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January 12, 2024 10 CFR 50.90
NRC-24-0002

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Fermi 2 Power Plant
NRC Docket No. 50-341
NRC License No. NPF-43

Subject: Clarification for Request for Additional Information Responses for License Amendment Request to Revise Technical Specification 3.8.1, AC Sources - Operating, Surveillance Requirement SR 3.8.1.12

References:

1) DTE Letter NRC-23-0002, "License Amendment Request to Revise Technical Specification 3.8.1, AC Sources - Operating, Surveillance Requirement SR 3.8.1.12", dated May 5, 2023 (ML23128A017)

2) NRC E-mail Capture, "Fermi 2 - Request for Additional Information for License Amendment Request to Revise TS 3.8.1, "AC Sources - Operating," Surveillance Requirement 3.8.1.12", dated September 7, 2024 (EPID L-2023-LLA-0069) (ML23250A273)

3) DTE Letter NRC-23-0062, "Response to Request for Additional Information for License Amendment Request to Revise Technical Specification 3.8.1, AC Sources - Operating, Surveillance Requirement SR 3.8.1.12, dated October 12, 2023 (ML23286A120)

4) NRC E-mail Capture, "Fermi 2 - License Amendment Request to Revise Surveillance Requirement 3.8.1.12", dated November 16, 2023 (EPID L-2023-LLA-0069)

In Reference 1, DTE Electric Company (DTE) submitted a License Amendment Request (LAR) to revise the Fermi 2 Technical Specifications (TS). In Reference 2, an email from Mr. Surinder Arora to Mr. Eric Frank dated September 1, 2023, the NRC sent DTE a Request for Additional Information (RAI) regarding the LAR. The responses to the RAIs were provided in Reference 3. In Reference 4, an email from Mr. Surinder Arora to Mr. Eric Frank dated

November 16, 2023, the NRC sent DTE a request for clarification regarding responses provided in Reference 3. The responses to the clarification questions are contained in Enclosure 1.

No new commitments are being made in this submittal.

Should you have any questions or require additional information, please contact Mr. Eric Frank, Manager – Nuclear Licensing, at (734) 586-4772.

Sincerely,

Christopher P. Domingos

Christopher P. Domingos
Site Vice President

Enclosure:
1. Response to NRC Clarification Questions

cc: NRC Project Manager
NRC Resident Office
Regional Administrator, Region III
Michigan Department of Environment, Great Lakes, and Energy

Enclosure 1 to
NRC-24-0002

Fermi 2 NRC Docket No. 50-341
Operating License No. NPF-43

Response to NRC Clarification Questions

By letter dated May 5, 2023 (Agencywide Document Access Management System (ADAMS) Accession No. ML23128A017), DTE Electric Company (DTE, the licensee) submitted a license amendment request (LAR) to the Renewed Facility Operating License No. NPF-43 for Fermi 2 Power Plant (Fermi 2). The proposed amendment would revise the Technical Specification (TS) surveillance requirement (SR) 3.8.1.12 to bypass the emergency diesel generator (EDG) automatic trip on crankcase overpressure during an actual or simulated emergency start signal.

On September 7, 2023, the U.S. Nuclear Regulatory Commission (NRC) staff sent a request for additional information (RAI) to the licensee (ML23250A273). By letter dated October 12, 2023 (ML23286A120), the licensee provided responses to the RAI. The NRC staff has determined that clarification of some of the RAI responses is needed to complete its review of the LAR.

1. **EEEB Clarification Question #1**

   In Section 3.0 of the LAR, the licensee stated, in part:
   However, by the time any of these four failure modes would activate a high crankcase pressure trip, significant damage to the affected engine would have already occurred requiring a lengthy repair process.

   Section 3.0 of the LAR further states:
   A precaution will be added for monitoring high crankcase pressure conditions as part of the modification process. This will ensure the operator has sufficient time to react appropriately to this condition.

