

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9707180062 DOC. DATE: 97/07/09 NOTARIZED: NO DOCKET #
FACIL: 50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
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SUBJECT: Forwards addl info further describing ONS program re
maintenance rule insp on 970623-27.

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DUKE POWER

July 9, 1997

U.S. Nuclear Regulatory Commission
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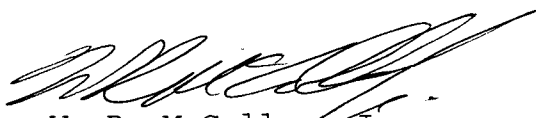
Subject: Oconee Nuclear Site
Docket Nos. 50-269, -270, -287
ONS Maintenance Rule Inspection

Dear Sir:

During the Oconee Nuclear Station Maintenance Rule Inspection of June 23 - 27, 1997, two examples of inadequate goals and monitoring were identified. The two examples are documented in our corrective action program and enhancements to these areas are already in progress.

In addition to the information provided during the inspection, please see the attached additional information which further describes the ONS program for goals and monitoring.

Very truly yours,


W. R. McCollum, Jr.

Attachments

9707180062 970709
PDR ADOCK 05000269
G PDR



NRC Document Control Desk

July 9, 1997

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cc: Mr. L. A. Reyes, Regional Administrator
U. S. Nuclear Regulatory Commission, Region II

Mr. D. E. LaBarge, Project Manager
Office of Nuclear Reactor Regulation

Mr. M. A. Scott
Senior Resident Inspector
Oconee Nuclear Site

DUKE POWER COMPANY OCONEE NUCLEAR STATION

POSITION ON ADEQUACY OF GOALS AND MONITORING ACTIVITIES

Duke Power has implemented its Maintenance Rule program as described in EDM 210 *Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants or the Maintenance Rule* in compliance with 10 CFR Part 50.65, Regulatory Guide 1.160 and industry guidance in NUMARC 93-01. The Oconee Nuclear Station program for Goals and Monitoring of SSCs met the requirements of our program and the above documents as we interpreted them. We have and will continue to improve our program based on industry experience and improvements in our understanding of the requirements. The concerns, as described in the exit meeting of the Oconee Maintenance Rule NRC inspection of June 23-27, 1997, identified two examples of inadequate goals and monitoring. We believe these examples demonstrate weaknesses in our implementation and improvements are being made to correct them.

These weaknesses were:

1. Documentation needs improvement.
 - a) A(1) SSC evaluation PIPs need to be better formatted, more concise and specific goals and monitoring actions need to be clearly specified.
 - b) The SSC Summary Sheets have some errors that must be identified and corrected.
2. For A(1) SSCs requiring long term corrective actions, interim goals and monitoring criteria, when no interim corrective actions are identified, may be enhanced.

The examples identified in the Exit are:

1. The SSF Diesel Generator Super System (DGA+) was not designated A(1) for Unit 1 as required. Required A(2) monitoring was performed but the established performance criteria was exceeded without designating the SSC A(1) in a timely manner. (PIP 1-O97-1746)
2. The 600v Clark Motor Control Center Starters were designated A(1) as required, but monitoring goals prior to implementation of the modification to replace the starters were not defined. (PIP 0-O97-1050)

Example 1 - SSF Diesel Generator Super System (DGA+)

The Diesel Generator Super System was properly classified as A(2) in accordance with our program as established as of July 10, 1996. (EDM 210, Rev. 1) The SSF Diesel Power System was scoped into the Maintenance Rule as 12 separate systems. In the Duke Power program, the Super Systems were developed during the initial program development to allow easier tracking of unavailability and to manage the Out-Of-Service Risk Assessment as described in A(3) of the Rule. The monitoring of unavailability by individual System was not practical because the monitoring tools available monitored unavailability only at a higher level using Tech Specs and Selected Licensee Commitments (SLCs).

The monitoring of reliability is done by counting MPFFs as assigned to the individual Systems which, in the case in question, were the Systems that comprised the Diesel Generator Super System DGA+. Under the original program, MPFFs were to be monitored against the System not the Super System. For risk significant Systems, the initial criteria for MPFFs was established at < 2 MPFFs per System. The initial numerical values for reliability performance criteria were based on information contained in the EPRI position paper, *Aspects of Setting Performance Criteria for Systems, Structures and Components Within the Scope of 10CFR50.65 the Maintenance Rule for Nuclear Power Plants*, dated September 1, 1994. Generally, the intent was to recognize that an eighteen month period is inadequate to statistically

determine the reliability of an system and that even an adequately performing System will occasionally experience 1 or 2 failures as random events.

The program also determined that availability as measured by the Super Systems and reliability as monitored for all systems were balanced if neither applicable criteria was exceeded.

Duke Power Co. has been participating in the industry efforts to define and improve the Maintenance Rule Performance Criteria since 1994, by attending the W4-2 Peer Group meetings and the NEI Workshops as well as reviewing the pilot inspections and discussing issues with other utilities. Based on industry inspections in late 1996, when the NRC began issuing violations for "Performance Criteria not commensurate with safety" Duke began development of a more appropriate performance criteria for reliability. The Catawba Maintenance Rule inspection in February, 1997, indicated additional weaknesses in our revised criteria.

