
Industry/TSTF Standard Technical Specification Change Traveler

Extend Frequency of accumulated water checks for DG fuel oil.

NUREGs Affected: 1430 1431 1432 1433 1434

Classification: 1) Technical Change

Recommended for CLIP?: No

Priority 3)Low

Simple or Complex Change: Complex

Industry Contact: Bice, David

(479) 858-5338

dbice@entergy.com

1.0 DESCRIPTION

The proposed change reduces the Frequency for testing the moisture content of stored emergency diesel generator (EDG) fuel oil from once per month to once per quarter. The change is intended to limit costs and resources associated with fuel oil sampling requirements while maintaining a high confidence that the quality of the fuel oil will remain superior. The affected specifications include Surveillance Requirement (SR) 3.8.1.5 and SR 3.8.3.5 and their associated Bases.

2.0 PROPOSED CHANGE

The proposed change revises the SR Frequency for checking for and removing accumulated water from the EDG fuel oil day tanks and underground storage tanks. The Frequency for SR 3.8.1.5 and SR 3.8.3.5 is proposed to be decreased from once every 31 days to once every 92 days. The respective Bases are also modified to support this change.

04-Aug-02

3.0 BACKGROUND

A typical EDG fuel oil storage and transfer system consists of an underground storage tank and day tank for each EDG. The tanks, associated piping, and transfer pumps are Seismic Class 1 components. The required volumes of both tanks ensure a minimum of [7] days of EDG operation at full load. The underground storage tanks may be replenished by an above ground bulk tank or directly from fuel oil transported to the site. Transfer pumps take suction from the underground storage tanks to maintain required level in the associated EDG fuel oil day tank, normally located adjacent to the respective EDG.

The requirement to check for and remove accumulated water from the EDG fuel oil storage and day tanks is intended to ensure high quality fuel remains available at all times in support of EDG operation. Moisture intrusion into the fuel oil systems establishes a water environment where the growth of bacteria is enhanced. Such growth may eventually result in microbiological fouling within the fuel oil system and degraded flow and fuel oil quality to support EDG operations. EDGs may also be adversely affected by water being mixed with the fuel oil during periods when the EDG is in operation. Therefore, satisfactory performance of the aforementioned moisture intrusion checks of the fuel oil system minimizes the likelihood that fouling or other adverse affects caused by the presence of water in the fuel oil will result.

The presence of water in the fuel oil storage or day tanks may come from any of several sources, depending of plant specific design and physical conditions. These sources may include condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. However, the presence of water does not necessarily indicate that a significant detrimental impact on EDG operation will result. As a preventative measure, therefore, a check is made to determine if water exists within the fuel oil tanks and action taken to remove water when found to be present. The current interval between checks is 31 days as recommended in Regulatory Guide (RG) 1.137 (Ref. 1).

4.0 TECHNICAL ANALYSIS

The proposed change to the NUREGs is intended to decrease the specified Frequency for sampling EDG fuel oil for water content from 31 days to 92 days. The proposed change affects the sampling requirements for both the underground storage tanks and the fuel oil day tanks associated with the EDGs. Justification of this change is dependent on plant-specific experience, in-place programs, and the physical and design characteristics of the fuel oil systems, which must illustrate that the proposed SR Frequency change will not result in a significant impact on EDG operability.

As described in the previous section, several possibilities exist regarding water intrusion into the fuel oil system. Many plants contain the underground storage tanks and piping within flood resistant vaults and pipe runs to protect the piping and tanks from direct contact with ground water sources or rain. If storage tanks are not contained within such a vault, the static head of the fuel oil is sufficient to significantly minimize, if not eliminate, water intrusion into the system from underground sources. Condensation within the tanks is the most likely source of moisture development, but its significance is offset by the short time periods between sampling intervals. Other TS fuel oil sampling requirements exist to help ensure that fuel oil purity is maintained, thus minimizing the impact of water formation from the breakdown of the fuel oil by bacteria. This leaves the possibility of water intrusion into the fuel oil from makeup sources such as an above ground fuel oil bulk tank or from fuel oil supplied by offsite vendors.

