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June 3, 2003

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 2; Docket No. 50-318
60 Days After Plant Restart Report - NRC Order EA-03-009, Interim Inspection Requirement for Reactor Pressure Vessel Heads at Pressurized Water Reactors (TAC No. MB7753)

REFERENCES:

(a) Letter from Mr. S. J. Collins (NRC) to Holders of Licenses for Operating Pressurized Water Reactors, dated February 11, 2003, Issuance of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors (EA-03-009)

(b) Letter from Mr. S. A. Richards (NRC) to Mr. P. E. Katz (CCNPP), dated April 18, 2003, Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 – Relaxation of the Requirements of Order (EA-03-009), Regarding Reactor Pressure Vessel Head Inspections (TAC Nos. MB7752 and MB7753)

The purpose of this letter is to forward Calvert Cliffs Nuclear Power Plant, Inc's "60 Days After Plant Restart" report requested in Section IV(E) of NRC Order EA-03-009 (Reference a). Calvert Cliffs Nuclear Power Plant completed the inspection of Unit 2 reactor vessel head penetrations required by Reference (a), as modified by Reference (b), and returned the plant to operation on April 22, 2003.

Attachment (1) to this letter provides the requested report. Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

Peter E. Katz

PEK/GT/bjd

Attachment: (1) 60 Days After Plant Restart Report - NRC Order EA-03-009, Interim Inspection Requirement for Reactor Pressure Vessel Heads at Pressurized Water Reactors

cc: J. Petro, Esquire
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ATTACHMENT (1)

60 DAYS AFTER PLANT RESTART REPORT

NRC ORDER EA-03-009, INTERIM INSPECTION REQUIREMENT FOR REACTOR PRESSURE VESSEL HEADS AT PRESSURIZED WATER REACTORS

Calvert Cliffs Nuclear Power Plant, Inc.
June 3, 2003

ATTACHMENT (1)

60 DAYS AFTER PLANT RESTART REPORT -- NRC ORDER EA-03-009, INTERIM INSPECTION REQUIREMENT FOR REACTOR PRESSURE VESSEL HEADS AT PRESSURIZED WATER REACTORS

Calvert Cliffs Nuclear Power Plant completed the inspection of Unit 2 reactor vessel head penetrations required by NRC Order EA-03-009 (Reference 1), as modified by Reference (2), and returned the plant to operation on April 22, 2003.

Calvert Cliffs Unit 2 is in the highest susceptibility category as a result of having accumulated greater than 12 Effective Degradation Years, which was calculated in accordance with the methodology provided in the Order. For those plants in the High category, reactor pressure vessel (RPV) head and head penetration nozzle inspections must be performed using the following techniques every refueling outage;

(a) Bare metal visual examination of 100% of the RPV head surface (including 360° around each RPV head penetration nozzle), AND

(b) Either:

  (i) Ultrasonic testing of each RPV head penetration nozzle (i.e., nozzle base material) from two inches above the J-groove weld to the bottom of the nozzle and an assessment to determine if leakage has occurred into the interference fit zone, OR

  (ii) Eddy current testing or dye penetrant testing of the wetted surface of each J-groove weld and the RPV head penetration nozzle base material to at least two inches above the J-groove weld.

Calvert Cliffs requested and was granted relaxation from the requirements to examine the nozzle from the bottom of the nozzle to two inches above the J-groove weld (Reference 2). The relaxation provided the alternative scope of inspecting the nozzles from 0.56 inches above the bottom of the nozzle to a minimum of 0.95 inches above the J-groove weld.

The bare metal visual examination was accomplished with no indications of leakage. Every penetration was examined 360° around. The head was very clean, with no evidence of degradation of any kind.

The vent line and in-core instrument (ICI) penetrations were examined using a rotating ultrasonic testing (UT) probe. These examinations included all of the nozzle material from the bottom of the nozzle to greater than two inches above the J-groove weld. There were no indications of cracking or degradation.

For the ICI penetrations, an assessment to determine if leakage has occurred into the interference fit zone was performed using an ultrasonic technique. There was no evidence of leakage.

