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CENG
a joint venture of Constellation Energy / EDF

CALVERT CLIFFS
NUCLEAR POWER PLANT

January 11, 2012

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
Responses to Request for Additional Information Regarding Diesel Generator Surveillance Requirement 3.8.1.11

REFERENCES:

(a) Letter from Mr. G. H. Gellrich (CCNPP) to Document Control Desk (NRC), dated August 8, 2011, License Amendment Request: Diesel Generator Surveillance Requirement 3.8.1.11 Revision

(b) Letter from Mr. D. V. Pickett (NRC) to Mr. G. H. Gellrich (CCNPP), dated November 22, 2011, Request for Additional Information Regarding Diesel Generator Surveillance Requirement 3.8.1.11 – Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (TAC Nos. ME6831 and ME6832)

In Reference (a), Calvert Cliffs Nuclear Power Plant, LLC (Calvert Cliffs) submitted a license amendment request to revise Technical Specification Surveillance Requirement 3.8.1.11 by revising the required power factor value to be achieved by the diesel generators during conduct of the surveillance test. In Reference (b), the Nuclear Regulatory Commission issued a request for additional information to support their review of Calvert Cliffs' license amendment request. Attachment (1) contains Calvert Cliffs' response to the request for additional information.

A001

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 License Amendment Request 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 11th day of January, 2012.

WITNESS my Hand and Notarial Seal:

Notary Public

My Commission Expires: March 14, 2015

Date

GHG/KLG/bjd

Attachment: (1) Calvert Cliffs Response to NRC Request for Additional Information

cc: D. V. Pickett, NRC
W. M. Dean, NRC
Resident Inspector, NRC
S. Gray, DNR

ATTACHMENT (1)

CALVERT CLIFFS RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION

Calvert Cliffs Nuclear Power Plant, LLC
January 11, 2012

NRC RAI #1:

Provide a summary of diesel generator (DG) loading calculations which detail the real and reactive power loading of the DGs for the postulated accidents. Identify loads that may be manually added via plant controlled procedures during the postulated worst case events. Verify that the loading calculation includes any impact on the DG loading due to variation in voltage and frequency that is allowable for steady state DG operation and any effects of large pumps operating at run out conditions at the onset of an event.

CCNPP Response #1:

As determined in Reference 1, Table 1 below provides a summary of diesel generator (DG) loading calculations which detail the real and reactive power loading of the DGs for the postulated accidents.

Table 1 - Highest Values in Design Basis Scenarios

DG	EVENT	kW	kVAR	kVA	PF
1A	MSLB	3248.7	2325.9	3995.5	0.81
	LBLOCA	3298.2	2370.5	4061.7	0.81
	SBLOCA	3239.4	2325.3	3987.6	0.81
	NORMAL	3504.4	2302.9	4193.4	0.84
1B	MSLB	2381.9	1595.8	2867	0.83
	LBLOCA	2567.7	1699.9	3079.4	0.83
	SBLOCA	2423.7	1639.3	2926	0.83
	NORMAL	2397.3	1460.1	2807	0.85
2A	MSLB	2412.1	1649.1	2921.9	0.83
	LBLOCA	2598.1	1753.9	3134.8	0.83
	SBLOCA	2454	1692.6	2981.1	0.82
	NORMAL	2441.9	1500.1	2865.9	0.85
2B	MSLB	2873.5	1897.6	3443.5	0.83
	LBLOCA	2911	1964.5	3511.8	0.83
	SBLOCA	2864.1	1897	3435.4	0.83
	NORMAL	2768.6	1644.9	3220.4	0.86

MSLB – Main Steam Line Break
LBLOCA – Large Break Loss-of-Coolant Accident
SBLOCA – Small Break Loss-of-Coolant Accident

The criterion for determining which power factor to use was based on using the highest design basis kW load in each scenario. For the Fairbanks Morse DGs (DG 1B, 2A, and 2B), the LBLOCA scenario had the highest kW, kVAR, and kVA values, so the associated power factor (0.83) was selected for each of these DGs. For the Societe Alsacienne De Constructions Mecaniques De Mulhouse (SACM) DG (DG 1A), the LBLOCA scenario had a higher kVAR, but its kW was not the largest kW. Since the NORMAL scenario exhibited the highest kW value, the kVAR associated with the NORMAL scenario was used to determine a power factor of 0.84 for DG 1A. Coupling the highest kVAR of 2370.5 with the highest kW of 3504.5 was not chosen, since it would create an outside of design basis scenario.

Listed below are loads that may be manually added via plant controlled procedures during these postulated worst case events.

MSLB

Hydrogen Recombiner, Hydrogen Analyzer Sample Pump, Spent Fuel Cooling Pump, Proportional Pressurizer Heaters, Switchyard Auxiliary Loads Feeder Breaker, Cavity Cooling Fan. For shutdown cooling initiation: Backup component cooling pump, MOV 651 and 652, and LPSI Pump.

