| UT-312 | 0 | UT Through-Wall Flaw Depth Sizing in Piping Welds | UT TW Flaw sizing procedure based on PDI Procedure PDI- |

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| | | | UT-3, Revision B |

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| UT-313 | 4 | Manual Ultrasonic Examination of Vessel Nozzle Inner Radius Sections | (Class 1 and 2) Self-explanatory |
| UT-314 | 2 | Ultrasonic Examination of Unit 2 RV Shell-to-flange Weld from the Flange Mating Surface | RV Shell-to-Flange |
| UT-315 | 1 | Ultrasonic Thickness Measurements Using the ABB/AMDATA Intraspex I/UX2i Ultrasonic Imaging System | Used for MIC and FAC examinations |
| UT-317 | 1 | Manual Straight Beam Ultrasonic Examination of Bolting | (Class 1 and 2) Primary UT bolting procedure based on PDI-UT-5, Revision A |
| UT-319 | 1 | Ultrasonic Examination of "Set-In" Austenitic Branch Connection Welds | (Class 1 RCS) Self-explanatory |
| UT-320 | 1 | Ultrasonic Examination of Ferritic Piping Welds | (Class 1 and 2) Ferritic piping exams - based on PDI-UT-1, Revision A |
| UT-321 | 1 | Ultrasonic Examination of Austenitic Piping Welds | (Class 1 and 2) Austenitic piping exams - based on PDI-UT-2, Revision A |
| UT-322 | 1 | Ultrasonic Examination of Dissimilar Metal Welds | (Class 1 and 2) Self-explanatory - IWA-2240 procedure |
| UT-323 | 0 | Ultrasonic Examination of Welds Joining Cast Austenitic Piping Components | (Class 1) RCS Loop piping - IWA-2240 procedure |
| VT-500 | 8 | General Requirements for Visual Examination | Self-explanatory |
| VT-501 | 5 | Visual Examination of Threaded Fasteners | (Class 1,2 and 3) Self-explanatory (VT-1) |
| VT-502 | 5 | Leakage Examination Requirements | (Class 1,2 and 3) Self-explanatory (VT-2) |
| VT-503 | 19 | Visual Examination for Component Supports | (Class 1,2 and 3) Self-explanatory (VT-3) |
| VT-504 | 6 | Visual Examination Requirements for Internal Surfaces of Pumps, Valves and Reactor Vessel Interior/Internals | (Class 1,2 and 3) Self-explanatory |
| VT-507 | 7 | Visual Examination of Rubber Expansion Joints | Self-explanatory |
| VT-509 | 5 | Visual Examination of Welds and | (Class 1,2 and 3) Self- |

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| | | Components | explanatory |
| VT-510 | 6 | Visual Examination for Boric Acid | (Class 1,2 and 3) Self-explanatory |

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| VT-511 | 2 | Alternative Pressure Test Requirements for Welded Repairs or Installation of Replacement Items by Welding | (Class 1,2 and 3) VT requirements for Code Case N-416-1 examinations |
| RT-600 | 4 | General Requirements for Radiographic Examination | Self-explanatory |
| RT-602 | 4 | Radiographic Examinations Governed by ASME III, 1971 Edition, W-72 Addenda | RT technique and acceptance criteria for "code year of record" examinations. |
| RT-603 | 4 | Radiographic Examinations Governed by the 1989 Edition of ASME Section XI. | RT techniques when RT is used to meet the volumetric examination requirements of ASME XI, 1989 Edition. |
| RT-604 | 1 | Radiographic Examination of Piping Circumferential Butt Welds Governed by ASME Section III, 1992 Edition | RT techniques and acceptance criteria when Code Case N-416-1 is applied for the repair/replacement activity. |