For the vent line, a UT leakage path assessment could not be performed because the vent line was installed with a clearance fit. For the vent line the assessment to determine whether leakage has occurred into the interference fit zone was accomplished by performing a penetrant examination (PT) of the J-groove weld surface. The initial PT exam revealed small rounded indications that were attributed to fabrication induced artifacts. The indications were removed using a burring tool. The weld surface was PT tested again. Several very small indications were noted in locations different from the original indications. These were small enough to be noted as non-relevant and were prototypical porosity indications. A flapper wheel was used to further interrogate these indications. A final PT test revealed no relevant indications. None of the indications noted in the PT exams had characteristics that could have represented a leak path.

All of the control element drive mechanism penetrations were inspected using UT techniques. The assessment to determine if leakage has occurred into the interference fit zone was performed using an

ultrasonic technique. All nozzles were examined from 0.56 inches above the bottom of the nozzle to a minimum of 0.95 inches above the J-groove weld. The majority of the nozzles were inspected to a distance significantly greater than 0.95 inches above the J-groove weld 360° around. Even those nozzles where the minimum distance above the J-groove weld approached 0.95 inches in one area the majority of the nozzle was inspected to a distance significantly greater than 0.95 inches above the J-groove weld. No indications of degradation, cracking or leaking were identified. Results of the RPV head penetration examinations are provided in Table 1.

REFERENCES:

(1) Letter from Mr. S. J. Collins (NRC) to Holders of Licenses for Operating Pressurized Water Reactors, dated February 11, 2003, Issuance of Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors (EA-03-009)

(2) Letter from Mr. S. A. Richards (NRC) to Mr. P. E. Katz (CCNPP), dated April 18, 2003, Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 – Relaxation of the Requirements of Order (EA-03-009), Regarding Reactor Pressure Vessel Head Inspections (TAC Nos. MB7752 and MB7753)

ATTACHMENT (1)

60 DAYS AFTER PLANT RESTART REPORT -- NRC ORDER EA-03-009, INTERIM INSPECTION REQUIREMENT FOR REACTOR PRESSURE VESSEL HEADS AT PRESSURIZED WATER REACTORS

TABLE 1

RESULTS OF THE RPV HEAD PENETRATION EXAMINATIONS FOR CCNPP UNIT 2

(Page 1 of 3)

Extent of UT Coverage in Reactor Vessel Head Penetration Nozzle Material						Leak Path Assessment Determination Possible?	UT Indications/ Leakage Path Indications (Yes/No)
Pen #	Min ** Distance Above Weld Root	Coverage Above Weld Root (Theta)	Coverage @ Weld Root (Theta)	Weld Region Coverage (Theta)	Below Weld Coverage (Theta)		
1	2.0	360	360	360	360	Yes	No
2	1.6*	360	360	360	360	Yes	No
3	1.55*	360	360	360	360	Yes	No
4	1.85*	360	360	360	360	Yes	No
5	1.65*	360	360	360	360	Yes	No
6	2.11	360	360	360	360	Yes	No
7	1.40*	360	360	360	360	Yes	No
8	1.83*	360	360	360	360	Yes	No
9	1.4*	360	360	360	360	Yes	No
10	1.40*	360	360	360	360	Yes	No
11	1.9*	360	360	360	360	Yes	No
12	1.7*	360	360	360	360	Yes	No
13	1.45*	360	360	360	360	Yes	No
14	1.95*	360	360	360	360	Yes	No
15	1.70*	360	360	360	360	Yes	No
16	1.8*	360	360	360	360	Yes	No
17	2.12	360	360	360	360	Yes	No
18	1.45*	360	360	360	360	Yes	No
19	1.45*	360	360	360	360	Yes	No
20	1.45*	360	360	360	360	Yes	No
21	1.55*	360	360	360	360	Yes	No
22	1.65*	360	360	360	360	Yes	No
23	1.45*	360	360	360	360	Yes	No
24	1.7*	360	360	360	360	Yes	No
25	1.65*	360	360	360	360	Yes	No
26	1.55*	360	360	360	360	Yes	No
27	1.46*	360	360	360	360	Yes	No
28	1.82*	360	360	360	360	Yes	No
29	1.82*	360	360	360	360	Yes	No
30	1.75*	360	360	360	360	Yes	No
31	1.20*	360	360	360	360	Yes	No
32	1.5*	360	360	360	360	Yes	No
33	1.24*	360	360	360	360	Yes	No
34	1.43*	360	360	360	360	Yes	No
35	1.3*	360	360	360	360	Yes	No
36	1.45*	360	360	360	360	Yes	No