As a result, the present criteria was developed and implementation was approved in EDM 210, Rev. 4, effective April 30, 1997. In this revision, the reliability performance criteria was changed from MPFFs per System to a new criteria which includes specific MPFF requirements for Super Systems. The review following the implementation of this change identified the SSF Diesel Super System as A(1) based on the revised performance criteria. It was identified as A(1) in PIP 1-O97-1746 which was initiated on June 10, 1997. The SSF system team met on June 17th to begin developing a corrective action and monitoring plan. The time from process change (April 30th), to identification (June 10th) and to the beginning of development of the corrective action plan (June 17th) is a realistic time to implement a programmatic change. Since this performance criteria has been revised for all Super Systems and the evaluation to insure compliance has been completed, the only actions required concerning this deficiency is to continue development of the corrective actions and goals as planned in the A(1) PIP.

Additional Information:

Failure History:

1/21/96	PIP 96-125	SSF HVAC (Ventilation System) had an MPFF
3/5/96	PIP 96-450	SSF GO (Governor Oil System) had an MPFF
3/11/96	PIP 96-485	SSF DE (Diesel Engine System) had an MPFF
6/3/97	PIP 96-1103	SSF HVC (Ventilation System) had an MPFF
7/9/97	PIP 96-1337	SSF HVC system designated A(1)
4/30/97	EDM 210 Rev 4	Effective implementation date
6/10/97	PIP97-1746	SSF DG+ (Diesel Generator Super System) designated A(1)

No SSF Systems have failed the unavailability criteria. It is now projected that the SSF DGA+ Super System will not meet its Unavailability criteria during the present Unit 1 fuel cycle. This is included in the A(1) PIP. The imminent failure of this criteria is primarily due to scheduled preventive maintenance, which includes two annual Diesel PMs in the present fuel cycle.

The SSF HVAC System (the SSF Ventilation System) had 2 MPFFs and was identified as A(1) based on the established performance criteria of < 2 MPFFs against a System per fuel cycle. These failures were identified as occurring in the historical period and the System was identified as A(1) as of July 9, 1996. See Failure History above. The original corrective actions were reviewed and determined to be adequate and follow-up goals were established to verify the corrective actions. These goals were met and the SSF HVAC System was returned to A(2) status on 2/24/97.

The old DGA+ Super System SSC Summary Sheets dated 9/16/96 (See Attachment 1) do erroneously reflect a risk significant reliability criteria of < 2 MPFFs for the Super System. This was entered in error on the data sheet. The inclusion of the "< 2 MPFFs" on the Super System Sheets was probably due to the generic application of this criteria to all risk significant Systems in the database and not an intentional act. The program did not have a process to charge MPFFs to the Super System, nor to evaluate MPFFs

against the Super System. The program required that MPFFs be charged to the System that caused the failure. In support of this description of the process, the old DGA+ Super System SSC Summary Sheet conflicts with the old individual SSC Summary Sheets for the individual Systems that comprise the DGA+ Super System. As highlighted on the examples attached, the individual SSC Summary Sheets correctly identify a Risk Significant Reliability criteria of < 2 MPFFs and an unavailability criteria to be monitored only with the Super System. Effective April 30, 1997, this criteria was revised to measure both unavailability and reliability against the Super System. (See Attachment 2)

An overall review of the availability versus reliability of the Maintenance Rule Systems for the Unit 3, Cycle 16 fuel cycle, including the SSF, performed by the Severe Accident Analysis Section determined that reliability and availability appear to be appropriately balanced, no adjustments to Maintenance Rule Performance Criteria need to be made and no additional Systems need to be classified as A(1). This is documented in Calc SAAG-463 and approved on 6/26/97.

Example 2 - The 600v Clark Motor Control Center (MCC) Starters

The 600v Clark Motor Control Center Starters were properly classified as A(1) due to the identification of repetitive failures during the historical period. At that time, Duke Power had little guidance on the best way to deal with repetitive failures and what appropriate goals and monitoring should be established. The first two failures occurred and were corrected in January, 1993 and February, 1995. These two failures were identified as repetitive during the historical review and the Systems involved were identified as A(1) as defined in the Duke Power Co. program. The corrective actions taken to resolve the specific failures were reviewed and goals were established to verify the adequacy of the corrective actions.

During the Catawba Maintenance Rule inspection, a discussion with the Lead NRC inspector led the Duke team to realize that it was more appropriate to identify a component as A(1) rather than a system when repetitive failures were considered a generic problem. At Oconee, after an additional starter failure which was identified as an MPFF in February, 1997, was identified as another repetitive MPFF, it was decided to make the component A(1) and not an additional System.

