



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

May 31, 2017

Mr. Paul Fessler, Senior VP
and Chief Nuclear Officer
DTE Energy Company
Fermi 2 - 210 NOC
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: FERMI POWER PLANT, UNIT 2 – NRC INITIAL LICENSE EXAMINATION
REPORT 05000341/2017301

Dear Mr. Fessler:

On April 7, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed the initial operator licensing examination process for license applicants employed at your Fermi Power Plant, Unit 2 (Fermi 2). The enclosed report documents the results of those examinations. Preliminary observations noted during the examination process were discussed on April 5, 2017, with Mr. A. Pullam, Training Manager, and other members of your staff. An exit meeting was conducted by telephone on April 20, 2017, between Mr. A. Pullam of your staff and Mr. M. Bielby, Senior Operator Licensing Examiner, to review the proposed final grading of the written examination for the license applicants. During the telephone conversation, the final modification of answers to two written examination questions, and deletion of a third question were discussed based on review of questions missed by at least half of the applicants.

The NRC examiners administered an initial license examination operating test during the week of March 27, 2017. The written examination was administered by Fermi 2 training department personnel on April 3, 2017. Three Senior Reactor Operator and five Reactor Operator applicants were administered license examinations. The results of the examinations were finalized on May 2, 2017. Eight applicants passed all sections of their respective examinations and three were issued senior operator licenses and five were issued operator licenses.

The administered written examination and operating test, as well as documents related to the development and review (outlines, review comments and resolution, etc.) of the examination will be withheld from public disclosure until April 21, 2019.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Robert J. Orlikowski, Chief
Operations Branch
Division of Reactor Safety

Docket No. 50-341
License No. NPF-43

Enclosures:

1. OL Examination Report 05000341/2017301
2. Post-Examination Comments, Evaluation,
and Resolutions
3. Simulation Facility Fidelity Report

cc: Distribution via LISTSERV®
A. Pullam, Training Manager,
Fermi Power Plant

Letter to Paul Fessler from Robert Orlikowski dated May 31, 2017

SUBJECT: FERMI POWER PLANT, UNIT 2 – NRC INITIAL LICENSE EXAMINATION
REPORT 05000341/2017301

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REGION III

Docket No: 50-341
License No: NPF- 43

Report No: 05000341/2017301

Licensee: DTE Energy Company

Facility: Fermi Power Plant, Unit 2

Location: Newport, MI

Dates: March 27 through April 7, 2017

Inspectors: M. Bielby, Senior Operations Engineer, Chief Examiner
R. Baker, Operations Engineer, Examiner
D. Reeser, Operations Engineer, Examiner

Approved by: R. Orlikowski, Chief
Operations Branch
Division of Reactor Safety

SUMMARY

ER 05000341/2017301; 03/27/2017 – 04/07/2017; DTE Energy Company, Fermi Power Plant, Unit 2; Initial License Examination Report.

The announced initial operator licensing examination was conducted by regional U.S. Nuclear Regulatory Commission examiners in accordance with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10.

Examination Summary:

Eight of eight applicants passed all sections of their respective examinations. Three applicants were issued senior operator licenses and five applicants were issued operator licenses. (Section 4OA5.1).

REPORT DETAILS

40A5 Other Activities

.1 Initial Licensing Examinations

a. Examination Scope

The U.S. Nuclear Regulatory Commission (NRC) examiners and members of the facility licensee's staff used the guidance prescribed in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10, to develop, validate, administer, and grade the written examination and operating test. Members of the facility licensee's staff prepared the outlines and developed the written examination and operating test. The NRC examiners validated the proposed examination during the week of February 27, 2017, with the assistance of members of the facility licensee's staff. During the on-site validation week, the examiners audited two license applications for accuracy. The NRC examiners, with the assistance of members of the facility licensee's staff, administered the operating test, consisting of job performance measures and dynamic simulator scenarios, during the period of March 27 through March 31, 2017. The facility licensee administered the written examination on April 3, 2017.

b. Findings

(1) Written Examination

The NRC examiners determined that the written examination, as proposed by the licensee, was within the range of acceptability expected for a proposed examination. Less than 20% of the proposed examination questions were determined to be unsatisfactory and required modification or replacement.