   In response to EEEB RAI #5, the licensee stated:
   Operators monitor the EDGs during simulated emergency surveillance testing and will respond to any alarms received during the surveillance and will manually trip the EDG if needed.

   The response to EEEB RAI #5 did not address the NRC staff's concern related to adequate operator response time to the EDG crankcase high pressure alarm. Describe timely operator action(s) taken to respond to the EDG crankcase high pressure alarm consistent with the quote above.

   DTE Response:

   As explained in EEEB RAI #5 response, under emergency operating conditions adequate Operator response time to the high crankcase pressure alarm condition is not relevant to the intended safety function of the EDGs. For this discussion, an emergency condition includes the following: loss of coolant accident (LOCA), loss of offsite power (LOOP) or a LOOP coincident with a LOCA. If an EDG high crankcase high pressure alarm condition actuates while the EDG is performing its safety function, the alarm ensures that Operators are made aware of the condition. No other operator action is required because the EDG will continue performing its intended safety function until the emergency

condition requiring the operation of the EDG is resolved or the EDG fails. Actuation of the alarm during an emergency condition or a LOOP ensures that Operators are aware of a challenge to the long-term operation of the EDG.

During performance of EDG simulated emergency start surveillance testing in accordance with Technical Specification Surveillance Requirements, the EDG crankcase pressure trip is automatically bypassed with all other non-essential EDG trip functions. Should a high crankcase pressure alarm occur during simulated emergency start surveillance testing, Operations will evaluate the condition and perform any required actions including, if needed, emergency shutdown of the EDG. During these simulated emergency start surveillances, an Operator is positioned locally at the EDG control panel to monitor conditions, alarms, and manipulate the EDG pre-lubrication controls. A second Operator is typically roaming the EDG under test and monitoring items in the room and on the EDG gauge panel.

As defined in NRC-23-0062, Enclosure 2, Revised LAR NRC-23-0002 Pages, Proposed changes to LAR section 3.0, the high crankcase pressure alarm represents any of five defined conditions. Vacuum is applied to the EDG crankcase as the means of detecting the first four defined internal mechanical failures that can overcome the crankcase vacuum system, raising crankcase pressure above the alarm setpoint. Conversely, loss of the crankcase vacuum system represents a loss of the means to detect the four defined internal failures. The EDG can operate indefinitely without induced crankcase vacuum. Any occurrence of internal mechanical failure outside of EDG operation during actual emergency operating conditions can affect readiness of the EDG to perform the intended safety function when needed and must be promptly addressed by removing the EDG from service for required repairs. During the performance of simulated emergency start surveillance testing, Operations will respond to crankcase high pressure alarms (if actuated) both locally and in the main control room as they would for other alarms received during a surveillance test.

The Operators have adequate time to appropriately respond to a high EDG crankcase pressure alarm during performance of the simulated emergency start signal surveillance. Upon receipt of an EDG high crankcase pressure alarm, either a failure of the crankcase vacuum system or one of the four internal mechanical failures has occurred. Occurrence of any of the four failures is the result of internal degradation of the EDG and is considered significant since any of these four failure modes requires an extensive EDG repair or overhaul to resolve. Any of these four failure modes may result in additional internal EDG damage during continued long term EDG operation. Additional EDG internal damage is not expected during short term EDG operation, which allows Operations time to respond to a EDG high crankcase alarm as they would respond to other main control room alarms. Also, if additional internal damage occurs before Operations shuts the EDG down after receipt of the high crankcase pressure alarm, an extensive repair or overhaul of the EDG will still need to be performed prior to the EDG being placed back in to service. Operations will then take all appropriate actions

including declaring the EDG out of service and enter the appropriate Technical Specification Limiting Condition of Operation.

During performance of manual started surveillance or maintenance testing performed on the EDG, the high crankcase pressure trip is enforced, and the condition will automatically trip the EDG. Upon coincident receipt of the "Crankcase Pressure High" annunciators and EDG trip, the alarm informs Operators to the cause of the EDG trip.