LBLOCA

Hydrogen Recombiner, Hydrogen Analyzer Sample Pump, Spent Fuel Cooling Pump, Switchyard Auxiliary Loads Feeder Breaker. For shutdown cooling initiation and beyond: Backup HPSI pump, cavity cooling fan, and LPSI pump.

SBLOCA

Hydrogen Recombiner, Hydrogen Analyzer Sample Pump, Spent Fuel Cooling Pump, Proportional Pressurizer Heaters, Switchyard Auxiliary Loads Feeder Breaker. For shutdown cooling initiation and beyond: Backup HPSI pump, cavity cooling fan, MOV 651 and 652, and LPSI pump.

NORMAL

Backup Pressurizer Heaters and Pressurizer Spray, Charging Pumps, Main Plant Exhaust Fan, Service Water Pump Room Ventilation, Spent Fuel Pool Cooling Pump, TSC HVAC System (Unit 1 only), Distribution Panel 11 or 21, Telephone Transformer (Unit 1 only), AFW Pump Room A/C, Battery Charger 15 or 25, Boric Acid Pump and associated MOVs, Cavity Cooling Fan, Switchyard Auxiliary Loads Feeder Breaker. For shutdown cooling initiation and beyond: MOV 651 and 652, and LPSI pump.

Reference 1 includes a section that evaluates the effect of small frequency variations on the real and reactive DG loading. A variation of +/- 1.2 Hz from 60 Hz is calculated to produce a change in load of approximately +/- 6%; however, this change is not included in the accident load totals.

The status of large pumps operating at run out conditions is detailed in Reference 1 and is accounted for in the calculated load totals.

NRC RAI #2:

SR 3.8.1.11 requires testing for ≥ 60 minutes to ensure the DG's ability to perform its safety function. However, operating experience at some plants with 24-hour surveillance times has identified some weaknesses in the DG systems which would not have been identified if the SR was performed for a lesser duration. Regulatory Guide 1.9 also recommends testing of emergency DGs for 22 hours at nominal rating and 2 hours at the short term overload capability.

Provide justification for not adopting the current regulatory guidance for DG testing.

CCNPP Response #2:

Although not part of Calvert Cliffs' Technical Specifications, there are times when the DGs are run for greater than a one hour period. They include:

- Performances of a four hour run of each DG approximately every two years. This is generally done following performance of a major engine inspection of the DGs.
- Performance of a bearing run-in on the 1A DG approximately every eight years. This run requires approximately 11 hours of operation at various loads, up to full load.
- Performance of a multi-hour run when a main bearing on one of the three Fairbanks Morse DGs is disturbed.
- Performances of a four hour run if any of the Fairbanks Morse DGs are started without pre-lubrication.
- Performance of an extended run following DG maintenance as part of the post-maintenance testing plan. The test runs and durations are determined based on the scope and nature of the maintenance performed. An extended run provides the opportunity to identify any latent failure mechanism that may be introduced during maintenance. In fact, following recent maintenance, one of the DGs was run for at least 24 hours as part of the post-maintenance testing.

While we believe there is a benefit to performing appropriate testing following DG maintenance, including endurance runs, we also consider that the testing scope and duration should be based on the maintenance activities performed. This could result in testing up to a 24 hour duration run, as well as shorter runs.

The current licensing basis for DG testing is Regulatory Guide 1.108, Revision 0. This revision of the Regulatory Guide did not require a 24 hour test in the Technical Specification Surveillance Requirements. Our current Technical Specification Surveillance Requirements continue to meet this licensing basis.

On several occasions the Surveillance Requirements for the DGs have been reviewed and approved, by the Nuclear Regulatory Commission. This includes Reference 2, which approved a revised electrical plant distribution configuration and the Surveillance Requirements and Limiting Conditions for Operation for our new safety related DG (DG 1A). Later, during Calvert Cliffs' transition to Improved Technical Specifications, the DG Surveillance Requirements were again reviewed, but not changed (Reference 3).

Note that this amendment request is to correct an existing, non-conservative error by aligning the power factor value listed in Surveillance Requirement 3.8.1.11 to the power factor contained in the design calculation. We are not seeking a voluntary change to the licensing basis; rather we have submitted this change in accordance with Reference 4.

REFERENCES

1. Calvert Cliffs Calculation E-88-015, "Diesel Generator Accident Loading"
2. Letter from D. G. McDonald (NRC) to C. H. Cruse (CCNPP), dated April 2, 1996, Issuance of Amendments for Calvert Cliffs Nuclear Power Plant (Amendments 214, Unit 1 and 191, Unit 2)
3. Letter from A. W. Dromerick (NRC) to C. H. Cruse(CCNPP), dated May 4, 1998, Issuance of Amendments for Calvert Cliffs Nuclear Power Plant (Amendments 227, Unit 1 and 201, Unit 2)
4. NRC Administrative Letter 98-10, dated December 29, 1998, Dispositioning of Technical Specifications That are Insufficient to Assure Plant Safety