The new process was defined and a new A(1) PIP (0-O97-1050) was created. The new PIP consolidated the corrective actions and monitoring from the additional failure, as well as, those from the previous A(1) PIPs which had resulted from the previous failures, into one component A(1) PIP. This PIP will remain open to track all associated actions concerning this problem.

A "run to failure" evaluation is not considered appropriate for these failures and each failure is identified as an MPFF. The MPFFs are monitored under the individual System performance criteria for reliability and will also be tracked on the monthly A(1) report submitted to station management (Nuclear Excellence Quality Steering Committee) for additional review. See Attachment 3, page 2. This additional monitoring has been developed for all component A(1) PIPs and was not specifically described in the A(1) PIP covering this item.

The generic implications of the MCC Starters had been identified prior to the implementation of the Maintenance Rule. An evaluation which included discussions with the manufacture to determine the best solution had been completed. Based on the manufacture's notification that no replacement parts were available to replace the small part that has repeatedly failed, a modification was initiated to replace the starters. Additionally, the manufacture recommended that additional PMs of this part would not be effective in preventing additional failures and could increase the frequency of failures.

Based on the above information, the only appropriate corrective action and goals identified in addition to the generic monitoring described above were to implement the modification. The modification is scheduled for refueling outages from 1998 through 2002. This schedule had been approved by station

management. Since there has been only three MPFFs associated with this type failure over the last three years with a population of approximately 300 similar starters, management determined the schedule for the modification is appropriate. It was also noted that follow up goals would be established to verify the adequacy of the modification after it was implemented.

The additional guidance in Reg Guide 1.160, Rev. 2, Section 1.8 does not apply. It addresses only the case when the utility elects not to do the design change. In the Oconee case, the design change will be done and the question is "What, if any, interim actions are required prior to implementation of the design change?" Because this problem does not appear to have a reasonable interim corrective action to prevent recurrence and a "run to failure" evaluation is not considered appropriate, there is little industry guidance on identifying a need for or defining appropriate interim goals. The site feels the goals and monitoring as established are in compliance with the Maintenance Rule, but based on discussions of this problem with the NRC inspection team, it is recognized that improvements in the goals can be made. A specific interim goal, based on the PRA, identifying a specific acceptable failure frequency would be an enhancement to this process. This enhancement will be implemented for failures when the PRA can supply suitable goal recommendations and there will be a significant delay in correcting the deficiency. This will be discussed with the Severe Accident Analysis Section and an appropriate goal established if applicable.

Attachments

- Attachment 1 - SSF Diesel Super System (DGA+) SSC Summary Sheets (two pages)
- Attachment 2 - HVC, DA, DE, DFO and GO SSC Summary Sheets (ten pages)
- Attachment 3 - Maintenance Rule Monthly Status List (two pages)

Maintenance Rule: SSC Summary Sheets

Calc No: OSC - 6364

Grayson, W K

Date Printed: 9/16/96

Oconee Nuclear Station

Page 1

System /
Supersystem

SSF DIESEL SUPER SYSTEM

DGA+

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

WMS CODE:

APPLICABLE UNITS

0 1 2 3

Y C C C

System Scoping Summary

<u>S/R</u> <u>except</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped per</u> <u>EOPs or</u> <u>APs?</u>	<u>Mit</u> <u>ACC?</u>	<u>Causes</u> <u>S/R</u> <u>Failure?</u>	<u>Causes</u> <u>Trip or</u> <u>SSA</u>
Yes	No	Yes	No	No	No

System Trains

Train A: None

Train B:

Train C:

Train D:

DESIGN DOCUMENTS

DBD:

MSD:

ESD:

OPR MODE:

No

STD BY MODE:

Yes

Long Lived Passive:

No

System Definition:

FUNC # Function:

DGA+.1 Provides for an independent emergency source of electrical power to support the essential SSF system loads.

Scoping Results

Expert Panel Results

PERFORMANCE CRITERIA

FUNC #	<u>S/R</u> <u>expt</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	Scoped in if Y/Y <u>Listed</u> <u>in EOPs</u> <u>or APs?</u>	<u>CD/</u> <u>RR?</u>	<u>Mit</u> <u>Acc?</u>	<u>Fail</u> <u>S/R?</u>	<u>Trip/</u> <u>SSA</u>	<u>MR?</u>	<u>St-</u> <u>by?</u>	<u>Oper-</u> <u>ating?</u>	<u>PRA</u> <u>R/S?</u>	<u>EXPT</u> <u>R/S?</u>	<u>MR</u> <u>R/S?</u>	<u>RISK</u> <u>LEVEL</u>	<u>MONITOR</u> <u>WITH</u> <u>TS/SLC #</u>	<u>PLANT</u> <u>CRIT.</u> <u>ONLY</u>

Screening Notes:

Expert Panel Notes:

System Performance Notes:

DGA+.1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	MED	3.18.7	No
--------	-----	----	-----	-----	----	----	----	-----	-----	----	-----	-----	-----	-----	--------	----

Expert Panel - Safety Related,
Standby, Risk Risk Significant -
6/25/96; PRA - Risk Significant