Enclosure 2 of NRC-23-0062, Revised LAR NRC-23-0002 Pages section 2.3 states: "The associated annunciator response procedures for each EDG will be revised to reflect the change in the high crankcase pressure trip from an essential trip function to a non-essential trip function." Changes to the annunciator response procedure will include the following guidance to the Operators if the "Crankcase Pressure High" annunciator alarms:

1) If the EDG is operating in response to an automatic (emergency) start for LOOP and/or LOCA in performance of the intended safety function, the annunciator response procedure will include guidance to reinforce Operator awareness that the high crankcase pressure trip is automatically bypassed. Should a high crankcase pressure condition occur, the EDG annunciator windows (local and main control room) alarming ensure Operators are aware of the condition and long-term operation of the EDG may be challenged while the EDG remains in operation.

2) If the EDG is operating during a simulated automatic (emergency) start surveillance for LOOP and/or LOCA, the annunciator response procedure will include guidance to reinforce Operator awareness that the high crankcase pressure trip is automatically bypassed. Should a high crankcase pressure condition occur, the EDG Annunciator windows alarming ensure Operators are aware of the condition, the need to evaluate the condition and perform any required actions including, if needed, emergency shutdown of the EDG in accordance with the specific surveillance procedure.

3) If the EDG is operating during a manual start for routine surveillance or maintenance testing, the annunciator response procedure will include guidance to reinforce Operator awareness that the EDG high crankcase pressure trip is enforced and will automatically trip the EDG. Should the high crankcase pressure condition occur, the EDG Annunciator windows alarming coincident with the EDG Trip condition ensure Operators are aware of the condition and the need for further evaluation.

2. **EEEB Clarification Question #2**
Section A.1.9, "Regulatory Guide 1.9 (December 1979, Revision 2), Selection, Design, and Qualification of Diesel Generator Units Used as Standby (Onsite) Electrical Power Systems at Nuclear Power Plants," of the UFSAR states:

Fermi 2 does not have manual reset of the trip bypass but the trip bypass automatically resets when the emergency start signals are picked up.

Section 8.3.1.1.12.2, "Circuit Protection," of the UFSAR states:
The EDG logic is designed so that the nonemergency trip relay is automatically reset by the emergency start signal.

Explain what "reset" means in the context of the above statements.

DTE Response:

In the context of the statement, the term "reset" simply means the opposite contact state from trip. The nonemergency trip relay function is automatically bypassed by the emergency start signal. Refer to the following discussion and Figure 1 & Figure 2 for additional information.

Except for the Field, Overvoltage, and Ground non-essential energize to trip functions, the non-essential trip sensors are connected to dedicated sensor relays. After an EDG startup, certain trip parameters are delayed allowing the parameters to normalize at operating conditions because all non-essential trip sensor relays are held in the normally energized, non-tripped state by the associated parameters single sensor contact. The normally closed non-essential trip relay contacts are then combined in a parallel configuration to energize the self-sealing, non-essential trip engine shutdown relay, NCX. The non-essential trips are automatically bypassed by actuating the EDG emergency start signal to energize the redundant Emergency Start relays, ESA & ESB, and open the normally closed contacts of ESA and ESB wired in series (OR) between the common rail of the paralleled non-essential relays trip contacts and the non-essential NCX engine shutdown relay coil to act as an inhibit. Upon activating the EDG Emergency Start signal, the ESA and ESB relays energize and interrupt the non-essential trip contacts to drop-out (if a previous non-essential trip was sealed-in) and inhibit energizing the NCX engine shutdown relay coil. In this manner, all non-essential trip parameters are automatically bypassed by the Emergency Start signal, allowing the EDG to start and fulfill the intended safety function.

