

Industry/TSTF Standard Technical Specification Change Traveler**Extend Frequency of accumulated water checks for DG fuel oil.**

Classification: 3) Improve Specifications

NUREGs Affected: 1430 1431 1432 1433 1434**Description:**

The Frequency of SR 3.8.1.5 is extended from [31] days to [92] days and a Reviewer's Note is added to the Bases related to the extended Frequency.

NOTE: Even though an instance of Reference 10 is deleted, it also appears in the Surveillance introductory paragraph in the Bases. Therefore, the references are unaffected.

Justification:

Operating experience has shown that monthly checking for and removal of water from the fuel oil system is not needed. Frequency of [92] days is proposed. Adoption of the extended Frequency is conditioned in a Reviewer's Note which state that operating experience must support the fact that excessive water buildup does not occur in the system over the proposed Frequency.

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Revision History**OG Revision 0****Revision Status: Closed**

Revision Proposed by: ANO-1

Revision Description:

Original Title:

Delete accumulated water checks for DG fuel oil.

Original Description:

Delete SR 3.8.1.5 and SR 3.8.3.5 and renumber subsequent SRs and correct references to SR numbers.

Original Justification:

SR 3.8.1.5 & SR 3.8.3.5 are deleted since their inclusion is inconsistent with the remainder of the NUREG (and the philosophy of 10 CFR 50.36 as revised to incorporate the Policy Statement) which does not include "preventive maintenance" requirements. The Bases for each of these SRs indicates that they are "preventive maintenance" requirements and that their failure does not necessarily mean that the equipment is not OPERABLE. Therefore, they are not appropriate as SRs, since SR 3.0.1 indicates that failure to meet an SR is failure to meet the LCO. The safety analyses do not specifically address these requirements and they are not necessary to assure the equipment's capability to perform its respective safety function. The preventive maintenance program, along with the Diesel Generator Fuel Oil Testing Program and the routine start testing of the DGs, will adequately identify detrimental fuel oil parameters. Therefore, providing additional surveillances is an unnecessary deviation from the normal scope of TSs, and these SRs should be omitted.

Owners Group Review Information

Date Originated by OG: 17-Mar-97

Owners Group Comments

ANO-1-037

Owners Group Resolution: Approved Date: 22-Aug-97

7/16/99

OG Revision 0

Revision Status: Closed

TSTF Review Information

TSTF Received Date: 06-Nov-97 Date Distributed for Review 15-Dec-97

OG Review Completed: BWOOG WOG CEOG BWROG

TSTF Comments:

All 3.8.1 SRs subsequent to 3.8.1.5 and 3.8.3.5 must be renumbered (including the Bases and all cross-references).

Applicable to all.

TSTF Resolution: Approved Date: 05-Feb-98

NRC Review Information

NRC Received Date: 12-Mar-98

NRC Comments:

7/16/98 - Water in the fuel oil storage tank and the day tank contributes to microbiological growth and presents an operability consideration. The staff would consider, however, another submittal by the TSTF to extend the current surveillance frequency requirement from 31 days to perhaps 92 days.

Final Resolution: Superseded by Revision

Final Resolution Date: 21-Apr-99

TSTF Revision 1

Revision Status: Active

Next Action: NRC

Revision Proposed by: NRC

Revision Description:

Complete replacement of original Traveler. Replaced Description, Justification, and Affected ISTS.

TSTF Review Information

TSTF Received Date: 15-Jun-99 Date Distributed for Review 15-Jul-99

OG Review Completed: BWOOG WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 16-Jul-99

Incorporation Into the NUREGs

File to BBS/LAN Date:

TSTF Informed Date:

TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

SR 3.8.1.5 AC Sources - Operating

SR 3.8.1.5 Bases AC Sources - Operating

7/16/99

INSERT

The Surveillance Frequency is based on ensuring that excessive water does not accumulate in the fuel oil system. [REVIEWER'S NOTE: Adoption of the 92 day Frequency must be based on operating experience that excessive water does not build up over the proposed Surveillance interval.]

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. <p style="text-align: center;">-----</p> <p>Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load $\geq [4500]$ kW and $\leq [5000]$ kW.</p>	<p>As specified in Table 3.8.1-1</p>
<p>SR 3.8.1.4</p> <p>Verify each day tank [and engine mounted tank] contains $\geq [220]$ gal of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.5</p> <p>Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	<p>(31) days (92)</p>
<p>SR 3.8.1.6</p> <p>Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].</p>	<p>[92] days</p>

(continued)

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.8.1.4 (continued)

selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load plus 10%.

The 31 day Frequency is adequate to assure 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.

SR 3.8.1.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day [and engine mounted] tanks once every ~~(31)~~ days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during the performance of this Surveillance.

