

ORGANIZATION: THE BABCOCK AND WILCOX COMPANY  
NUCLEAR POWER GENERATION DIVISION  
LYNCHBURG, VIRGINIA

REPORT NO.: 99900400/82-02	INSPECTION DATE(S) 5/17-21/82	INSPECTION ON-SITE HOURS: 38
CORRESPONDENCE ADDRESS: The Babcock and Wilcox Company Nuclear Power Generation Division ATTN: Mr. D. E. Guilbert, Vice Pres. & Gen. Mgr. P. O. Box 1260 Lynchburg, VA 24505		
ORGANIZATIONAL CONTACT: Mr. E. L. Davis, QA Manager TELEPHONE NUMBER: (804) 385-2895		
PRINCIPAL PRODUCT: Nuclear steam supply systems and fuels, engineering services, and operating plant support.		
NUCLEAR INDUSTRY ACTIVITY: The total effort committed to domestic nuclear activities is approximately 91% of the 1,775 employees of the Nuclear Power Generation Division. Principal activities include the design and procurement of nine projects; Bellefonte, Midland, Washington Public Power Supply System, North Anna, and Pebble Springs; and providing engineering services under 129 service contracts and 38 fuel reload contracts.		
ASSIGNED INSPECTOR:	<u>D. F. Fox</u> D. F. Fox, Reactor Systems Section (RSS)	<u>7/2/82</u> Date
OTHER INSPECTOR(S):		
APPROVED BY:	<u>C. J. Hale</u> C. J. Hale, Chief, RSS	<u>7/2/82</u> Date
INSPECTION BASES AND SCOPE:		
A. <u>BASES</u> : 10 CFR Part 50, Appendix B and Topical Report BAW-10096A		
B. <u>SCOPE</u> : Design input and design change control as related to nuclear fuel reload design, and status of previous inspection findings.		
PLANT SITE APPLICABILITY: Arkansas Nuclear One, 50-313; Haddam Neck Plant, 50-213; Oconee Nuclear Station, 50-269; Rancho Seco Nuclear Generating Station, 50-312.		

DESIGNATED ORIGINAL  
Certified By Cheranne Forts

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<p>A. <u>VIOLATIONS:</u></p> <p>None</p> <p>B. <u>NONCONFORMANCES:</u></p> <ol style="list-style-type: none"><li>1. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and Nuclear Power Generation Division (NPGD) procedure NPG-0310-42, the Rancho Seco Nuclear Steam Core Project Manager did not originate the fuel cycle design requirements list number 89-1127000-01 for fuel reload cycle 6.</li><li>2. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and NPGD procedure NPG-0412-66, the originator of Document Release Notices (DRN) for released and approved documents 86-1123301-00, 86-1123252-00, and 86-1122788-00, did not enter the Product Upgrade List (PUL) status on the DRN's.</li><li>3. Contrary to Criterion V of appendix B to 10 CFR Part 50 and NPGD procedure NPG-0310-38, the Historical Document List (HDL) did not serve as an index to safety-related Procurement Authorization (PA) records in the Records Center as evidenced by the fact that PA's 83-768661-00 through 83-768661-09, related to the design and procurement of MK-85 fuel assemblies and axial blanket fuel assemblies for the SMUD Rancho Seco Cycle 6 fuel reload, were not identified on the HDL.</li><li>4. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and NPGD procedure NPG-0402-01, the first page of calculations 32-1119748-00 and 32-1122317-00, did not have a completely filled out CDS form. The section of the form titled "Summary of Result" did not contain a summary of the results of the calculation.</li><li>5. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and NPGD procedures NPG-0402-01 and NPG-0412-66, PUL's were not used to indicate needed changes/additions known at the time of release or to indicate input requirements unavailable at the time of release, for safety-related calculation summary (e.g., 86-1123144-00). These documents were various types of calculation summaries (e.g., 32-1122317-00), which were known at the time to have a PUL relating to the need for verification of source data/references outstanding against it. Further, these design documents were reviewed, released, and transmitted to users without any indication that changes may be required as a result of clearing the PUL's that were outstanding.</li></ol>		

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6. Contrary to Criterion V of Appendix B to 10 CFR Part 50 and NPGD procedure NPG-0310-38, certain PUL's issued from January 1981 to March 1981, which are NPGD safety-related design documents indicating that review/verification of all source documents for the affected safety-related calculations has not been completed at the time the calculation was approved and released, were:
- a. Not listed on the HDL against the affected calculation;
  - b. Not distributed by Release Administration; or
  - c. Not associated with the document to be revised and retained in the Records Center.

C. UNRESOLVED ITEMS:

None

D. STATUS OF PREVIOUS INSPECTION FINDINGS:

1. (Closed) Unresolved Item (81-020): The recently appointed QA Manager does not appear to possess the minimum qualifications for the position that are delineated in the B&W Topical Report.

The B&W Topical Report, BAW-10096, was revised (rev. 4) and approved by NRC headquarters. The QA Manager possesses the minimum qualifications delineated in revision 4 of the Topical Report.