See TS/SLC List below

Maintenance Rule: SSC Summary Sheets

Calc No: OSC - 6364

Grayson, W K

Date Printed: 9/16/96

Oconee Nuclear Station

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System /
Supersystem

SSF DIESEL SUPER SYSTEM

DGA+ SSF MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

PLANT LEVEL PERFORMANCE CRITERIA
for All MR Applicable Functions

Rx Trips:	No	Forced Outage	
SSA's:	No	Rate:	No
REPETITIVE		Loss of Decay	
MPFFs:	Yes	Heat Removal:	No

Notes:

SYSTEM/TRAIN LEVEL PERFORMANCE CRITERIA
for r/s, standby and non-plant level functionsAll MR functions are monitored by plant level criteria and/or
MPFFs

Unavailability: < 4%

Reliability:

Risk Sig <2 MPFFs

Non R/S

Other:

IF an MPFF occurs on a
R/S function, Cause
determination & (A1)
eval. is required.*Entered in Error*

Notes:

Reliability also measured by demand failures as defined in the
SBO Rule

SubSystems for this Super System

System Id	System Name
DA	Starting Air System
HVC	SSF HVAC System
DLO	Lube Oil System - Diesel
GO	Governor
DFO	Fuel Oil System - SSF
DJW	Diesel Jacket Water Cooling System
DE	Diesel Engine
AE	Air Intake and Exhaust System
SML	SSF Auxiliary Power System
SDG	SSF Generator Power System
SVD	SSF 125vdc Power System
SVA	SSF 120VAC Vital Power System

TS/SLC MONITORED FOR UNAVAILABILITY

FUNC #:	TS/SLC:
AE.1	3.18.1
DA.1	3.18.6
DA.1	3.18.1
DE.1	3.18.1
DFO.1	3.18.1
DFO.2	3.18.1
DGA+.1	3.18.7
DJW.1	3.18.1
DJW.1	3.18.3
DJW.2	3.18.1
DLO.1	3.18.1
GO.1	3.18.1
HVC.1	3.18.1
SASW.5	3.18.2
SDG.1	3.18.5
SDG.2	3.18.5
SML.1	3.18.5
SML.2	3.18.5
SML.4	3.18.6
SML.4	3.18.5
SVA.1	3.18.5
SVD.1	3.18.5
SVD.2	3.18.5

EOP/AP PROCEDURES SCREEN

FUNC #	PROCEDURE	FUNC #	PROCEDURE	FUNC #	PROCEDURE	FUNC #	PROCEDURE
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MISC. NOTES

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Maintenance Rule: SSC Summary Sheets

Grayson, W K

Oconee Nuclear Station

Calc No: OSC - 6361

Date Printed: 9/16/96

Page 1

System /
Supersystem**Starting Air System**

DA

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

WMS CODE:

APPLICABLE UNITS

0 1 2 3

Y C C C

System Scoping Summary

<u>S/R</u> <u>except</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped per</u> <u>EOPs or</u> <u>APs?</u>	<u>Mit</u> <u>ACC?</u>	<u>Causes</u> <u>S/R</u> <u>Failure?</u>	<u>Causes</u> <u>Trip or</u> <u>SSA</u>
Yes	No	No	No	No	No

System Trains

Train A: Yes

Train B: Yes

Train C: No

Train D: No

DESIGN DOCUMENTS

DBD: OSS-0254.00-00-1008

MSD:

ESD:

OPR MODE: No

STD BY MODE: Yes

Long Lived Passive: No

System Definition:

FUNC # Function:

DA.1 Provide starting air for the SSF diesel engines.

Scoping Results

<u>FUNC</u> <u>#</u>	<u>S/R</u> <u>expt</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped in if Y/Y</u> <u>Listed</u> <u>in EOPs</u> <u>or APs?</u>	<u>CD/</u> <u>RR?</u>	<u>Mit</u> <u>Acc?</u>	<u>Fail</u> <u>S/R?</u>	<u>Trip/</u> <u>SSA</u>	<u>MR?</u>
DA.1	Yes	No	No	No	No	No	No	Yes

Screening Notes:

Expert Panel Results

<u>St-</u> <u>by?</u>	<u>Oper-</u> <u>ating?</u>	<u>PRA</u> <u>R/S?</u>	<u>EXPERT</u> <u>R/S?</u>	<u>MR</u> <u>R/S?</u>
Yes	No	Yes	Yes	Yes

Expert Panel Notes:

PERFORMANCE CRITERIA

<u>RISK</u> <u>LEVEL</u>	<u>MONITOR</u> <u>WITH</u> <u>TS/SLC #</u>	<u>TRAINS</u> <u>MONIT'D</u>	<u>PLANT</u> <u>CRIT.</u> <u>ONLY</u>
MED	3.18.1 3.18.6	NO	No

System Performance Notes:

MR, Standby, CSF 1-5. Expert Panel - Risk-Significant. PRA - Risk-Significant.