Simplified Diagram of EDG Start Logic – Logic "A" Shown Only for Clarity
(Logic "B" is a redundant duplicate of Logic "A" for each EDG)

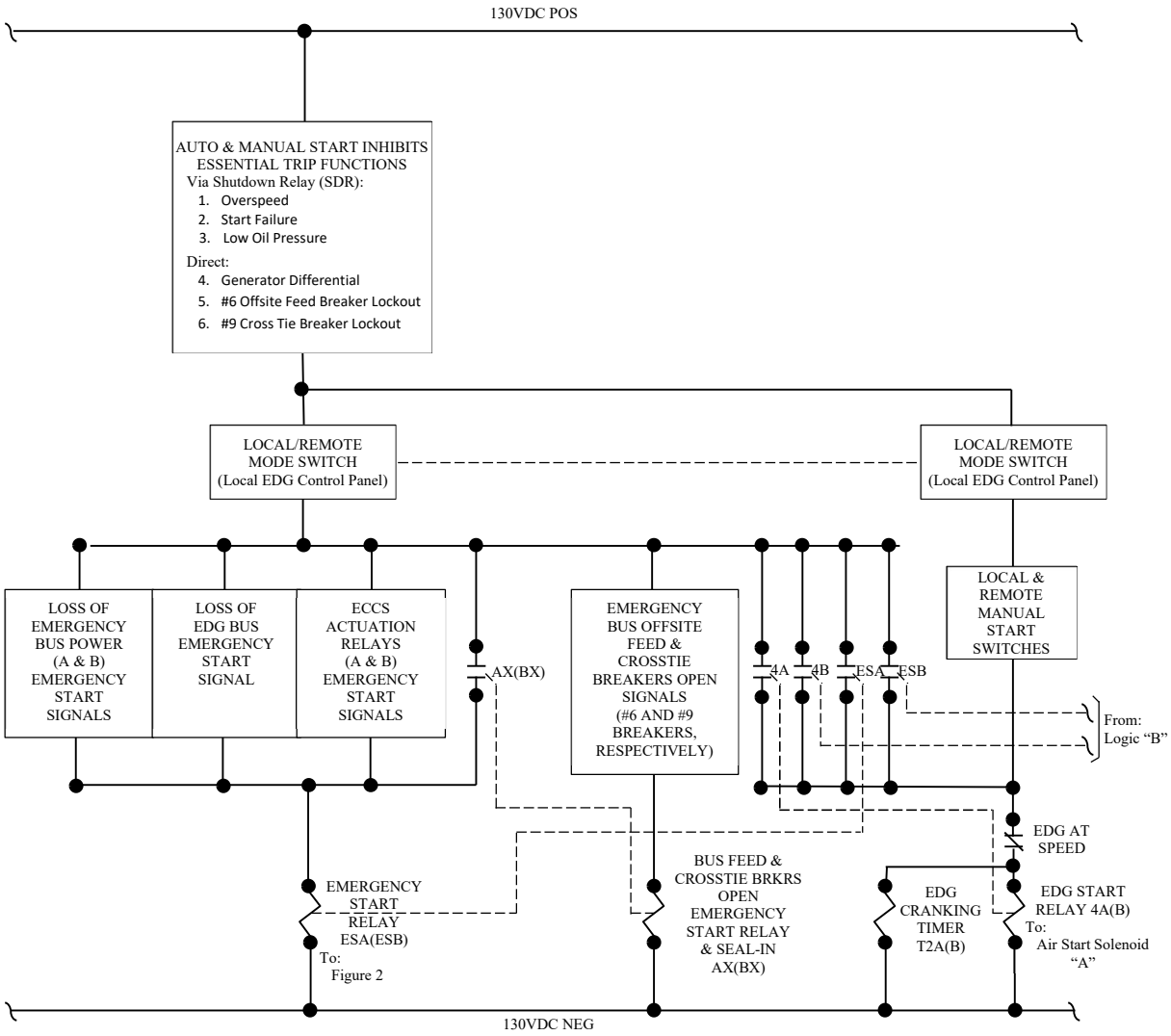

Figure 1

Simplified Diagram of EDG Essential & Non-Essential Trip Logic (Front End Portion)

