ArevaEPRDCPEm Resource

From: Pederson Ronda M (AREVA NP INC) [Ronda.Pederson@areva.com]
Sent: Wednesday, February 18, 2009 4:56 PM
To: Getachew Tesfaye
Cc: KOWALSKI David J (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 87, Supplement 4
Attachments: RAI 87 Supplement 4 Response US EPR DC.pdf

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 10 of the 19 questions of RAI No. 87 on November 10, 2008. AREVA NP submitted Response to RAI No. 87, Supplement 1 on December 5, 2008 to address 1 of the remaining questions. AREVA NP submitted Supplement 2 on January 20, 2009 to address 4 of the remaining questions. AREVA NP submitted Supplement 3 on February 6, 2009 to address 1 of the remaining questions.

The attached file, "RAI 87 Supplement 4 Response US EPR DC.pdf" provides technically correct and complete responses to the remaining 3 questions, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which supports the response to RAI 87 Questions 09.05.07-2 and 09.05.07-8.

The following table indicates the respective pages in the response document, "RAI 87 Supplement 4 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 87 — 09.05.07-2	2	2
RAI 87 — 09.05.07-7	3	3
RAI 87 — 09.05.07-8	4	5

This concludes the formal AREVA NP response to RAI 87, and there are no questions from this RAI for which AREVA NP has not provided responses.

Sincerely,

Ronda Pederson
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Licensing Manager, U.S. EPR Design Certification
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An AREVA and Siemens company
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From: WELLS Russell D (AREVA NP INC)
Sent: Friday, February 06, 2009 5:26 PM
To: 'Getachew Tesfaye'
Cc: Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC);

SLIVA Dana (EXT)
Subject: Response to U.S. EPR Design Certification Application RAI No. 87, FSAR Ch 9, Supplement 3

Getachew,

AREVA NP Inc. provided responses to 10 the 19 questions of RAI No. 87 on November 10, 2008. Supplement 1 response to RAI No. 87 was sent on December 5, 2008 to address 1 of the remaining 9 questions. Supplement 2 response to RAI No. 87 was sent on January 20, 2009 to address 4 of the remaining 8 questions. The attached file, "RAI 87 Supplement 3 Response US EPR DC.pdf" provides a technically correct and complete response to 1 of the remaining 4 questions, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 87 Question 09.02.04-01.

The following table indicates the respective pages in the response document, "RAI 87 Supplement 3 Response US EPR DC.pdf," that contain AREVA NP's response to the subject question.

Question #	Start Page	End Page
RAI 87 — 09.02.04-1	2	2

The schedule for technically correct and complete responses to the remaining 3 questions is unchanged and provided below:

Question #	Response Date
RAI 87 — 09.05.07-2	February 20, 2009
RAI 87 — 09.05.07-7	February 20, 2009
RAI 87 — 09.05.07-8	February 20, 2009

Sincerely,

(Russ Wells on behalf of)
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From: Pederson Ronda M (AREVA NP INC)
Sent: Tuesday, January 20, 2009 5:51 PM
To: Getachew Tesfaye
Cc: WILLIFORD Dennis C (AREVA NP INC); KOWALSKI David J (AREVA NP INC); DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 87, Supplement 2

Getachew,

AREVA NP Inc. provided responses to 10 of the 19 questions of RAI No. 87 on November 10, 2008. AREVA NP provided a response to 1 of the remaining 9 questions on December 5, 2008. The attached file, "RAI 87 Supplement 2 Response US EPR DC.pdf" provides technically correct and complete responses to 4 of the remaining 8 questions, as committed in the revised schedule provided on January 8, 2009.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 87, Supplement 2, Questions 09.05.07-5, 09.01.03-7 and 09.01.03-10.

