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CENG

a joint venture of



Constellation
Energy



EDF

CALVERT CLIFFS
NUCLEAR POWER PLANT

December 30, 2010

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Supplemental Information Regarding Generic Letter 2004-02

REFERENCE: (a) Letter from G. H. Gellrich (CCNPP) to Document Control Desk (NRC), dated July 23, 2010, Request for Additional Information Regarding Generic Letter 2004-02

In Reference (a), Calvert Cliffs provided our final responses to the Staff's request for additional information. In that response, we committed to provide the Nuclear Regulatory Commission with results from the sump strainer testing conducted this summer and the final plant modification commitments and schedule. Attachment (1) provides the testing and modification information.

A116
NRR

Should you have questions regarding this matter, please contact Mr. Douglas E. Lauver at (410) 495-5219.

Very truly yours,

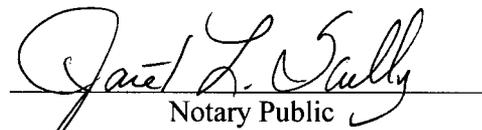


STATE OF MARYLAND :
: TO WIT:
COUNTY OF CALVERT :

I, George H. Gellrich, being duly sworn, state that I am Vice President - Calvert Cliffs Nuclear Power Plant, LLC (CCNPP), and that I am duly authorized to execute and file this response on behalf of CCNPP. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other CCNPP employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.



Subscribed and sworn before me, a Notary Public in and for the State of Maryland and County of St. Mary's, this 30th day of December, 2010.


Notary Public

My Commission Expires:

March 1, 2011
Date

GHG/PSF/bjd

Attachment: (1) Summary of Calvert Cliffs Strainer Head Loss Testing and Required Modifications

cc: D. V. Pickett, NRC
W. M. Dean, NRC

Resident Inspector, NRC
S. Gray, DNR

ATTACHMENT (1)

**SUMMARY OF CALVERT CLIFFS STRAINER HEAD LOSS TESTING
AND REQUIRED MODIFICATIONS**

ATTACHMENT (1)

SUMMARY OF CALVERT CLIFFS STRAINER HEAD LOSS TESTING AND REQUIRED MODIFICATIONS

Sump strainer head loss testing was conducted during June-July 2010 in Winterthur, Switzerland for Calvert Cliffs. Seven tests were performed. The debris load inputs were developed as described in Reference 1. Debris quantities (Table 1) and the head loss results (Table 2) for the tests are provided in the tables below.

Table 1, Debris Amounts

	Nukon	Transco Fiber	Temp Mat	Generic Fiber	Paint Chips	Marinite	Silicon Carbide	Precipitate (NAS)
Test 1	1.516	2.681	0.069	0.173	0.254	0.015	2.844	0.088
Test 2	0.336	0	0.070	0.242	0	0.015	3.581	0.096
Test 3	0.644	0.594	0.069	0.394	0.254	0.015	3.581	0.096
Test 4	0.138	0.873	0.069	0.036	0.254	0	2.908	0.077
Test 5	0.339	0.873	0.069	0.046	0.331	0	3.645	0.087
Test 6	0.339	0.873	0.069	0.046	0.331	0	3.645	0.087
Test 7	0.237	0.873	0.069	0	0.254	0.015	2.844	0.091

Table 2, Head Losses of All Tests

	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7
Max head loss (mBar)	4.4	1.5	94.6	17.9	36.2	97.8	19.6
Final head loss (mBar)	4.4	1.3	35.2	10.3	19.4	58.3	18.7

Test 1 utilized fines and small pieces (the fines did not include erosion of small and large pieces). Since the head loss result was lower than expected (4.4 mBar), concern arose that the debris mix utilizing small pieces was not conservative. Therefore, thin-bed testing without small pieces was pursued.

Test 2 was a thin-bed test. No thin-bed formation was observed, and because of the small head loss result (1.5 mBar), concern still existed that the most conservative debris composition had not been found.

Test 3 used the debris load listed in Table 1, but only used fines. The head loss result (94.6 mBar) exceeded the specified design maximum value of 50 mBar. Therefore additional testing with reduced debris loads was required.

Test 4 used lower debris loads than Tests 2 and 3, and again only fines were used. However, now the fines included the additional amount of fines which might result from erosion of small and large pieces. The head loss result (17.9 mBar) was significantly below the specified design maximum value of 50 mBar; therefore, additional testing with increased debris loads was pursued.

Test 5 used higher debris loads than in Test 4, and again only fines were used. The head loss result (36.2 mBar) was near the specified design maximum value of 50 mBar; however, after this test it was concluded that actual cloth cover of lead shield blankets needed to be included in the debris mix to ensure a prototypical test. Therefore, additional testing was pursued.