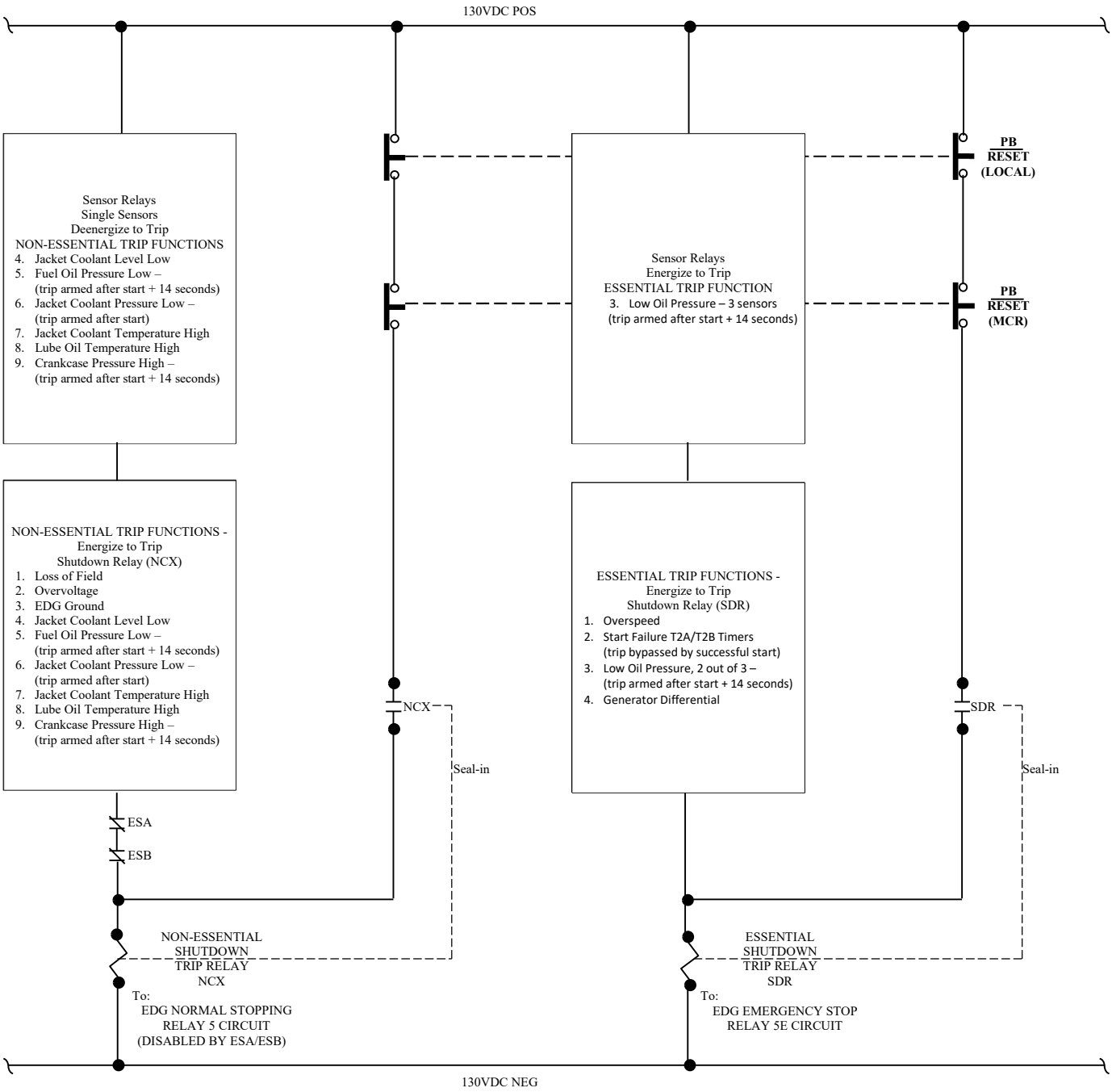

Figure 2