The following table indicates the respective page(s) in the response document, "RAI 87 Supplement 2 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 87 — 09.05.07-5	2	3
RAI 87 — 09.05.07-6	4	4
RAI 87 — 09.01.03-7	5	5
RAI 87 — 09.01.03-10	6	6

The schedule for technically correct and complete responses to the remaining 4 questions is unchanged and provided below:

Question #	Response Date
RAI 87 — 09.02.04-1	February 13, 2009
RAI 87 — 09.05.07-2	February 20, 2009
RAI 87 — 09.05.07-7	February 20, 2009
RAI 87 — 09.05.07-8	February 20, 2009

Sincerely,

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From: Pederson Ronda M (AREVA NP INC)
Sent: Thursday, January 08, 2009 4:29 PM
To: 'Getachew Tesfaye'
Cc: KOWALSKI David J (AREVA NP INC); DELANO Karen V (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 87, Revised Schedule

Getachew,

AREVA NP Inc. (AREVA NP) provided responses to 10 of the 19 questions of RAI No. 87 on November 10, 2008. AREVA NP provided a response to 1 of the remaining 9 questions on December 5, 2008. However, the table which provided the schedule for technically complete and correct responses to the remaining questions incorrectly stated the Question #'s as "RAI 83" rather than "RAI 87."

In addition to correcting the Question #'s from "RAI 83" to "RAI 87," the schedule for technically correct and complete responses to the remaining 8 questions has been revised and is provided below:

Question #	Response Date
RAI 87 — 09.01.03-7	January 21, 2009
RAI 87 — 09.01.03-10	January 20, 2009
RAI 87 — 09.02.04-1	February 13, 2009
RAI 87 — 09.05.07-2	February 20, 2009
RAI 87 — 09.05.07-5	January 21, 2009
RAI 87 — 09.05.07-6	January 21, 2009
RAI 87 — 09.05.07-7	February 20, 2009
RAI 87 — 09.05.07-8	February 20, 2009

Sincerely,

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From: DUNCAN Leslie E (AREVA NP INC)
Sent: Friday, December 05, 2008 6:44 PM
To: Getachew Tesfaye
Cc: John Rycyna; Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 87, Supplement 1, FSAR Ch 9

Getachew,

AREVA NP Inc. provided responses to 10 of the 19 questions of RAI No. 87 on November 10, 2008. The attached file, "RAI 87 Supplement 1 Response US EPR DC.pdf" provides technically correct and complete responses to one of the remaining 9 questions, as committed.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 87 Question 09.01.03-4.

The following table indicates the respective pages in the response document, "RAI 87 Supplement 1 Response US EPR DC.pdf" that contain AREVA NP's response to the subject question.

Question #	**Start Page**	**End Page**
RAI 87 — 09.01.03-4	2	2

The schedule for technically correct and complete responses to the remaining 8 questions is unchanged and provided below:

Question #	**Response Date**

RAI 83 — 09.01.03-7	January 21, 2009
RAI 83 — 09.01.03-10	January 20, 2009
RAI 83 — 09.02.04-1	February 13, 2009
RAI 83 — 09.05.07-2	February 20, 2009
RAI 83 — 09.05.07-5	January 9, 2009
RAI 83 — 09.05.07-6	January 9, 2009
RAI 83 — 09.05.07-7	February 20, 2009
RAI 83 — 09.05.07-8	February 20, 2009

Sincerely,

(Les Duncan on behalf of)

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From: Pederson Ronda M (AREVA NP INC)
Sent: Tuesday, November 11, 2008 2:55 PM
To: 'Getachew Tesfaye'
Cc: WELLS Russell D (AREVA NP INC); DELANO Karen V (AREVA NP INC); DUNCAN Leslie E (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 87, FSAR Ch 9 Correction

Getachew,

On November 10, 2008, AREVA NP transmitted a response to RAI 87 (see below e-mail). However, the table which provided the schedule for technically complete and correct responses to the remaining questions incorrectly stated the Question #'s as "RAI 83" rather than "RAI 87." Accordingly, a corrected table providing the correct Question #'s is provided below. AREVA NP's response document, "RAI 87 Response US EPR DC.pdf" remains unchanged.

A complete answer was not provided for 9 of the 19 questions. The schedule for technically correct and complete responses to these questions is provided below.