The Technical Specifications require a Diesel Fuel Oil Testing Program. This program is intended to ensure that fuel oil is sampled and analyzed as a preventative measure against EDG degradation, including any moisture intrusion into the EDG fuel oil injection ports when the EDG is running. Although TSs only require sampling of the fuel oil tanks directly associated with each EDG, fuel oil testing programs typically ensure that makeup sources to these tanks are likewise sampled to prevent water from being introduced into the TS-required tanks unnoticed. At Arkansas Nuclear One, Unit 1 (ANO-1) for example, the above ground bulk tank is sampled quarterly for water content. In addition, fuel oil is drained directly from the bottom of the tank (below the standpipe) and any water, if present, is drained off at the time of the sample. Because the density of water is greater than that of the fuel oil, water contained within the system will migrate to the low point of the system (bottom of the tank). Such sampling and draining of the above ground bulk tank is an important measure in preventing water ingress into the EDG fuel oil system during makeup operations and is noted in RG 1.137, Section C.2.b (Ref. 1). In addition, fuel oil trucks brought onsite by vendors to replenish site fuel oil supplies are likewise sampled for water content prior to transferring the contents to any fuel oil storage tank. If water is detected, the fuel oil is not permitted to be transferred to the onsite tanks unless the problem can be resolved. Some plants are designed such that the oil from the fuel oil trucks is normally transferred directly to the above ground bulk tank and not to the EDG-required storage tanks. This action provides an extra barrier and sampling opportunity prior to the oil's use in supporting EDG operations.

In summary, fuel oil sampling programs have historically provided ample protection against the undetected presence of water in the fuel oil systems required for EDG operations. In addition, it is historically uncommon for any significant quantity of water to be detected in the TS-required underground storage or fuel oil day tanks. If an unexpected amount of water is detected, an evaluation is performed in an attempt to locate the source of the water ingress and/or restore the system to normal operational status. This often includes administratively increasing the sample frequency until evidence of restoration is established (as is one intent of the Maintenance Rule under 10 CFR 50.65(a)(3)), even if TS limits have not yet been exceeded.

04-Aug-02

Also of significance is that the required sampling for water intrusion into the EDG fuel oil system is a preventative measure intended to enhance the likelihood that future EDG operation will not be prevented. In other words, the presence of small amounts of moisture in the fuel oil is not expected to present a noticeable degradation in EDG performance. The sampling requirements or presence of moisture in the fuel oil system is also not considered in the safety analysis. Finally, the EDG-required underground fuel oil tanks are flushed through filtering agents and sampled for overall purity at routine frequencies during plant shutdown conditions. Based on the protective measures established through onsite diesel fuel oil testing programs to detect moisture in fuel oil before it is added to TS-required fuel oil tanks, the low likelihood that significant moisture buildup will occur over short periods of time due to physical and design characteristics of the fuel oil systems, and that the presence of moisture within the fuel oil does not necessarily equate to significant EDG degradation, extending the SR Frequency for sampling the water content of the EDG fuel oil storage and day tanks from 31 days to 92 days is acceptable.

04-Aug-02

5.0 REGULATORY ANALYSIS

5.1 Applicable Regulatory Requirements/Criteria

The proposed changes have been evaluated to determine whether applicable regulations and requirements continue to be met.

General Design Criterion (GDC) 17, "Electrical Power Systems," of Appendix A, "General Design Criterion for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," requires, in part, that an onsite electrical power system be provided to permit functioning of structures, systems, and components (SSC) important to safety. In addition, GDC 17 contains requirements concerning system capacity, capability, independence, redundancy, availability, testability, and reliability. Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50 establishes overall quality assurance requirements for the design, construction, and operation of SSCs important to safety. In support of these requirements, RG 1.137 (Ref. 1) was developed to provide generic industry guidance for fuel oil system maintenance.

04-Aug-02

5.2 No Significant Hazards Consideration

The proposed change will revise NUREGs 1430 through 1434, Revision 2, Improved Standard Technical Specifications, to reduce the sampling Frequency for detecting water in the fuel oil tanks that support operability of the onsite Emergency Diesel Generators (EDGs) from 31 days to 92 days. Technical Specification (TS) Surveillance Requirements (SRs) 3.8.1.5 and 3.8.3.5 are proposed to be revised to be consistent with the new sampling frequency of once every 92 days. These SRs provide requirements for sampling the fuel oil storage tanks and fuel oil day tanks associated with each EDG. The TS Bases associated with each SR will likewise be revised to accommodate this change.