Individual trains monitored only by MPFFs.

Maintenance Rule: SSC Summary Sheets

Grayson, W K

Oconee Nuclear Station

Calc No: OSC - 6361

Date Printed: 9/16/96

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System /
Supersystem

Starting Air System

DA

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

PLANT LEVEL PERFORMANCE CRITERIA
for All MR Applicable Functions

Rx Trips:	No	Forced Outage	
SSA's:	No	Rate:	No
REPETITIVE		Loss of Decay	
MPFFs:	Yes	Heat Removal:	No

Notes:

SYSTEM/TRAIN LEVEL PERFORMANCE CRITERIA
for r/s, standby and non-plant level functionsAll MR functions are monitored by plant level criteria and/or
MPFFs

Unavailability: < by SuperSystem

Reliability:

Risk Sig

Non R/S

<2 MPFFs

IF an MPFF occurs on a
R/S function, Cause
determination & (A1)
eval. is required.

Other:

Correct

Notes:

This system will be monitored for unavailability under the
DGA+ SuperSystemEOP/AP PROCEDURES SCREEN

<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>
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MISC. NOTES

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Maintenance Rule: SSC Summary Sheets

Calc No: OSC - 6362

Grayson, W K

Date Printed: 9/16/96

Oconee Nuclear Station

Page 1

System /
Supersystem**Diesel Engine****DE**

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?**Yes**SYSTEM IS
RISK
SIGNIFICANT?**Yes**

WMS CODE:

APPLICABLE UNITS

0 1 2 3

Y C C C

System Scoping Summary

<u>S/R</u> <u>except</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped per</u> <u>EOPs or</u> <u>APs?</u>	<u>Mit</u> <u>ACC?</u>	<u>Causes</u> <u>S/R</u> <u>Failure?</u>	<u>Causes</u> <u>Trip or</u> <u>SSA</u>
Yes	No	Yes	No	No	No

System Trains

Train A: None

Train B:

Train C:

Train D:

DESIGN DOCUMENTS

DBD: OSS-0254.00-00-1008

MSD:

ESD: OSSD-0176-41

OPR MODE: No

STD BY MODE: Yes

Long Lived Passive: No

System Definition:

FUNC # Function:

DE.1 Provide motive power to supply the SSF emergency generator during an accident which requires operation of either the SSF ASW or RC Makeup systems.

Scoping Results

<u>FUNC</u> <u>#</u>	<u>S/R</u> <u>expt</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped in if Y/Y</u> <u>Listed</u> <u>in EOPs</u> <u>or APs?</u>	<u>CD/</u> <u>RR?</u>	<u>Mit</u> <u>Acc?</u>	<u>Fail</u> <u>S/R?</u>	<u>Trip/</u> <u>SSA</u>
DE.1	Yes	No	Yes	Yes	No	No	No

Screening Notes:

Expert Panel Results

<u>MR?</u>	<u>St-</u> <u>by?</u>	<u>Oper-</u> <u>ating?</u>	<u>PRA</u> <u>R/S?</u>	<u>EXPT</u> <u>R/S?</u>
Yes	Yes	No	Yes	Yes

Expert Panel Notes:

PERFORMANCE CRITERIA

<u>MR</u> <u>R/S?</u>	<u>RISK</u> <u>LEVEL</u>	<u>MONITOR</u> <u>WITH</u> <u>TS/SLC #</u>	<u>PLANT</u> <u>CRIT.</u> <u>ONLY</u>
Yes	MED	3.18.1	No

System Performance Notes:

MR, Standby, CSF 1-5. Expert
Panel - Risk-Significant. PRA -
Risk-Significant

Maintenance Rule: SSC Summary Sheets

Grayson, W K

Oconee Nuclear Station

Calc No: OSC - 6362

Date Printed: 9/16/96

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System /
Supersystem**Diesel Engine****DE**

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?**Yes**SYSTEM IS
RISK
SIGNIFICANT?**Yes****PLANT LEVEL PERFORMANCE CRITERIA**
for All MR Applicable Functions

Rx Trips:	No	Forced Outage	
SSA's:	No	Rate:	No
REPETITIVE		Loss of Decay	
MPFFs:	Yes	Heat Removal:	No

Notes:

SYSTEM/TRAIN LEVEL PERFORMANCE CRITERIA
for r/s, standby and non-plant level functionsAll MR functions are monitored by plant level criteria and/or
MPFFs

Unavailability: < by SuperSystem

Reliability:

Risk Sig <2 MPFFs

Non R/S

Other:

IF an MPFF occurs on a
R/S function, Cause
determination & (A1)
eval. is required.