Question #	Response Date
RAI 87 — 09.01.03-4	December 5, 2008
RAI 87 — 09.01.03-7	January 21, 2009
RAI 87 — 09.01.03-10	January 20, 2009
RAI 87 — 09.02.04-1	February 13, 2009
RAI 87 — 09.05.07-2	February 20, 2009
RAI 87 — 09.05.07-5	January 9, 2009
RAI 87 — 09.05.07-6	January 9, 2009

RAI 87 — 09.05.07-7	February 20, 2009
RAI 87 — 09.05.07-8	February 20, 2009

Sincerely,

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From: WELLS Russell D (AREVA NP INC)
Sent: Monday, November 10, 2008 5:48 PM
To: 'Getachew Tesfaye'
Cc: 'John Rycyna'; Pederson Ronda M (AREVA NP INC); BENNETT Kathy A (OFR) (AREVA NP INC); DELANO Karen V (AREVA NP INC)
Subject: Response to U.S. EPR Design Certification Application RAI No. 87, FSAR Ch 9

Getachew,

Attached please find AREVA NP Inc.'s response to the subject request for additional information (RAI). The attached file, "RAI 87 Response US EPR DC.pdf" provides technically correct and complete responses to 10 of the 19 questions.

Appended to this file are affected pages of the U.S. EPR Final Safety Analysis Report in redline-strikeout format which support the response to RAI 87 Questions 09.01.03-5, 09.01.03-6, 09.01.03-8, 09.05.07-6, 09.05.07-9 and 09.05.07-10.

The following table indicates the respective pages in the response document, "RAI 87 Response US EPR DC.pdf," that contain AREVA NP's response to the subject questions.

Question #	Start Page	End Page
RAI 87 — 09.01.03-4	2	2
RAI 87 — 09.01.03-5	3	3
RAI 87 — 09.01.03-6	4	5
RAI 87 — 09.01.03-7	6	6
RAI 87 — 09.01.03-8	7	7
RAI 87 — 09.01.03-9	8	9
RAI 87 — 09.01.03-10	10	10
RAI 87 — 09.02.04-1	11	11
RAI 87 — 09.03.02-1	12	12
RAI 87 — 09.05.07-1	13	13
RAI 87 — 09.05.07-2	14	14
RAI 87 — 09.05.07-3	15	15
RAI 87 — 09.05.07-4	16	16
RAI 87 — 09.05.07-5	17	17
RAI 87 — 09.05.07-6	18	18
RAI 87 — 09.05.07-7	19	19

RAI 87 — 09.05.07-8	20	21
RAI 87 — 09.05.07-9	22	22
RAI 87 — 09.05.07-10	23	23

A complete answer is not provided for 9 of the 19 questions. The schedule for a technically correct and complete response to these questions is provided below.

Question #	Response Date
RAI 83 — 09.01.03-4	December 5, 2008
RAI 83 — 09.01.03-7	January 21, 2009
RAI 83 — 09.01.03-10	January 20, 2009
RAI 83 — 09.02.04-1	February 13, 2009
RAI 83 — 09.05.07-2	February 20, 2009
RAI 83 — 09.05.07-5	January 9, 2009
RAI 83 — 09.05.07-6	January 9, 2009
RAI 83 — 09.05.07-7	February 20, 2009
RAI 83 — 09.05.07-8	February 20, 2009

Sincerely,

(Russ Wells on behalf of)
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From: Getachew Tesfaye [mailto:Getachew.Tesfaye@nrc.gov]
Sent: Thursday, October 09, 2008 3:56 PM
To: ZZ-DL-A-USEPR-DL
Cc: Raul Hernandez; Joshua Wilson; Anne-Marie Grady; Gerard Purciarello; John Segala; Steve Campbell; Christopher Jackson; Joseph Colaccino; John Rycyna
Subject: U.S. EPR Design Certification Application RAI No. 87(1149,1124,1238,992), FSAR Ch. 9

Attached please find the subject requests for additional information (RAI). A draft of the RAI was provided to you on September 19, 2008, and on October 8, 2008, you informed us that the RAI is clear and no further clarification is needed. As a result, no change is made to the draft RAI. The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

Thanks,
Getachew Tesfaye
Sr. Project Manager
NRO/DNRL/NARP

(301) 415-3361

Hearing Identifier: AREVA_EPR_DC_RAIs
Email Number: 225

Mail Envelope Properties (5CEC4184E98FFE49A383961FAD402D31AD9364)