2. (Open) Unresolved Item (82-01): Certain structural analyses may not meet regulatory requirements in that they do not appear to be sufficiently detailed with respect to assumptions, bases, source of inputs, reference to the hardware design drawings, analytical model-to-hardware relationship, and interpretation of results.

Action on this item was deferred to a future inspection.

3. (Open) Unresolved Item (82-01): Procurement controls for flow control valves do not appear to comply with QA program commitments, in that valves were furnished that were not designed to provide the required minimum flow of two gallons per minute in the closed position at a pressure differential of 820 pounds per square inch, and which B&W-NPGD source surveillance and vendor drawing review failed to detect.

Action on this item was deferred to a future inspection.

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E. OTHER FINDINGS OR COMMENTS:

Design Input and Change Control - The B&W Topical Report, the NPGD Quality Assurance Manual for Nuclear Steam System (NSS) and Nuclear Steam Core (NSC) Product Lines, and implementing engineering and administrative procedures were reviewed to determine the commitments and requirements relative to the design and release for manufacture of fuel reloads for the owners of certain B&W and Westinghouse NSS's.

Letters, memoranda, licensing schedules, fuel cycle design requirements, computer codes, calculations and summaries, specifications, drawings, reload reports, procurement authorizations, and changes to related documentation were examined to verify commitments. Six nonconformances were identified in this area of inspection.

With respect to nonconformance B.1, B&W revised and reissued Fuel Cycle Design Requirement 89-112700-01 to include the required signatures, determined that this was an isolated case, and committed to revise procedure NPG-0310-42 to clarify the preparation and signature requirements and to revise the format and content of the form on which the design requirements are listed, by August 1, 1982.

With respect to nonconformance B.2, B&W determined that the lack of identification of PUL status on DRN's appeared to be limited to certain documents generated by one individual during the period January 1981 through March 1981. B&W committed to revise all affected DRN's, and to instruct all analysts of the importance of adhering to procedural requirements, by August 1, 1982.



Inspector D. F. Fox

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Scope/Module DESIGN INPUT & DESIGN CHANGE CONTROL

DOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
			2-8-81	
1	8	LICENSING SCHEDULE FOR ANO-1 Cycle 5 REDESIGN <sup>PUL</sup> " "	3-13-81	
2	9	32-1123669-00 "ANO-1 CYS FFCD OFF 329 EFPD CY4	4-15-81	Release Date
3	10	86-1123670-00 "ANO-1 CYS FFCD OFF 329 EFPD CY4	2-17-81	0
4	8	BAW, NP&D, CPSR Program, MIS Report OD-9700 <sup>CPSR Index</sup> (Reg. PUL (L))	2-18-81	Release Date
5	9	32-1119748-00 "OCONEG 2 Cycle Feed off 360 EFPD Cys <sup>PUL</sup>	2-18-81	0
6	4	Draft of Rev 10 of 19A-N.1 - Quality Assurance Manual	5-10-82	NA
7	6	W.E. Patscheider to Distribution - Draft Memo transmitting <sup>Product Control</sup> & AM for review	12-15-82	NA
8	4	BAW-10096A, Rev 4 - Topical Report - BAW NP&D QAP for <sup>Reg. PUL (L)</sup> NRS & NRC	Draft	10
9	6	D.E. GUILBERT to Distribution "Deviation from Administrative Procedures" <sup>Reg. PUL (L)</sup>	March 1982	4
10	8	PUL 92-1123671 for 32-1123669-00 <sup>PUL</sup>	4-13-82	NA
11	9	32-1121869-00 ANO-1 Cys Additional Fuel Worths off 320 D Cys <sup>PUL</sup>	2-24-82	0
12	9	32-1121032-00 ANO-1 Cys Rev. FFCD off 320 EFPD Cys <sup>PUL</sup>	3-9-81	0
13	8	BAW-1658 "Arkansas Nuclear One, Unit 1 - Cycle 5 Reload Report	1-12-81	0
14	8	BAW-1658 "Arkansas Nuclear One, Unit 2 - Cycle 5 Reload Report	JAN 1981	0
15	8	NOA Version 1.0 Revision 0 Computer code - Utility for FLAME	April 1981	1
16	8	NOA/1.0 Certification of Computer Program	JAN 1979	0
17	9	32-1123822-00 "Reload Analysis ANO1 Cys B <sup>PUL</sup> (Ref: 32-1123822-00 - reload analysis) <sup>PUL</sup>	3-15-79	0
18	10	86-1119360-03 "Sects 2, 3 & 5 Reload Report, ANO1 Cys	8-18-81	0
			2-27-81	0

Document Types:

- 1. Drawing
- 2. Specification
- 3. Procedure
- 4. QA Manual
- 5. Purchas Order
- 6. Internal Memo
- 7. Letter
- 8. Other (Specify-if necessary)
- 9 Calculation
- 10 Calculation Data/Transmittal Sheet

Columns:

- 1. Sequential Item Number
- 2. Type of Document
- 3. Date of Document
- 4. Revision (If applicable)