The proposed change has been evaluated as to whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change does not require any physical change to any plant systems, structures, or components nor does it require any change in systems or plant operations. The proposed change does not require any change in safety analysis methods or results. The water content of the EDG fuel oil system is not considered an accident initiator. The change to reduce the fuel oil sampling frequency for water content from 31 days to 92 days does not present a significant impact to EDG operability or significantly degrade EDG performance and, therefore, does not present a significant detrimental impact on structures, systems, or components that support accident recovery.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The accident analyses do not consider the water content of the EDG fuel oil systems. Failure of an EDG to start and load upon accident initiation is considered in the accident analyses, but is not affected by the proposed change to the TS SR fuel oil sampling frequencies. The existing analyses remain unchanged and the proposed TS change does not affect any accident initiators that would create a new accident.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

04-Aug-02

The proposed change does not require any change in accident analysis methods or results. The safety margin as established in the current license basis remains unchanged. Reducing the SR frequency for EDG fuel oil sampling does not, in itself, result in a measurable impact on the operability of the EDGs. The water content of the EDG fuel oil systems will continue to be assessed and corrective action taken should any condition adverse to EDG operability be detected.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

6.0 ENVIRONMENTAL CONSIDERATIONS

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. Regulatory Guide 1.137, "Fuel-Oil Systems For Standby Diesel Generators," Revision 1, October 1979.
2. ANSI N195-1976, "Fuel-Oil Systems For Standby Diesel Generators," Appendix B, April 1976.
3. ASTM D975-77, "Standard Specification for Diesel Fuel Oils," April 1975.
4. ASTM D270-1975, "Standard Method of Sampling Petroleum and Petroleum Products."

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:

04-Aug-02

OG Revision 0**Revision Status: Closed**

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

TSTF Review Information

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

OG Review Completed: BWOG 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: Closed**

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

04-Aug-02

TSTF Revision 1**Revision Status: Closed**OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 16-Jul-99

NRC Review Information

NRC Received Date: 20-Jul-99

NRC Comments:

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: 08-May-02

TSTF Revision 2**Revision Status: Active****Next Action: NRC**

Revision Proposed by: TSTF

Revision Description:

As suggested by the NRC, SR 3.8.3.5 Frequency is proposed for extension to 92 days in this revision. In addition, the TSTF is completely rewritten to meet the current content and format requirements and markups are included on NUREG Revision 2 pages.

The Reviewer's note that was previously included in the Bases is deleted. Any plant desiring to adopt this change obviously has to show that their site programs provide adequate controls to ensure water intrusion into the fuel oil system will not go undetected or result in a long term impact to station operation. This may require departmental procedures, or site programs relating to the Maintenance Rule, to require an increase sampling frequency when unusual or unexpected amounts of water are found in the fuel oil system. Regardless of historical data, individual sites should discuss in their submittal what general programs and procedures provide assurance that water intrusion into the DG fuel oil system will be detected and resolved promptly.

TSTF Review Information

TSTF Received Date: 01-Jul-02 Date Distributed for Review 01-Jul-02

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved Date: 31-Jul-02

NRC Review Information

NRC Received Date: 07-Aug-02

04-Aug-02

Affected Technical Specifications

SR 3.8.1.5 AC Sources - Operating

SR 3.8.1.5 Bases AC Sources - Operating

SR 3.8.3.5 Diesel Fuel Oil, Lube Oil, and Starting Air

SR 3.8.3.5 Bases Diesel Fuel Oil, Lube Oil, and Starting Air

04-Aug-02

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.2 ----- ----</p> <p style="text-align: center;">– NOTES –</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. [2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] <p>----- ----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage \geq [3740] V and \leq [4580] V, and frequency \geq [58.8] Hz and \leq [61.2] Hz.</p>	31 days
<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 \geq 60 minutes at a load \geq [4500] kW and \leq [5000] kW.</p>	31 days
<p>SR 3.8.1.4 Verify each day tank [and engine mounted tank] contains \geq [220] gal of fuel oil.</p>	31 days
<p>SR 3.8.1.5 Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	[3+92] days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time not met.</p> <p>OR</p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	F.1 Declare associated DG inoperable	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.	31 days
SR 3.8.3.2	Verify lube oil inventory is \geq [500] gal.	31 days
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is \geq [225] psig.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	[3192] days

BASES

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by four Notes. Note 1 indicates that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized. Note 2 states that momentary transients because of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit will not invalidate the test. Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank [and engine mounted tank] is at or above the 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 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 [3492] 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 Frequency ~~ies is~~ are established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~ 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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of [five] engine start cycles without recharging. [A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed.]