Test 6 used the same debris loads as Test 5 except that debris from the cloth covers of lead shield blankets was included. The head loss result (97.8 mBar) was significantly greater than the previous test which did not have the cloth cover of the lead shield blankets; however, test observations did not support the belief

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SUMMARY OF CALVERT CLIFFS STRAINER HEAD LOSS TESTING AND REQUIRED MODIFICATIONS

that the cloth cover of the lead shield blankets had any effect at all on the test results, much less an effect that would nearly triple the measured head loss. Instead it was observed that non-prototypical agitation of the settled debris had created a non-prototypical debris bed, and consequently the test results were invalid. Therefore, additional testing was pursued.

Test 7 used slightly lower debris loads than Test 6 with debris from the cloth cover of lead shield blankets still included. The head loss result (19.6 mBar) was consistent with the results from Test 4 and showed that the cloth cover of the lead shield blankets had no effect at all on the test results. Figure 1 shows the head loss over time for Test 7. This test represents our design basis case.

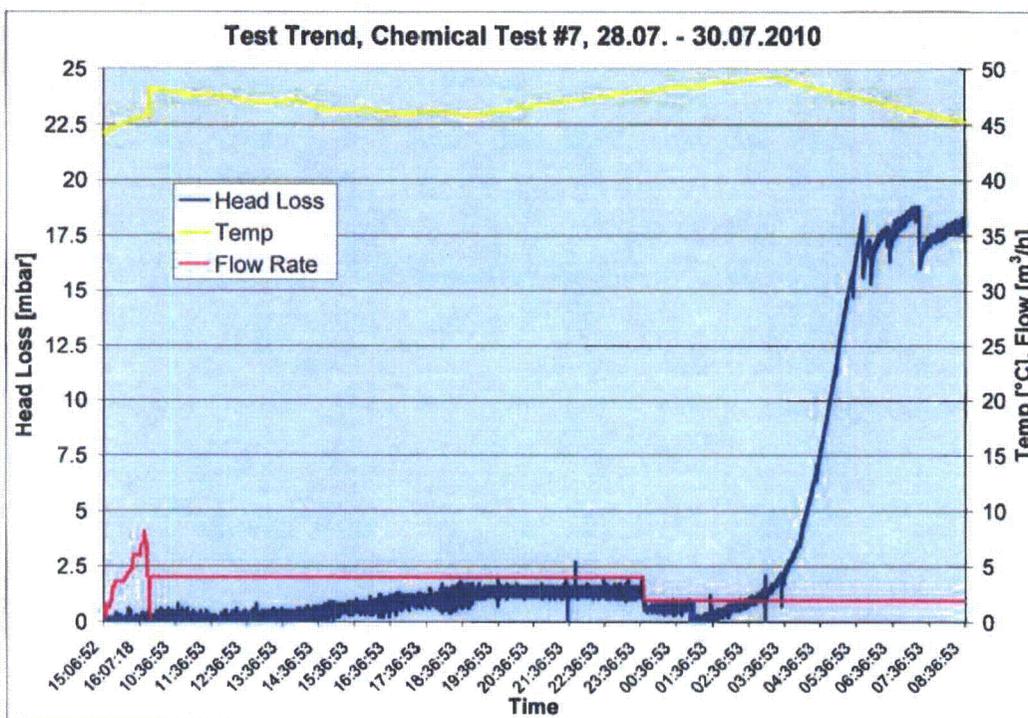


Figure 1, Test 7 Results

Required Field Modifications

Test 7 is the test which showed both acceptable head loss results and accounted for all debris components in a proper manner. The field modifications required to bring the Units into conformance with the Test 7 configuration are listed below.

By July 2014, the following modifications will be completed on both Units:

1. Remove telescoping aluminum ladder from the Polar Crane in Containment.
2. Enlarge the reactor refueling cavity drains to reduce post-loss-of-coolant accident water holdup and increase strainer submergence.
3. Ensure Operations has a means of assessing containment sump pool temperature.
4. Replace appropriate mineral wool insulation with reflective metal insulation or banded Nukon/Thermal Wrap insulation.

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SUMMARY OF CALVERT CLIFFS STRAINER HEAD LOSS TESTING AND REQUIRED MODIFICATIONS

5. Replace appropriate generic fiberglass insulation with reflective metal insulation, banded Nukon/Thermal Wrap insulation, Foamglass insulation or coatings.

By July 2016, the following modifications will be completed on both Units:

1. Replace selected reactor coolant piping and reactor coolant pump insulation with reflective metal insulation.
2. Add Sure-Hold Bands to appropriate piping sections containing existing Nukon insulation, or replace existing Nukon insulation on appropriate piping sections with reflective metal insulation.

REFERENCE:

1. Letter from G. H. Gellrich (CCNPP) to Document Control Desk (NRC), dated July 23, 2010, Request for Additional Information Regarding Generic Letter 2004-02