Subject: Response to U.S. EPR Design Certification Application RAI No. 87, Supplement 4
Sent Date: 2/18/2009 4:56:03 PM
Received Date: 2/18/2009 5:37:19 PM
From: Pederson Ronda M (AREVA NP INC)

Created By: Ronda.Pederson@areva.com

Recipients:
"KOWALSKI David J (AREVA NP INC)" <David.Kowalski@areva.com>
Tracking Status: None
"BENNETT Kathy A (OFR) (AREVA NP INC)" <Kathy.Bennett@areva.com>
Tracking Status: None
"DELANO Karen V (AREVA NP INC)" <Karen.Delano@areva.com>
Tracking Status: None
"Getachew Tesfaye" <Getachew.Tesfaye@nrc.gov>
Tracking Status: None

Post Office: AUSLYNCMX02.adom.ad.corp

Files	**Size**	**Date & Time**
MESSAGE	14840	2/18/2009 5:37:19 PM
RAI 87 Supplement 4 Response US EPR DC.pdf	64272	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Response to

Request for Additional Information No. 87, Supplement 4

10/9/2008

U. S. EPR Standard Design Certification
AREVA NP Inc.
Docket No. 52-020
SRP Section: 09.01.03 - Spent Fuel Pool Cooling and Cleanup System
Application Section: FSAR 9.1.3
SRP Section: 09.02.04 - Potable and Sanitary Water Systems
SRP Section: 09.03.02 - Process and Post-Accident Sampling Systems
SRP Section: 09.05.07 - Emergency Diesel Engine Lubrication System
SBPA and SPCV Branches

Question 09.05.07-2:

General Design Criteria (GDC) 2 and GDC 4 require that safety-related portions of the diesel generator lubricating system (DGLS) be protected from natural phenomena and the effects of events such as internal missiles and pipe break. FSAR Tier 2, Section 9.5.7.2.4 states that the DGLS remains functional after a safe shutdown earthquake (SSE). FSAR Tier 2, Figure 9.5.7-1 shows the pre-lube and keep warm system as Seismic Classification non-seismic (NSC). FSAR Tier 2, Section 3.2.1.5 defines non-seismic components as not subject to any seismic design criteria invoked by the applicable commercial or industrial codes and standards, and not falling within the RG 1.29, "Seismic Design Classification," criteria for classification as Seismic Category I or II. The pre-lube and keep warm systems are directly connected to the seismic Category I section of the DGLS. In view of the foregoing:

a) Provide the methodology for the possible failure of the pre-lube and keep warm portion of the system during a seismic event not adversely affecting the seismic Category I and safety-related portions of the DGLS and causing the DGLS to lose fluid and system pressure.

b) Justify the pre-lube and keep warm portion of the system not being classified as Seismic Class II rather than NSC.

Revise the FSAR accordingly to clarify compliance with the above stated requirements and guidelines.

Response to Question 09.05.07-2:

The seismic classification of the prelube and keep warm portion of the diesel generator lubricating oil system (DGLS) will be changed from non-seismic (NSC) to Seismic Category II.

The response to RAI 87, Supplement 2, Question 09.05.07-5, produced changes to U.S. EPR FSAR Tier 1, Table 2.5.4-1—Emergency Diesel Generator Equipment Mechanical Design (6 sheets) and U.S. EPR FSAR Tier 2, Figure 9.5.7-1—Emergency Diesel Generator Lubricating Oil System. This involved changing the safety classification from non-safety related (NS) to supplemented grade (NS-AQ) and changing the Quality Group from Group E to Group D.

U.S. EPR FSAR Tier 2, Table 3.2.2-1—Classification Summary and U.S. EPR FSAR Tier 2, Section 9.5.7.2.2 will be revised to reflect these changes. These changes to the U.S. EPR FSAR clarify compliance with the stated requirements and guidelines.

FSAR Impact:

U.S. EPR FSAR Tier 2, Table 3.2.2-1 and Section 9.5.7.2.2 will be revised as described in the response and indicated on the enclosed markup.