The pressure specified in this SR is intended to reflect the lowest value at which the [five] starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

SR 3.8.3.5

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 storage tanks once every [3+92] 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 Frequency ~~ies isare~~ established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~ Regulatory Guide 1.137 (Ref. 2). 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 performance of the Surveillance.

REFERENCES

1. FSAR, Section [9.5.4.2].
 2. Regulatory Guide 1.137.
 3. ANSI N195-1976, Appendix B.
 4. FSAR, Chapter [6].
 5. FSAR, Chapter [15].
-

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.2 ----- ----</p> <p style="text-align: center;">– NOTES –</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. [2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] <p>----- ----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage \geq [3740] V and \leq [4580] V, and frequency \geq [58.8] Hz and \leq [61.2] Hz.</p>	31 days
<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 \geq 60 minutes at a load \geq [4500] kW and \leq [5000] kW.</p>	31 days
<p>SR 3.8.1.4 Verify each day tank [and engine mounted tank] contains \geq [220] gal of fuel oil.</p>	31 days
<p>SR 3.8.1.5 Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	[3192] days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time not met.</p> <p>OR</p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	F.1 Declare associated DG inoperable	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1 Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.	31 days
SR 3.8.3.2 Verify lube oil inventory is \geq [500] gal.	31 days
SR 3.8.3.3 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4 Verify each DG air start receiver pressure is \geq [225] psig.	31 days
SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.	[3192] days

BASES

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by four Notes. Note 1 indicates that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized. Note 2 states that momentary transients because of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit will not invalidate the test. Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank [and engine mounted tank] is at or above the 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 [3+92] 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 Frequency ~~ies is~~are established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~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.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of [five] engine start cycles without recharging. [A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed.] The pressure specified in this SR is intended to reflect the lowest value at which the [five] starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

SR 3.8.3.5

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 storage tanks once every [3+92] 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, and 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 Frequency ~~is~~ established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~ Regulatory Guide 1.137 (Ref. 2). 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 performance of the Surveillance.

REFERENCES

1. FSAR, Section [9.5.4.2].
 2. Regulatory Guide 1.137.
 3. ANSI N195-1976, Appendix B.
 4. FSAR, Chapter [6].
 5. FSAR, Chapter [15].
-

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.2 ----- ----</p> <p style="text-align: center;">– NOTES –</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. [2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] <p>----- ----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage \geq [3740] V and \leq [4580] V, and frequency \geq [58.8] Hz and \leq [61.2] Hz.</p>	<p>31 days</p>
<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 \geq 60 minutes at a load \geq [4500] kW and \leq [5000] kW.</p>	<p>31 days</p>
<p>SR 3.8.1.4 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 Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	<p>[3192] days</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time not met.</p> <p>OR</p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	<p>F.1 Declare associated DG inoperable</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.3.1 Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.</p>	<p>31 days</p>
<p>SR 3.8.3.2 Verify lube oil inventory is \geq [500] gal.</p>	<p>31 days</p>
<p>SR 3.8.3.3 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.</p>	<p>In accordance with the Diesel Fuel Oil Testing Program</p>
<p>SR 3.8.3.4 Verify each DG air start receiver pressure is \geq [225] psig.</p>	<p>31 days</p>
<p>SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.</p>	<p>[3192] days</p>

BASES

SURVEILLANCE REQUIREMENTS (continued)

of changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit will not invalidate the test. Note 3 indicates that this Surveillance should be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations. Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank [and engine mounted tank] is at or above the 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 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 [3+92] 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 Frequency ~~ies isare~~ established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~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.

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

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of [five] engine start cycles without recharging. [A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed.] The pressure specified in this SR is intended to reflect the lowest value at which the [five] starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

SR 3.8.3.5

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 storage tanks once every [3192] 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, and 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 Frequency~~ies isare~~ established by Regulatory Guide 1.137 (Ref. 2). 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 performance of the Surveillance.