All changes made to the proposed written examination, were made in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and documented on Form ES-401-9, "Written Examination Review Worksheet."

On April 7, 2017, the licensee submitted documentation noting that there were no post-examination comments for consideration by the NRC examiners when grading the written examination. However, the NRC's post-examination review of applicant comments and written examination questions missed by half of the applicants identified three written examination questions with flaws. The NRC's post-examination comments and resolutions are included as Enclosure 2 to the report.

The written examination outlines and worksheets, the proposed written examination, as well as the final as-administered examination and answer key (ADAMS Accession Number ML17150A088), will be available, in 24 months, electronically in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Document Access and Management System (ADAMS).

The NRC examiners graded the written examination on April 28, 2017, and conducted a review of each missed question to determine the accuracy and validity of the examination questions.

(2) Operating Test

The NRC examiners determined that the operating test, as originally proposed by the licensee, was within the range of acceptability expected for a proposed examination. During the review and validation of the operating test, minor modifications were made to several Job Performance Measures (JPMs), and some minor modifications were made to the dynamic simulator scenarios.

Changes made to the operating test, documented in a document titled, "Operating Test Comments," as well as the final, as-administered, dynamic simulator scenarios and JPMs, will be available, in 24 months, electronically in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS.

The NRC examiners completed operating test grading on May 1, 2017.

(3) Examination Results

Three applicants at the Senior Reactor Operator (SRO) level and five applicants at the Reactor Operator (RO) level were administered written examinations and operating tests. Eight applicants passed all portions of their examinations and were issued their respective operating licenses on May 2, 2017.

.2 Examination Security

a. Scope

The NRC examiners reviewed and observed the licensee's implementation of examination security requirements during the examination validation and administration to assure compliance with Title 10 of the Code of Federal Regulations, Section 55.49, "Integrity of Examinations and Tests." The examiners used the guidelines provided in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," to determine acceptability of the licensee's examination security activities.

b. Findings

Four of the eight Initial License Operator (ILO) class applicants obtained in-plant checkouts on Task Performance Evaluations that involved interaction with six licensed operators with knowledge of the examination. The six licensed operators had previously signed the licensee's Exam Security agreement that clearly stated they were not to instruct, evaluate or provide performance feedback to those applicants in the ILO class. The incidents happened prior to the NRC examination administration, in an evaluation situation, as a result of the applicants and licensed operators failing to verify the exam security limitations placed on each other. The applicants wore green badges to identify they were in the current ILO class; however, the licensed operators with knowledge of the NRC examination, did not wear any type of visual indication. The interactions primarily involved the licensed operators evaluating system and procedural knowledge of the ILO applicants. A follow-up investigation determined that no exam compromise occurred. This issue, which was of minor significance, was documented in Condition Assessment Resolution Documentation (CARD) 17-21402.

Three instances of “marked up” procedure pages were identified during the NRC administration of operating test scenarios which was not in accordance with the licensee’s Nuclear Training Work Instructions for Conduct of Simulator Assessments and Evaluations. The initial marked up procedure page was identified after completion of a scenario and the page was replaced with a clean copy. The second instance of a marked up procedure page was identified early during a subsequent scenario administration, and the scenario was halted by the Chief Examiner until all procedures were reviewed. A third marked up procedure page was identified and replaced with a clean copy. A follow-up investigation determined that no exam compromise occurred. This issue, which was of minor significance, was documented in CARD 17-23151.

40A6 Management Meetings

.1 Debrief

The chief examiner presented the examination team's preliminary observations and findings on April 5, 2017, to Mr. A. Pullam, Training Manager, and other members of the Fermi Power Plant, Unit 2, staff.