Notes:

This system will be monitored for unavailability under the
DGA+ SuperSystemEOP/AP PROCEDURES SCREEN

<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>
DE.1	1AP10	DE.1	2AP10	DE.1	3AP10	DE.1	AP25

MISC. NOTES

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Maintenance Rule: SSC Summary Sheets

Grayson, W K

Oconee Nuclear Station

<u>System / Supersystem</u>	<i>Fuel Oil System - SSF</i>	SYSTEM IN THE MAINTENANCE RULE?	SYSTEM IS RISK SIGNIFICANT?
	DFO SSF MECHANICAL	Yes	Yes

WMS CODE:

APPLICABLE UNITS

0 1 2 3

Y C C C

System Scoping Summary

<u>S/R</u> <u>except</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped per</u> <u>EOPs or</u> <u>APs?</u>	<u>Mit</u> <u>ACC?</u>	<u>Causes</u> <u>S/R</u> <u>Failure?</u>	<u>Causes</u> <u>Trip or</u> <u>SSA</u>
Yes	No	Yes	No	No	No

System Trains

Train A: None

Train B:

Train C:

Train D:

DESIGN DOCUMENTS

DBD: OSS-0254.00-00-1008

MSD:

ESD: OSSD-0099.01

OPR MODE: No

STD BY MODE: Yes

Long Lived Passive: No

System Definition:

[illegible]

DFO.1 Provide fuel oil supply to the diesel engines.

DFO.2 Provide heat sink for diesel engine injectors.

Scoping Results									Expert Panel Results					PERFORMANCE CRITERIA				
FUNC #	S/R expt Cont. Isol?	S/R Cont. Isol?	Scoped in if Y/Y Listed in EOPs or APs?	CD/ RR?	Mit Acc?	Fail S/R?	Trip/ SSA	MR?	St- by?	Oper- ating ?	PRA R/S?	EXPT R/S?	MR R/S?	RISK LEVEL	MONITOR WITH TS/SLC #	PLANT CRIT. ONLY		
															TRAINS MONIT'D			
Screening Notes:									Expert Panel Notes:					System Performance Notes:				
DFO.1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	MED	3.18.1	No		
									MR, Standby, CSF 1-5. Expert Panel - Risk-Significant. PRA - Risk-Significant.									
DFO.2	Yes	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	MED	3.18.1	No		
									MR, Standby, CSF 1-5. Expert Panel - Risk-Significant. PRA - Risk-Significant.									

Maintenance Rule: SSC Summary Sheets

Grayson, WK

Oconee Nuclear Station

Calc No: OSC - 6363

Date Printed: 9/16/96

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System /
Supersystem

Fuel Oil System - SSF

DFO

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

PLANT LEVEL PERFORMANCE CRITERIA
for All MR Applicable Functions

Rx Trips:	No	Forced Outage	
SSA's:	No	Rate:	No
REPETITIVE		Loss of Decay	
MPFFs:	Yes	Heat Removal:	No

Notes:

SYSTEM/TRAIN LEVEL PERFORMANCE CRITERIA
for r/s, standby and non-plant level functionsAll MR functions are monitored by plant level criteria and/or
MPFFs

Unavailability: < by SuperSystem

Reliability:

Risk Sig <2 MPFFs

Non R/S

Other: Correct

IF an MPFF occurs on a
R/S function, Cause
determination & (A1)
eval. is required.

Notes:

This system will be monitored for unavailability under the
DGA+ SuperSystem

EOP/AP PROCEDURES SCREEN

<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>
DFO.1	AP25						

MISC. NOTES

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Maintenance Rule: SSC Summary Sheets

Calc No: OSC - 6385

Grayson, W K

Date Printed: 9/16/96

Oconee Nuclear Station

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System /
Supersystem

Governor

GO

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

WMS CODE:

APPLICABLE UNITS

0 1 2 3

Y C C C

System Scoping Summary

<u>S/R</u> <u>except</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped per</u> <u>EOPs or</u> <u>APs?</u>	<u>Mit</u> <u>ACC?</u>	<u>Causes</u> <u>S/R</u> <u>Failure?</u>	<u>Causes</u> <u>Trip or</u> <u>SSA</u>
Yes	No	Yes	No	No	No

System Trains

Train A: None

Train B:

Train C:

Train D:

DESIGN DOCUMENTS

DBD: OSS-0254.00-00-1008

MSD:

ESD:

OPR MODE: No

STD BY MODE: Yes

Long Lived Passive: No

System Definition:

FUNC # Function:

GO.1 Provide speed control for the SSF diesel engines.

Scoping Results

Expert Panel Results

PERFORMANCE CRITERIA

FUNC #	<u>S/R</u> <u>expt</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	Scoped in if Y/Y <u>Listed</u> <u>in EOPs</u> <u>or APs?</u>	<u>CD/</u> <u>RR?</u>	<u>Mit</u> <u>Acc?</u>	<u>Fail</u> <u>S/R?</u>	<u>Trip/</u> <u>SSA</u>	MR?	<u>St-</u> <u>by?</u>	<u>Oper-</u> <u>ating?</u>	<u>PRA</u> <u>R/S?</u>	<u>EXPT</u> <u>R/S?</u>	MR <u>R/S?</u>	<u>RISK</u> <u>LEVEL</u>	<u>MONITOR</u> <u>WITH</u> <u>TS/SLC #</u>	<u>PLANT</u> <u>CRIT.</u> <u>ONLY</u>
															<u>TRAINS</u> <u>MONIT'D</u>	
GO.1	Yes	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	MED	3.18.1	No

Screening Notes:

Expert Panel Notes:

System Performance Notes:

MR, Standby, CSF 1-5. Expert
Panel - Risk-Significant. PRA -
Risk-Significant.