-
- | | |
|------------|--------------------------------|
| REFERENCES | 1. FSAR, Section [9.5.4.2]. |
| | 2. Regulatory Guide 1.137. |
| | 3. ANSI N195-1976, Appendix B. |
| | 4. FSAR, Chapter [6]. |
| | 5. FSAR, Chapter [15]. |
-

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.2 ----- ----</p> <p style="text-align: center;">– NOTES –</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. [2. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.] <p>----- ----</p> <p>Verify each DG starts from standby conditions and achieves steady state voltage \geq [3740] V and \leq [4580] V, and frequency \geq [58.8] Hz and \leq [61.2] Hz.</p>	31 days
<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 \geq 60 minutes at a load \geq [1710] kW and \leq [2000] kW.</p>	31 days
<p>SR 3.8.1.4 Verify each day tank [and engine mounted tank] contain[s] \geq [900] gal of fuel oil.</p>	31 days
<p>SR 3.8.1.5 Check for and remove accumulated water from each day tank [and engine mounted tank].</p>	[3192] days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Required Action and associated Completion Time not met.</p> <p>OR</p> <p>One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.</p>	<p>F.1 Declare associated DG inoperable</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.3.1 Verify each fuel oil storage tank contains \geq [33,000] gal of fuel.</p>	<p>31 days</p>
<p>SR 3.8.3.2 Verify lube oil inventory is \geq [500] gal.</p>	<p>31 days</p>
<p>SR 3.8.3.3 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.</p>	<p>In accordance with the Diesel Fuel Oil Testing Program</p>
<p>SR 3.8.3.4 Verify each DG air start receiver pressure is \geq [225] psig.</p>	<p>31 days</p>
<p>SR 3.8.3.5 Check for and remove accumulated water from each fuel oil storage tank.</p>	<p>[3192] days</p>

BASES

SURVEILLANCE REQUIREMENTS (continued)

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank [and engine mounted tank] is at or above the 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 [3492] 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 Frequency ~~ies is~~are established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~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.

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,

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of [five] engine start cycles without recharging. [A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed.]

The pressure specified in this SR is intended to reflect the lowest value at which the [five] starts can be accomplished.

The [31] day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

SR 3.8.3.5

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 storage tanks once every [3192] 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 Frequency ~~ies isare~~ established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~by Regulatory Guide 1.137 (Ref. 2). 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 performance of the Surveillance.

REFERENCES

1. FSAR, Section [9.5.2].
 2. Regulatory Guide 1.137.
 3. ANSI N195, 1976.
 4. FSAR, Chapter [6].
 5. FSAR, Chapter [15].
-

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.3 ----- <p style="text-align: center;">– NOTES –</p> 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 ----- ---- 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.	31 days
SR 3.8.1.4 Verify each day tank [and engine mounted tank] contains $\geq [220]$ gal of fuel oil for [Division 1 and 2] and $\geq [220]$ gal for [Division 3].	31 days
SR 3.8.1.5 Check for and remove accumulated water from each day tank [and engine mounted tank].	[3192] days
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].	[92] days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.3	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.4	Verify each DG air start receiver pressure is \geq [225] psig.	31 days
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	[3192] days

BASES

SURVEILLANCE REQUIREMENTS (continued)

The 31 day Frequency for this Surveillance is consistent with Regulatory Guide 1.9 (Ref. 3).

Note 1 modifies this Surveillance to indicate that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized.

Note 2 modifies this Surveillance by stating that momentary transients because of changing bus loads do not invalidate this test.

Note 3 indicates that this Surveillance must be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations.

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank [and engine mounted tank] is at or above the 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 [3+92] days eliminates the necessary environment for bacterial survival. This is 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

BASES

SURVEILLANCE REQUIREMENTS (continued)

of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies ~~is are~~ established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~ 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.

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 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. 12); 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 part of DG OPERABILITY, the Frequency of this SR should be modified to reflect individual designs.]

SR 3.8.1.7

See SR 3.8.1.2.

[SR 3.8.1.8

Transfer of each 4.16 kV ESF bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The [18 month] Frequency of the Surveillance is based on engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed on the [18 month]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of [five] engine start cycles without recharging. [A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed.] The pressure specified in this SR is intended to reflect the lowest value at which the [five] starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

SR 3.8.3.5

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 storage tanks once every [3492] 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 Frequency ~~ies isare~~ established ~~to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of~~by Regulatory Guide 1.137 (Ref. 2). This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided the accumulated water is removed during performance of the Surveillance.

REFERENCES

1. FSAR, Section [9.5.4].
 2. Regulatory Guide 1.137.
 3. ANSI N195, 1976.
 4. FSAR, Chapter [6].
 5. FSAR, Chapter [15].
-