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DOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
19	9	32-1122317-00 "AND-1 CYS MANEUVERING" PUL=V	3-3-81	0
20	9	32-1118024-02 "AND-1 CYS T-H EVALUATION"	2-24-81	2
21	9	32-1118024-00 "AND-1 CYS T-H EVALUATION"	3-28-80	0
22	9	32-1118024-01 "AND-1 CYS T-H EVALUATION" No PUL Starts	1-5-81	1
23	10	86-1123301-00 "AND-1 Cycle 5 Alarm Setpoints" PUL=V	2-23-81	0
24	10	86-1122788-01 "AND-1 Cycle 5 off 320 Cx4 RPS Offset Limit" PUL=V	2-16-81	1
25	10	86-1123301-01 "AND-1 Cycle 5 Alarm Setpoints" No PUL Starts	2-10-81	1
26	10	86-1123252-00 "AND-1 Cycle 5 Tech Spec Limits"	2-23-81	0
27	10	86-1122788-00 "AND-1 Cycle 5 off 320 Cx4 RPS Offset Limit" No PUL Starts	1-7-81	0
28	10	86-1122788-01 "AND-1 Cycle 5 off 320 Cx4 RPS Offset Limit" PUL=V	2-16-81	1
29	10	86-1123144-00 "AND-1 Cycle 5 125% Power Distribution Plan" PUL=V	Feb. 1981	0
30	6	AS-Allen to Distribution "Calculation Package Source Reference Program - Eng. Dept." PUL=V	5-6-81	NA
31	10	86-1123301-02 "AND-1 Cycle 5 Alarm Setpoints" PUL=V	2-27-81	2
32	10	86-1123252-01 "AND-1 Cycle 5 Tech Spec Limits" PUL=V	3-2-81	1
33	9	32-1122317-01 "AND-1 Cycle 5 Maneuvering" PUL=V	4-3-81	1
34	6	AM, Wingfield to Distribution "SARNO SEC0 Cycle 6 Record Licensing Schedule" SCARNO	1-28-92	NA
35	6	PL, Holzman to Distribution "OCONEE I Cycle 8 Record Licensing Schedule (A1)"	2-18-82	NA
36	6	N.Smith to Distribution "Conn Yankee Cycle 12 Licensing Schedule"	2-19-82	NA

- Document Types:
1. Drawing
  2. Specification
  3. Procedure
  4. QA Manual

5. Purchas Order
6. Internal Memo
7. Letter
8. Other (Specify-If necessary)

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Scope/Module DESIGN INPUT & DESIGN CHANGE CONTROLDOCUMENTS EXAMINED

1	2	TITLE/SUBJECT	3	4
37	6	C.E. Barksdale to Distribution "SMUD - Batch 2, Cycle 6 Design Requirements Schedule"	7-7-81	NA
38	6	R.W. Wingfield to Distribution "SMUD - Reactor Seco Cycle 6 Reactor Operating Reprogramming"	7-21-81	NA
39	7	C.E. Barksdale (BSW) to D.G. Raasch (SMUD) "Approved Reload Licensing Reprogramming"	7-24-81	NA
40	1	170391 C "Mark-B Upper Spring Spacet"	4-10-75	0
41	1	170390 E "Arrangement Plan View"	1-16-78	1
42	1	170394 C "Fuel Rod Tubing (As Ordered) Mark-B"	6-6-75	3
43	1	1118877 D "Axial Blanket Fuel Rod Assembly - Mark B"	2-2-77	8
44	1	1004892 C "UO <sub>2</sub> FUEL PELLETS - MARK B"	5-25-80	1
45	2	Special Instruction (SI) 39-1126587-00 "08-1005405-01 Sintered UO <sub>2</sub> Fuel Pellets"	11-1-78	0
46	2	08-1005405-01 "Sintered Uranium Dioxide Pellets (Fabricator CAI)"	9-29-80	1
47	2	08-1116-04 "Pellet Type, Zircaloy Clad Fuel Rod"	8-4-81	4
48	2	SI 39-1132487-00 "08-1116-04 Pellet Type Zircaloy Clad Fuel Rod"	10-18-80	0
49	8	PA (Procurement Authorization) 83-768561-11, Fuel, SMUD, Reactor Seco	3-29-82	0
50	8	PA 83-768661-00, Fuel Assembly Component, SMUD, Reactor Seco	4-27-82	0
51	8	PA 83-768661-01, Mark B4 Fuel Assembly & Axial Blanket Fuel Assembly	9-12-80	0
52	8	PA 83-768661-03 Chem 09, Mark B4 Fuel Assembly & Blanket Assemblies	1-22-81	2
53	2	SI 39-1103731-01 on 08-1005405-00 Sintered UO <sub>2</sub> Fuel Pellets	8-10-81	3-9
54	2	SI 39-10021-00 on 08-1116-01 Fuel Rod Specification	5-5-82	1
			7-18-80	0
			2-16-77	

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6. Internal Memo
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