Question 09.05.07-7:

Standard Review Plan (SRP) Section 9.5.7 states that one of the guidelines for meeting the requirements of General Design Criteria (GDC) 17 is that each emergency diesel generator (EDG) have seven days of onsite storage capacity as specified in ANSI/ANS-59.52-1998,"American National Standard Lubricating Oil Systems for Safety-Related Emergency Diesel Generators." ANSI/ANS 59.52-1998 states that "each EDG shall have a storage capacity to maintain at least seven days of operation without dropping below the manufacturer's recommended minimum lubricating oil inventory." [Section 5.3 of ANSI/ANS 59.52-1998]

However, TS "B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air" Bases LCO on page B 3.8.3-2 of the FSAR states "…sufficient lubricating oil supply must be available to ensure the capability to operate at full load for 3 ½ days. This requirement, in conjunction with the ability to obtain replacement supplies within 3 ½ days, supports the availability of EDGs required to shutdown the reactor and to maintain it in a safe condition for an AOO or a postulated accident with loss of offsite power." This statement is not in compliance with the guidelines of SRP Section 9.5.7 and ANSI/ANS -59.52-1998.

The staff does not consider "the ability to obtain replacement supplies within 3 ½ days" as helping to satisfy the criteria of having seven days of onsite storage. Justify the FSAR not meeting the guidelines of SRP Section 9.5.7 and ANSI/ANS-59.52-1998 and provide the methodology for meeting the regulatory guidelines as stated above.

Response to Question 09.05.07-7:

In the response to RAI 74, Supplement 1, Question 16-29, the cited Bases Limiting Condition for Operation (LCO) text in U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications Bases Section 3.8.3 was revised to state:

> "Additionally, sufficient lubricating oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of EDGs required to shut down the reactor and to maintain it in a safe condition for an AOO or a postulated accident with loss of offsite power."

This revision addresses Question 09.05.07-7.

FSAR Impact:

The U.S. EPR FSAR will not be changed as a result of this question.

Question 09.05.07-8:

FSAR Tier 2 Chapter 16, "Technical Specifications," (TS), includes a limiting condition of operation (LCO), 3.8.3.B, conditioned on one or more EDGs with a lube oil inventory less than 750 gal and greater than 635 gal. The basis for this LCO is provided in B 3.8.3 LCO as follows:

> "……. Each engine oil sump contains an inventory capable of supporting a minimum of 3 1/2 days of operation. The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days of continuous operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources."

Technical Specifications TS LCO 3.8.3.B requires a minimum of 750 gallons of lubricating oil inventory, but the application is not clear whether this volume includes the sump, and if so, whether the sump level is measured during Surveillance Requirement (SR) 3.8.3.2. The application is not clear if 750 gallons is in addition to the manufacturer's recommended minimum lubricating oil inventory. Provide the following information:

1. The values of "C", EDG lube oil storage capacity; "L", required capacity of lubricating oil to fill completely the EDG lubricating oil system to the manufacturer's recommended min level; and "Lr", consumption rate at licensed engine rating, as defined in Section 5.2 of ANSI/ANS 59.52-1998.
2. The methodology for factoring the manufacturer's recommended minimum lubricating oil inventory, which must be at least 7 days of oil inventory, into the specified minimum inventory value expressed in TS LCO 3.8.3B and Surveillance Requirement (SR) 3.8.3.2.
3. TS LCO 3.8.3B and Surveillance Requirement (SR) 3.8.3.2 state the minimum oil inventory is 750 gallons.
    a. Confirm that this inventory includes the volume in the EDG sump. If so, provide the means to verify sump level. The LCO and SR 3.8.3.2 are not clear; the applicant needs to clarify the LCO and SR.
    b. Verify that the quantity of stored lube oil accounts for a 10% margin above the 7-day guideline as stated in ANSI/ANS 59.52-1998.
    c. The application in Figure 9.5.7-1 shows the capacity of each EDG's lube oil storage tank to be 4542 liter (1200 gallon). Provide the basis for the 4542 liter (1200 gallon) tank capacity.
    d. Provide the significance of the 750 gallon and 635 gallon levels stated in TS Bases B3.8.3.