.2 Exit Meeting

The chief examiner conducted an exit meeting on April 20, 2017, with Mr. A. Pullam, Training Manager, and other members of the Fermi Power Plant, Unit 2, staff, by telephone. The NRC’s final disposition of the station’s post-examination comments were disclosed and discussed with Mr. Pullam during the telephone discussion. The examiners asked the licensee whether any of the material used to develop or administer the examination should be considered proprietary. One proprietary bases document was identified and removed from the NRC examiner files.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

- A. Pullam, Training Manager
- B. Crone, General Supervisor-Operations Training
- M. Donigian, Supervisor-Operator Training
- J. Vanbrunt, Initial License Training Exam Developer
- E. Thisius, Initial License Training Exam Team

U.S Nuclear Regulatory Commission

- B. Kemker, Senior Resident Inspector
- P. Smagacz, Resident Inspector
- M. Bielby, Chief Examiner
- R. Baker, Examiner
- D. Reeser, Examiner

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened, Closed, and Discussed

None

LIST OF ACRONYMS USED

A/C	Air Conditioning
ADAMS	Agencywide Document Access and Management System
BOP	Balance of Plant
CARD	Condition Assessment Resolution Documentation
DFP	Diesel Fire Pump
DW	Drywell
EFP	Electric Fire Pump
GSW	General Service Water
ILO	Initial License Operator
ISO	Isolation
JPM	Job Performance Measures
LPCI	Low Pressure Coolant Injection
NRC	U.S. Nuclear Regulatory Commission
OOS	Out-of-Service
RHR	Residual Heat Removal
RO	Reactor Operator
SDC	Shutdown Cooling
SRO	Senior Reactor Operator
VLV	Valve

POST-EXAMINATION COMMENT, EVALUATION, AND RESOLUTION

QUESTION No. 18

An offsite release is in progress with CCHVAC running in Recirculation mode. If both the North and South Emergency Makeup intakes receive a Hi-Hi radiation signal while the intake selector switch is in AUTO, how will Emergency Makeup logic respond?

- A. Both inlets will remain open.
- B. Both inlets will close for a five minute sampling period.
- C. Both inlets will close and remain closed.
- D. Both inlets will open for a 5 minute sampling period.

Explanation:

Answer A – If both of the radiation monitors are both above or below the Hi-Hi setpoint, the logic will not select either intake and both the intakes will remain open. The operator must select the Emergency intake to open using radiation level indication in the Relay Room. This will occur With the 3 position switch for Emergency air intake selected to AUTO.

Distractor Explanation:

B – Incorrect – Distractor is plausible and incorrect because the Air intakes takes a 5 minute sample, but both intakes remain open during the sampling.

C – Incorrect – Distractor is plausible and incorrect because the Air intakes takes a 5 minute sample, but both intakes remain open during the sampling.

D – Incorrect – Distractor is plausible and incorrect because the Air intakes takes a 5 minute sample, but both intakes remain open during the sampling.

Technical Reference(s):

ST-OP-315-0073 – Operations Training, Control Center HVAC (Heating, Ventilation, Air Conditioning) (Pg. 20)

I-2611-51 – Schematic Diagram, Reactor Building Main Control Room A/C Isolation Dampers Div 1 - (T41M72) relay that forces both (dampers) open

APPLICANT COMMENT/CONTENTION

There were no comments or contentions by the applicant's; however, at least half of the applicants answered the question incorrectly, which prompted a review by the NRC written examination graders.

FACILITY RESPONSE AND PROPOSED RESOLUTION

The station did not submit any post examination comments.

POST-EXAMINATION COMMENT, EVALUATION, AND RESOLUTION

QUESTION No. 18 (page 2 of 2)

NRC EVALUATION/RESOLUTION

Given the technical information initially provided by the Facility, the NRC agrees that answer choice A is a correct answer; however, based on further review, information and discussions with the licensee, choice D is also a correct answer.