Maintenance Rule: SSC Summary Sheets

Grayson, W K

Calc No: OSC - 6385

Date Printed: 9/16/96

Oconee Nuclear Station

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System /
Supersystem

Governor

GO

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

PLANT LEVEL PERFORMANCE CRITERIA
for All MR Applicable Functions

Rx Trips:	No	Forced Outage	
SSA's:	No	Rate:	No
REPETITIVE		Loss of Decay	
MPFFs:	Yes	Heat Removal:	No

Notes:

SYSTEM/TRAIN LEVEL PERFORMANCE CRITERIA
for r/s, standby and non-plant level functionsAll MR functions are monitored by plant level criteria and/or MPFFs

Unavailability: < by SuperSystem

Reliability:

Risk Sig <2 MPFFs

Non R/S

Other:

Notes:

This system will be monitored for unavailability under the DGA+ SuperSystem

IF an MPFF occurs on a R/S function, Cause determination & (A1) eval. is required.

EOP/AP PROCEDURES SCREEN

<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>
---------------	------------------	---------------	------------------	---------------	------------------	---------------	------------------

GO.1	AP25						
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MISC. NOTES

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Maintenance Rule: SSC Summary Sheets

Grayson, W/K

Calc No: OSC - 6393

Date Printed: 9/16/96

Oconee Nuclear Station

Page 1

System /
Supersystem

SSF HVAC System

HVC

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

WMS CODE:

APPLICABLE UNITS

0 1 2 3

X N N N

System Scoping Summary

<u>S/R</u> <u>except</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped per</u> <u>EOPs or</u> <u>APs?</u>	<u>Mit</u> <u>ACC?</u>	<u>Causes</u> <u>S/R</u> <u>Failure?</u>	<u>Causes</u> <u>Trip or</u> <u>SSA</u>
Yes	No	Yes	No	No	No

System Trains

Train A: None

Train B:

Train C:

Train D:

DESIGN DOCUMENTS

DBD: OSS-0254.00-00-1009

MSD: OSSD-0210.16-13 OSSD-176-44

ESD: OSSD-0176-44

OPR MODE:

Yes

STD BY MODE:

No

Long Lived Passive:

No

System Definition:

FUNC # Function:

HVC.1 Provide heating, ventilation and air conditioning for the SSF.

Scoping Results

<u>FUNC</u> <u>#</u>	<u>S/R</u> <u>expt</u> <u>Cont.</u> <u>Isol?</u>	<u>S/R</u> <u>Cont.</u> <u>Isol?</u>	<u>Scoped in if Y/Y</u> <u>Listed</u> <u>in EOPs</u> <u>or APs?</u>	<u>CD/</u> <u>RR?</u>	<u>Mit</u> <u>Acc?</u>	<u>Fail</u> <u>S/R?</u>	<u>Trip/</u> <u>SSA</u>	<u>MR?</u>
HVC.1	Yes	No	Yes	Yes	No	No	No	Yes

Screening Notes:

Expert Panel Results

<u>St-</u> <u>by?</u>	<u>Oper-</u> <u>ating?</u>	<u>PRA</u> <u>R/S?</u>	<u>EXPERT</u> <u>R/S?</u>	<u>MR</u> <u>R/S?</u>
No	Yes	Yes	Yes	Yes

Expert Panel Notes:

MR, Operating, CSF - 1-5.
Expert Panel - Risk-Significant.
PRA - Risk-Significant.

PERFORMANCE CRITERIA

<u>MONITOR</u> <u>WITH</u> <u>TS/SLC #</u>	<u>PLANT</u> <u>CRIT.</u> <u>ONLY</u>
MED 3.18.1	No

System Performance Notes:

Maintenance Rule: SSC Summary Sheets

Grayson, W K

Oconee Nuclear Station

Calc No: OSC - 6393

Date Printed: 9/16/96

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System /
Supersystem**SSF HVAC System**

HVC

SSF

MECHANICAL

SYSTEM IN THE
MAINTENANCE
RULE?

Yes

SYSTEM IS
RISK
SIGNIFICANT?

Yes

**PLANT LEVEL PERFORMANCE CRITERIA
for All MR Applicable Functions**

Rx Trips:	No	Forced Outage	
SSA's:	No	Rate:	No
REPETITIVE		Loss of Decay	
MPFFs:	Yes	Heat Removal:	No

Notes:

**SYSTEM/TRAIN LEVEL PERFORMANCE CRITERIA
for r/s, standby and non-plant level functions**All MR functions are monitored by plant level criteria and/or
MPFFs

Unavailability: < by SuperSystem

Reliability:

Risk Sig <2 MPFFs

Non R/S

Other: Correct

IF an MPFF occurs on a
R/S function, Cause
determination & (A1)
eval. is required.