Chapter 9 of the FSAR needs to be revised to clearly address these concerns. TS LCO 3.8.3B and Surveillance Requirement (SR) 3.8.3.2 of Chapter 16 (TS) need to be revised to clearly identify the tanks and/or sumps that are measured to verify minimum oil inventory. TS Bases B3.8.3 needs to be revised to clarify the significance of the 750 gallon and 635 gallon levels.

Response to Question 09.05.07-8:

In the response to RAI 74, Supplement 1, Question 16-29, the cited Bases Background text in U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications (TS) Bases Section 3.8.3 was revised to state:

> "Each engine oil sump contains an inventory capable of supporting a minimum of 7 days of operation."

This sentence will be clarified to state:

> “Each engine’s lube oil system contains an inventory capable of supporting a minimum of 7 days of operation.”

Some of the detailed design information requested in the question regarding the U.S. EPR emergency diesel generators (EDG) is vendor-specific (e.g., final lubricating oil inventory, nominal consumption of lubricating oil) and thus outside the scope of design certification. However, preliminary vendor data states that the nominal consumption of lubricating oil at rated continuous power is 3.11 gallons per hour. Therefore, the EDG would consume approximately 523 gallons of lube oil during a seven day run at rated continuous power.

The 750 gallons specified in TS Surveillance Requirement (SR) 3.8.3.2 was selected as a bounding value, which contains the recommended 10 percent margin above requirements. No credit is taken for lube oil in the sump of the EDG. The 750 gallons is the minimum volume maintained in the auxiliary make up tank.

The cited Bases Surveillance Requirements text in U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications Bases Section 3.8.3.2 will be revised to state:

> “This Surveillance ensures that sufficient lube oil inventory is available in the auxiliary makeup tank to support at least 7 days of full load operation for each EDG.”

The capacity of the lube oil storage tank is conservative with respect to these requirements.

The 750 gallon and 635 gallon values specified in TS Limiting Condition of Operation (LCO) 3.8.3.B Condition B represent conservative requirements for seven and six days of operation, respectively. The Bases description and level of detail is consistent with the Standard Technical Specifications for Westinghouse Plants (NUREG-1431).

In the response to RAI 87, Supplement 2, Question 09.05.07-5, U.S. EPR FSAR Tier 2, Figure 9.5.7-1—Emergency Diesel Generator Lubricating Oil System, was revised to remove the reference to the EDG lube oil storage tank capacity of 4542 liters (1200 gallons).

FSAR Impact:

U.S. EPR FSAR Tier 2, Chapter 16, Technical Specifications Bases Section 3.8.3 will be revised as described in the response and indicated on the enclosed markup.

U.S. EPR Final Safety Analysis Report Markups

the potential for engine oil leakage. The system consists of an exhauster, an oil separator, piping, valves, and instrumentation. The exhauster discharge is piped to the engine exhaust system.

The layout of piping and main components (i.e., strainers, pumps, valves, coolers, and filters) provides the space required to permit inspection, cleaning, maintenance, and repair of the system.

9.5.7.2.2 Component Description

09.05.07-2

The major components of the DGLS are described in the following paragraphs. The safety classification and seismic design classification for these components, along with their design and fabrication code, are provided in ~~Section 3.2~~Table 3.2.2-1, Classification Summary. ~~The safety-related portion of DGLS is designed and constructed in accordance with quality group C and Seismic Category I. The non-safety-related portion is designed and constructed in accordance with quality group E and Seismic Category NSC.~~

Main Suction Strainer

A full flow duplex strainer is installed in the lube oil flow path prior to the main engine-driven lube oil pump to prevent foreign material that may have accumulated in the sump from causing damage to the pump. Each element is 100 percent capacity to enable online maintenance. The strainer is monitored for differential pressure to alert operators when a degraded condition exists and the strainer needs to be switched over and cleaned. This strainer is safety-related.

Engine-Driven Pump

The safety-related main oil pump is a positive displacement, rotary pump, driven by the engine. The pump draws oil from the engine sump and delivers it under pressure to the lubricating oil system. A relief valve at the pump discharge provides the required overpressure protection. A failure of this pump constitutes an engine failure. The pump failure is detected by low lubricating oil pressure or by a rise in the bearing temperature. Suction and discharge pressure are monitored to provide indication of and pump performance. See Section 8.3 for the details of instrumentation.