| System | IWB-1220(a) | IWB-1220(b) | IWB-1220(c) | | IWC-1221(a) | IWC-1221(b) | IWC-1221(c) | IWC-1221(d) | IWC-1221(e) | IWC-1221(f) | | IWC-1222(a) | IWC-1222(b) | IWC-1222(c) | IWC-1222(d) | | IWB-1220.1 | IWB-1220.2 |
|-----------------------------|-------------|-------------|-------------|--|-------------|-------------|-------------|-------------|-------------|-------------|--|-------------|-------------|-------------|-------------|--|------------|------------|
| Boron Recovery* | | | | | | | | | | | | | | | | | X | |
| Chemical and Volume Control | | X | | | | | | | | | | X | X | | | | | |
| Containment Vacuum* | | | | | | | | | | | | X | | | | | | |
| Feedwater | | | | | | | | | | | | X | | | | | | |
| Hydrogenated Drains | | | | | | | | | | | | X | X | | | | | |
| Leakage Monitoring* | | | | | | | | | | | | X | | | | | | |
| Main Steam | | | | | | | | | | | | X | | | | | | |
| Quench Spray | | | | | X | | X | | | X | | | | | | | | |
| Reactor Coolant System | | X | X | | | | | | | | | | | | | | | |
| Recirculation Spray | | | | | X | | X | | | X | | | | | | | | |
| Residual Heat Removal | | | | | X | | X | | | | | | | | | | | |
| Safety Injection | | X | | | X | X | X | X | X | | | | | | | | | |
| Sample* | | X | | | | | | | | | | X | | | | | | |
| Service Water | | | | | | | | | | | | | | | | | X | |
| Steam Vents and Drains | | | | | | | | | | | | X | | | | | | |
| Steam Generator Blowdown* | | | | | | | | | | | | X | X | | | | | |

* Entire system is exempt from specified examination requirements

IWB-1220, the following components (or parts of components) are exempted from the volumetric and surface examination requirements of IWB-2500:

- (a) components that are connected to the reactor coolant system and part of the reactor coolant pressure boundary, and that are of such a size and shape so that upon postulated rupture the resulting flow of coolant from the reactor coolant system under normal plant operating conditions is within the capacity of makeup systems which are operable from on-site emergency power;
- (b)(1) piping of NPS 1 and smaller, except for steam generator tubing;
- (2) components and their connections in piping of NPS 1 and smaller;
- (c) reactor vessel head connections and associated piping, NPS 2 and smaller, made inaccessible by control rod drive penetrations.

IWC-1220, the following components (or parts of components) are exempted from the volumetric and surface examination requirements of IWC-2500.

IWC-1221 Components Within RHR, ECC, and CHR Systems (or Portions of Systems)

- (a) Vessels, piping, pumps, valves and other components NPS 4 and smaller in all systems except high pressure safety injection systems of pressurized water reactor plants.
- (b) Vessels, piping, pumps, valves, and other components NPS 1½ and smaller in high pressure safety injection systems of pressurized water reactor plants.
- (c) Component connections NPS 4 and smaller (including nozzles, socket fittings, and other connections) in vessels, piping, pumps, valves, and other components of any size in all systems except high pressure safety injection systems of pressurized water reactor plants.
- (d) Component connections NPS 1½ and smaller (including nozzles, socket fittings, and other connections) in vessels, piping, pumps, valves, and other components of any size in high pressure safety injection systems of pressurized water reactor plants.
- (e) Vessels, piping, pumps, valves, other components, and component connections of any size in statically pressurized, passive (i.e., no pumps) safety injection systems of pressurized water reactor plants.

(f) Piping and other components of any size beyond the last shutoff valve in open ended portions of systems that do not contain water during normal plant operating conditions.

IWC-1222 Components Within Systems (or Portions of Systems) Other Than RHR, ECC, and CHR Systems

- (a) Vessels, piping, pumps, valves and other components NPS 4 and smaller.
- (b) Component connections NPS 4 and smaller (including nozzles, socket fittings, and other connections) in vessels, piping, pumps, valves, and other components of any size.
- (c) Vessels, piping, pumps, valves, other components, and component connections of any size in systems or portion of systems that operate (when the system function is required) at a pressure equal to or less than 275 psig and at temperature equal to or less than 200F.
- (d) Piping and other components of any size beyond the last shutoff valve in open ended portions of systems that do not contain water during normal plant operating conditions.

IWD-1220 ITEMS EXEMPT FROM EXAMINATION

IWD-1220.1 Integral attachments of supports and restraints to components that are NPS 4 and smaller within the system boundaries of Examination Categories D-A, D-B, and D-C of Table IWD-2500-1 shall be exempt from the visual examination VT-3, except for PWR Auxiliary Feedwater Systems.

IWD-1220.2 Integral attachments of supports and restraints to components exceeding NPS 4 may be exempted from the visual examination VT-3 of Table IWD-2500-1 provided:

- (a) the components are located in systems (or portions of systems) whose function is not required in support of reactor residual heat removal, containment heat removal, and emergency core cooling; and
- (b) the components operate at a pressure of 275 psig or less and at a temperature of 200F or less.