Notes:

This system will be monitored for unavailability under the
DGA+ SuperSystemEOP/AP PROCEDURES SCREEN

<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>	<u>FUNC #</u>	<u>PROCEDURE</u>
HVC.1	AP25						

MISC. NOTES

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Oconee Nuclear Station Maintenance Rule Monthly Status List

A (1) Status Systems as of 6/7/97														
MAINTENANCE RULE PERFORMANCE CRITERIA NOT MET														
~~ System Level ~~					~~~~~ Plant Level ~~~~~									
Risk Significant Non-R/S					Repetitive									
RISK	Parameter:	Availability	MPFF	MPFFs	Rx	ESF	Loss	F.O.R.	MPFFs*					
Signif (R/S)	UNIT	SYSTEM								PIP #	System Engineer	A(1) Date	Planned A(2) Date	Comments
UNIT 1 EOC 17														
R/S	4	CCW	X							97-1122	REH7354	4/1/97		Failed-unavailability perf. criteria
R/S	1	LCP								96-1207	JWR8344	6/19/96	1/31/98	Insufficient MR History
R/S	1	LPS		X					X	96-1152	VBB4478	6/12/96		Valve operator problems
	1	VAB							X	96-1203	JDH9035	6/19/96	3/31/98	Freezestat ventilation shutdown
UNIT 2 EOC 16														
R/S	2	8077		X						96-2657	JAB8226	5/8/97		Reactor Building Coating deteriorating
	2	CCW	X							97-1122	REH7354	4/1/97		Failed-unavailability perf. criteria
	2	CRD							X	96-1197	CPK4573	6/18/96	10/31/99	Breaker failed to trip
R/S	2	FDW		X		X	X			96-1188	RSM2939	6/18/96	3/31/97	Rx Trip & SSA
R/S	2	LCP								96-1207	JWR8344	6/19/96	1/31/98	Insufficient MR History
R/S	2	LPI		X						96-1348	CGA2694	7/9/96		BWST level failure due to freezing
R/S	2	OEM		X						96-1349	GPE6120	7/9/96	5/31/98	Breaker crkt failure and grease hard
	2	VAB							X	96-1203	JDH9035	6/19/96	3/31/98	Freezestat ventilation shutdown
UNIT 3 EOC 16														
R/S	3	CCW	X							97-1122	REH7354	4/1/97		Failed-unavailability perf. criteria
R/S	3	FDW				X	X			96-1188	RSM2939	6/18/96	12/3/98	Rx Trip & SSA
R/S	3	FDW							X	96-1626	RSM2939	8/24/96	12/31/98	FWPT Trip, Rep-MPFF - Gears failed
	3	FDW							X	97-1703	RSM2939	4/1/97	12/31/98	"A" MDEFWP started - oil switches
	3	HD				X				96-1188	RSM2939	6/18/96	12/31/98	Rx Trip & SSA
R/S	3	LCP								96-1207	JWR8344	6/19/96	1/31/98	Insufficient MR History
R/S	3	LPI		X						96-1194	CGA2694	6/18/96	9/30/97	Valve operator problems
	3	VAB							X	96-1203	JDH9035	6/19/96	3/31/98	Freezestat ventilation shutdown

Oconee Nuclear Station Maintenance Rule Monthly Status List

-- System Level --				~~~~~ Plant Level ~~~~~									
Risk Significant				Non-R/S				Repetitive					
RISK	Parameter:	Availability	MPFF	MPFFs	Rx	ESF	Loss	F.O.R.	MPFFs*				
Signif (R/S)	UNIT	SYSTEM			Trips	Act.	DHR				PIP #	System Engineer	Planned
												A(1) Date	A(2) Date
Comments													
<div style="text-align: center;"> KEOWEE (ONS 2 EOC 16) </div>													
<div style="text-align: center;"> Repetitive Failure Components A(1) </div>													
	Component/Problem	RISK Signif (R/S)	Unit(s) Affected	System(s) Affected	No of Failures	PIP #	Component Engineer	A(1) Date	A(2) Date	Comments			
1	600 v Contactor "b" Finger fail to operate					97-1050	TAL8382	3/25/96	12/31/02				
		R/S	1	LPS	1	96-1152				Individual Failures			
		R/S	2	LPI	1	96-1192				Individual Failures			
		R/S	3	HPI	1	97-92				Individual Failures			
2	600 v Load Center Breakers fail to trip					97-1649	DSW7333	6/29/97	12/21/99				
			2	CRD	2	96-1197				Individual Failures			
			2	OEL	1	96-0633				Individual Failures			
<div style="text-align: center;"> Number of A(1) SSCs </div>													
Number of A(1) SSCs		17											
	Unit 1	3											
	Unit 2	7											
	Unit 3	5											
	Keowee	0											
	Components	2											

Tracking Failures