Lubricating Oil Cooler

The safety-related lube oil cooler is a single pass, counter-flow, shell and tube heat exchanger supplied by the plant ESWS. The lubricating oil heat exchanger has the capacity for cooling the total lubricating oil system flow to the required inlet temperature for engine operation at 110 percent rated load with an operating margin to allow fouling and tube plugging. The engine lube oil circulates through the shell side and the plant essential service water circulates through the tube side of the cooler.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

BASES

BACKGROUND

Each emergency diesel generator (EDG) is provided with a storage tank having a fuel oil capacity sufficient to operate that diesel for a period of ~~3 1/2~~ 7 days while the EDG is supplying maximum post loss of coolant accident load demand discussed in FSAR Section 9.5.4.2 (Ref. 1). The maximum load demand is calculated using the assumption that a minimum of any two EDGs are available. This onsite fuel oil capacity is sufficient to operate the EDGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from storage tank to day tank by either of two transfer pumps associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve or tank to result in the loss of more than one EDG.

For proper operation of the standby EDGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.

09.05.07-8

The EDG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated EDG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. Each engine's lube oil ~~sump~~system contains an inventory capable of supporting a minimum of ~~3 1/2~~ 7 days of operation. The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days of continuous operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

Each EDG has an air start system with adequate capacity for five successive start attempts on the EDG without recharging the air start receiver(s).

APPLICABLE SAFETY ANALYSIS

The initial conditions of postulated accident and anticipated operational occurrences (AOO) analyses in FSAR Chapter 6 (Ref. 4), and in FSAR Chapter 15 (Ref. 5), assume Engineered Safety Feature (ESF) systems are OPERABLE. The EDGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System and containment design limits are not exceeded. These limits are

BASES

SURVEILLANCE REQUIREMENTS (continued)

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

09.05.07-8

SR 3.8.3.2

This Surveillance ensures that sufficient lube oil inventory is available in the auxiliary makeup tank to support at least 7 days of full load operation for each EDG. The 750 gallon requirement is based on the EDG manufacturer consumption values for the run time of the EDG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the EDG, when the EDG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer recommended minimum level.

A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since EDG starts and run time are closely monitored by the unit staff.

SR 3.8.3.3

The tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests, limits, and applicable ASTM Standards are as follows:

a. Sample the new fuel oil in accordance with ASTM D4057-R2000 (Ref. 6),

b. Verify in accordance with the tests specified in ASTM D975-2006 (Ref. 6) that the sample has an absolute specific gravity at 60/60°F of ≥ 0.83 and ≤ 0.89 or an API gravity at 60°F of ≥ 27° and ≤ 39° when tested in accordance with ASTM D1298-1999 R2005 (Ref. 6), a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes, and a flash point of ≥ 125°F, and

Table 3.2.2-1—Classification Summary
Sheet 123 of 179

KKS System or Component Code	~~System or Component~~ SSC Description	Safety Classification (Note 15)	Quality Group Classification	Seismic Category (Note 16)	10 CFR 50 Appendix B Program	Locatio (Note 1
30XJA10/20/30/40 AV100	Diesel Engine (Excluding Engine-Driven Cooling, Lubrication, and Fuel Pumps)	S	C	I	Yes	UBP
30XJA10/20/30/40 AP100	Engine Governor	S	C	I	Yes	UBP
30XJR10/20/30/40	Exhaust Silencer and Exhaust Stack	NS-AQ	D	II	Yes	UBP
30XJR10/20/30/40	Exhaust System, Bypass Valve and Duct	S	C	I	Yes	UBP
30XJN10/20/30/40	Fuel Oil System	S	C	I	Yes	UBP
30XJG10/20/30/40	Jacket Water Standby Heater Circuit	NS	E	NSC	No	UBP
30XJV10/20/30/40	Lube Oil Keepwarm/ Prelube Circuit	~~NS~~NS-AQ	~~E~~D	~~NSC~~II	No	UBP
30XJV10/20/30/40	Lube Oil System	S	C	I	Yes	UBP
30XJA10/20/30/40 AN100A/B	Turbochargers	S	C	I	Yes	UBP

09.05.07-2