[92]

Insert

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.7. <p>-----</p> <p>Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load $\geq [4500]$ kW and $\leq [5000]$ kW.</p>	<p>As specified in Table 3.8.1-1</p>
<p>SR 3.8.1.4</p> <p>Verify each day tank [and engine mounted tank] contains $\geq [220]$ gal of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.5</p> <p>Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	<p>[31] days [92]</p>
<p>SR 3.8.1.6</p> <p>Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].</p>	<p>[92] days</p>

(continued)

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SR 3.8.1.4 (continued)

provided and facility operators would be aware of any large uses of fuel oil during this period.

SR 3.8.1.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day [and engine mounted] tanks once every [31] days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system.

Insert

The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10). This SR is for preventative maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during the performance of this Surveillance.

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

The Frequency for this SR is variable, depending on individual system design, with up to a [92] day interval. The [92] day Frequency corresponds to the testing requirements for pumps as contained in the ASME Code,

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2 or SR 3.8.1.7. <p>-----</p> <p>Verify each DG is synchronized and loaded, and operates for ≥ 60 minutes at a load $\geq [4500]$ kW and $\leq [5000]$ kW.</p>	<p>As specified in Table 3.8.1-1</p>
<p>SR 3.8.1.4</p> <p>Verify each day tank [and engine mounted tank] contains $\geq [220]$ gal of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.5</p> <p>Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	<p>(31) days (92)</p>
<p>SR 3.8.1.6</p> <p>Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].</p>	<p>[92] days</p>

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BASES

**SURVEILLANCE
REQUIREMENTS
(continued)**

SR 3.8.1.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day [and engine mounted] tanks once every [31] days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR provided the accumulated water is removed during the performance of this Surveillance.

Insert

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

The Frequency for this SR is variable, depending on individual system design, with up to a [92] day interval. The [92] day Frequency corresponds to the testing requirements for pumps as contained in the ASME Code, Section XI (Ref. 12); however, the design of fuel transfer systems is such that pumps will operate automatically or must be started manually in order to maintain an adequate volume of fuel oil in the day [and engine mounted] tanks during or following DG testing. In such a case, a 31 day

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. <p>-----</p> <p>Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load $\geq [1710]$ kW and $\leq [2000]$ kW.</p>	<p>As specified in Table 3.8.1-1</p>
<p>SR 3.8.1.4 Verify each day tank [and engine mounted tank] contain[s] $\geq [900]$ gal of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.5 Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	<p><u>[31]</u> days <u>[92]</u></p>
<p>SR 3.8.1.6 Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].</p>	<p>[92] days</p>

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BASES

SURVEILLANCE
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SR 3.8.1.5 (continued)

fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day [and engine mounted] tanks once every [31] days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. ~~The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10).~~ This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

Insert

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. It is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

The Frequency for this SR is variable, depending on individual system design, with up to a [92] day interval. The [92] day Frequency corresponds to the testing requirements for pumps as contained in the ASME Boiler and Pressure Vessel Code, Section XI (Ref. 13); however, the design of fuel transfer systems is such that pumps operate automatically or must be started manually in order to maintain an adequate volume of fuel oil in the day [and engine mounted] tanks during or following DG testing. In such a case, a 31 day Frequency is appropriate. Since proper operation of fuel transfer systems is an inherent

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by, and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. <p style="text-align: center;">-----</p> <p>Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load $\geq [5450]$ kW and $\leq [5740]$ kW for [Division 1 and 2] DGs, and $\geq [3300]$ kW and $\leq [3500]$ kW for [Division 3] DG.</p>	<p>As specified in Table 3.8.1-1</p>
<p>SR 3.8.1.4</p> <p>Verify each day tank [and engine mounted tank] contains $\geq [220]$ gal of fuel oil for [Divisions 1 and 2] and $\geq [220]$ gal for [Division 3].</p>	<p>31 days</p>
<p>SR 3.8.1.5</p> <p>Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	<p><u>(31)</u> days <u>(92)</u></p>
<p>SR 3.8.1.6</p> <p>Verify the fuel oil transfer system operates to [automatically] transfer fuel oil from storage tank[s] to the day tank [and engine mounted tank].</p>	<p>[92] days</p>

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BASES

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SR 3.8.1.4 (continued)

Level at which fuel oil is automatically added. The level is expressed as an equivalent volume in gallons, and is selected to ensure adequate fuel oil for a minimum of 1 hour of DG operation at full load plus 10%.

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

SR 3.8.1.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel oil day [and engine mounted] tanks once every [31] days eliminates the necessary environment for bacterial survival. This is most effective means in controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. ~~The Surveillance Frequencies are established by Regulatory Guide 1.137 (Ref. 10).~~ This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

Insert →

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. It is required to support the continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping

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