



Millstone Nuclear Power Station, Unit No. 3  
SER Open Item No. 2.6  
Power Systems Branch  
Mechanical Items

Emergency Diesel Engine Lubricating Oil System

In SER Section 9.5.7 the staff was concerned that a failure of the level control valve to maintain lubricating oil level in the rocker arm reservoir could result in inadequate or no lubricating oil for the rocker arms, leading to diesel generator unavailability and/or failure. The applicant was requested to justify his design or provide a low-level alarm for the rocker arm lubricating oil reservoir.

Response

The diesel engine rocker arm lube oil system is provided with a low lube oil pressure alarm switch. The engine manufacturer advises that the engine can continue to run up to one hour, after the first receipt of the rocker arm low lube oil pressure alarm, without damage. Upon actuation of this alarm, the rocker arm lube oil reservoir level and the rocker arm lube oil duplex filter pressure differential will be checked and corrective action taken to maintain the operability of the system. The existing design is therefore adequate, in that sufficient time for operator action is provided.

Millstone Nuclear Power Station, Unit No. 3  
SER Confirmatory Item No. 56  
Power Systems Branch  
Mechanical Items

Emergency Diesel Engine Auxiliary Support Systems (General)

SER Section 9.5.4.1 requests that before initial start-up, the concrete floors and walls of the diesel generator rooms are sealed to minimize the generation of concrete dust.

Response

The applicant will seal the walls and floors of the diesel generator enclosures prior to initial plant start-up.

Millstone Nuclear Power Station, Unit No. 3  
SER Confirmatory Item 57  
Power Systems Branch  
Mechanical Items

Emergency Diesel Engine Auxiliary Support Systems

SER Section 9.5.4.1 requires that the applicant provide test results and results of analyses that validate that the skid-mounted control panels and mounted equipment have been developed, tested and qualified for operation under severe vibrational stresses encountered during diesel engine operation. If not, it is required that the control panels currently furnished with the diesel generator be mounted separate from the skid on a vibration-free floor area.

Response

As discussed in a meeting with the staff on December 4, 1984 in Bethesda, Maryland, the applicant will perform one of the following for all equipment within the panels that can effect the operability of the diesel generators during either normal or emergency condition:

- (a) Actual vibrational levels of the equipment will be measured to confirm that they are within the tolerances specified as acceptable by the equipment manufacturers. The vibration levels will be measured during preoperational or qualification testing of the diesel generator units.
- (b) Equipment within the panels will undergo in-house vibration testing to ensure that it will remain operable, under actual equipment vibration levels, throughout the 18-month calibration period.
- (c) Equipment which can not be qualified by one of the above methods will be replaced by items that can be qualified.
- (d) The engine skid-mounted panels will be removed from the engine skid and mounted as freestanding floor panels.

The applicant shall keep the staff advised as to the qualification method being pursued. Vibration measurements and the complete qualification package will be submitted for staff approval. The program is to be completed by the end of the first refueling outage.



Millstone Nuclear Power Station, Unit No. 3  
SER License Condition No. 4  
Power Systems Branch  
Mechanical Items

Emergency Diesel Engine Fuel Oil Storage and Transfer System

SER Section 9.5.4.2 requests that a 24-hour settling period be provided prior to transferring fuel oil from a recently filled storage tank. The staff concern is that in refilling a nearly empty storage tank, sediment may be stirred up such that the overall quality of fuel oil would be unacceptable.

Response

Correspondence with diesel fuel oil suppliers has indicated that turbulence caused by incoming fuel would not be sufficient to disturb an existing sediment bed if the initial fuel oil level is greater than 4 feet. This level is based on anticipated sediment levels, pumping rate of fuel delivery trucks, and existing tank design. The fill line is such that it is terminated upon penetration of the storage tank top. Therefore, any disruption of the fuel oil present in the tank will occur at the fluid surface and not in the area of the sediment layer.

Technical specification requirements providing for a minimum storage tank level and the applicant's prior commitment to order fuel within 4 hours after initiation of an accident, with delivery expected to occur during the 24 hours following the placement of the order, will ensure that tank levels do not approach the 4 foot level. The applicant will require in the plant operating procedures that refilling operations are started prior to the tank dropping below the 50% (5.2 feet) level. This requirement will ensure that unacceptable sediment concentrations are not realized.

In the event that filling does not commence prior to reaching this 50% point, an adequate settling period will be provided for the recently filled tank, with transfer being accomplished from the alternate tank. Information provided by fuel oil suppliers indicates that a 1-hour settling period per foot of final product height is generally utilized. Therefore, the allowed settling time will be based on the final tank height at the conclusion of the filling operation. The settling period will be provided in the plant operating procedures.

Millstone Nuclear Power Station, Unit No. 3  
SER License Condition No. 5  
Power Systems Branch  
Mechanical Items

Emergency Diesel Engine Starting System

SER Section 9.5.6 requests that the applicant supply an inspection frequency for the in-line filters of the diesel air start system.

Response

The applicant will require that the in-line filters shall be inspected and changed if necessary at least once per year. This frequency is in accordance with industry practice. This license condition shall be removed upon installation of the diesel air start system air dryers.

Millstone Nuclear Power Station, Unit No. 3  
SER License Condition No. 6  
Power Systems Branch  
Mechanical Items

Emergency Diesel Engine Lubricating Oil System

SER Section 9.5.7 requests that upon actuation of the diesel generator low-room temperature alarm, the room air temperature shall be increased to 50°F or greater.

Response

The applicant will include in the plant operating procedures that upon receipt of the diesel generator low-room temperature alarm, which actuates at 45°F on Ventilation Panel 1 in the control room, measures will be taken to raise the ambient room temperature to 50°F. Actions that may be taken to maintain this temperature include:

- (1) bringing in portable space heaters
- (2) turning on lights or equipment
- (3) starting the emergency diesel generator

Millstone Nuclear Power Station, Unit No. 3  
SER License Condition No. 7  
Power Systems Branch  
Mechanical Items

Emergency Diesel Engine Combustion Air Intake and Exhaust System

SER Section 9.5.8 requires that the following be included in the plant Technical Specifications:

- (1) In the event of a tornado alert, or an ice storm, snow storm, or freezing rain storm forecast, the access hatch in the emergency diesel generator combustion exhaust system shall be opened and shall remain open until the event has passed.
- (2) At least once a year, the access hatch shall be opened to verify operation of the hatch, inspected for corrosion of parts and maintained in operable status.

Response

The design function of the access hatch is to provide an alternate exhaust path in the event that the exhaust stack is damaged by a tornado missile. Due to the meteorological climate at the Millstone Site, it is highly improbable that a tornado alert will occur coincidentally with a freezing rain or snow condition. Therefore, the requirement that the access hatch be opened when an ice storm, snow storm, or freezing rain storm forecast is received is felt to be unnecessary. The applicant will require, in an abnormal operating procedure, that the hatch be periodically inspected when such conditions exist and, if a significant accumulation is observed, corrective action be taken to ensure it remains operable. The applicant will require that the access hatch be opened in the event of a tornado alert.

With regards to the second staff requirement, the applicant will require that measures taken to ensure hatch operability be addressed in the preventative maintenance procedures. The access hatch will be opened at least once a year, inspected for corrosion of parts, and maintained in an operable status.