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60 DAYS AFTER PLANT RESTART REPORT -- NRC ORDER EA-03-009, INTERIM INSPECTION REQUIREMENT FOR REACTOR PRESSURE VESSEL HEADS AT PRESSURIZED WATER REACTORS

TABLE 1

RESULTS OF THE RPV HEAD PENETRATION EXAMINATIONS FOR CCNPP UNIT 2

(Page 2 of 3)

Extent of UT Coverage in Reactor Vessel Head Penetration Nozzle Material						Leak Path Assessment Determination Possible?	UT Indications/ Leakage Path Indications (Yes/No)
Pen #	Min ** Distance Above Weld Root	Coverage Above Weld Root (Theta)	Coverage @ Weld Root (Theta)	Weld Region Coverage (Theta)	Below Weld Coverage (Theta)		
37	1.85*	360	360	360	360	Yes	No
38	1.30*	360	360	360	360	Yes	No
39	1.39*	360	360	360	360	Yes	No
40	1.37*	360	360	360	360	Yes	No
41	1.2*	360	360	360	360	Yes	No
42	1.2*	360	360	360	360	Yes	No
43	0.95*	360	360	360	360	Yes	No
44	1.05*	360	360	360	360	Yes	No
45	1.4*	360	360	360	360	Yes	No
46	1.3*	360	360	360	360	Yes	No
47	1.15*	360	360	360	360	Yes	No
48	1.50*	360	360	360	360	Yes	No
49	1.15*	360	360	360	360	Yes	No
50	1.2*	360	360	360	360	Yes	No
51	1.0*	360	360	360	360	Yes	No
52	1.3*	360	360	360	360	Yes	No
53	1.2*	360	360	360	360	Yes	No
54	1.2*	360	360	360	360	Yes	No
55	1.55*	360	360	360	360	Yes	No
56	1.80*	360	360	360	360	Yes	No
57	1.2*	360	360	360	360	Yes	No
58	1.25*	360	360	360	360	Yes	No
59	1.55*	360	360	360	360	Yes	No
60	1.2*	360	360	360	360	Yes	No
61	1.0*	360	360	360	360	Yes	No
62	1.25*	360	360	360	360	Yes	No
63	1.25*	360	360	360	360	Yes	No
64	1.35*	360	360	360	360	Yes	No
65	1.50*	360	360	360	360	Yes	No
ICI1	>2	360	360	360	360	Yes	No
ICI2	>2	360	360	360	360	Yes	No
ICI3	>2	360	360	360	360	Yes	No
ICI4	>2	360	360	360	360	Yes	No
ICI5	>2	360	360	360	360	Yes	No
ICI6	>2	360	360	360	360	Yes	No
ICI7	>2	360	360	360	360	Yes	No

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TABLE 1

RESULTS OF THE RPV HEAD PENETRATION EXAMINATIONS FOR CCNPP UNIT 2

(Page 3 of 3)

Extent of UT Coverage in Reactor Vessel Head Penetration Nozzle Material						Leak Path Assessment Determination Possible?	UT Indications/ Leakage Path Indications (Yes/No)
Pen #	Min ** Distance Above Weld Root	Coverage Above Weld Root (Theta)	Coverage @ Weld Root (Theta)	Weld Region Coverage (Theta)	Below Weld Coverage (Theta)		
ICI8	>2	360	360	360	360	Yes	No
Vent line	>2	360	360	360	360	Yes***	No

* Relaxation from the Order requirement to inspect two inches above the J-groove weld was granted.

** Coverage is for nozzle outside diameter. Nozzle inside diameter coverage is 0.43 inches greater for all control element drive mechanism penetrations.

*** Leak path assessment performed by PT of weld.