As indicated in the reference information provided, placing the 3 position switch for Emergency air intake in AUTO will open both Emergency Air Intake dampers. Subsequently, if the radiation monitor(s) are above the Hi-Hi setpoint, both intakes will “remain” open (answer A). However, additional information identified that with the Emergency air intake switch in AUTO, a Hi-Hi radiation signal initiated by either of the normal intake radiation detectors will initially open both Emergency air intakes and start a 5 minute sample of both inlets (answer D).

Normally, the Emergency air intake would not be in the AUTO position, and after the 5 minute sample, the damper associated with the Hi-Hi radiation detection will close, and the other damper will remain open. If both radiation monitors are above the Hi-Hi setpoint, the logic will not select either intake and both intakes will remain open. The operator must then select the Emergency intake to remain open based on radiation level indications located in the Relay Room.

The question asks how the Emergency Makeup “logic” will respond to the indicated status of the Emergency air intake switch and a Hi-Hi radiation level. Choice A addresses the final state of the logic response; however, choice D correctly addresses an early response of the logic. Although at different times in the Emergency Makeup logic response, both choices A and D address how the logic responds and; therefore, both choices correctly answer the question.

CONCLUSION

Based the information provided and a review of the applicable references, the NRC concludes that there are two correct answers to the question.

POST-EXAMINATION COMMENT, EVALUATION, AND RESOLUTION

QUESTION NO. 29

Residual Heat Removal (RHR) Loop B is in Shutdown Cooling, and RPV Water level is 194 inches and lowering. A maintenance mishap has caused a line to be sheared. The line is the reference line for the following instruments:

- B21-N080C DIV 1 REACTOR LEVEL NARROW RANGE TRANSMITTER
- B21-N080D DIV 1 REACTOR LEVEL NARROW RANGE TRANSMITTER

Shortly after this incident ACTUAL RPV level begins lowering at 2 inches a minute.

Assuming no operator action what is the position of the following valves 15 minutes after ACTUAL RPV level started to lower?

	E1150-F008 RHR SDC OTBD SUCTION ISO VLV	E1150-F009 RHR SDC INBD SUCTION ISO VLV
A.	OPEN	OPEN
B.	CLOSE	OPEN
C.	OPEN	CLOSE
D.	CLOSE	CLOSE

Explanation:

Answer C – Per M-2090 B21-N080C/D are supplied from a single tap. Failure to the reference leg will make a level instrument fail HIGH. This means that for NSSSS (C & D) logic will never be met. 23.601 Trip sheet shows that A&C will be met at below 173.4 inches. 2 inches per min for 15 minutes is 30 inches. $194 - 30 = 164$ which is less than 173.4. A&C NSSSS closes the E1150-F009.

A – Incorrect – Distractor is incorrect and plausible based on Answer Explanation.

B – Incorrect – Distractor is incorrect and plausible based on Answer Explanation.

D – Incorrect – Distractor is incorrect and plausible based on Answer Explanation.

Technical Reference(s):

M-2090

23.601 (Pg. 11)

POST-EXAMINATION COMMENT, EVALUATION, AND RESOLUTION

QUESTION No. 29 (page 2 of 2)

APPLICANT COMMENT/CONTENTION

There were no comments or contentions by the applicant's; however, at least half of the applicants answered the question incorrectly which prompted a review by the NRC written examination graders.

FACILITY RESPONSE AND PROPOSED RESOLUTION

The station did not submit any post examination comments.

NRC EVALUATION/RESOLUTION

A review of the administered written examination question indicated the incorrect Divisional nomenclature had been assigned to the instrument plant identification numbers listed in the question stem. Division I does not correspond to B21-N080C and -N080D, and as a result the question does not make sense.

CONCLUSION

Based the information provided and a review of the applicable references, the NRC concludes that there is no correct answer to the question and the question will be deleted from the exam.

POST-EXAMINATION COMMENT, EVALUATION, AND RESOLUTION

QUESTION No. 75

Which one of the following identifies the MINIMUM required qualifications for person(s) responsible for the Command Function in the control room during (1) NORMAL and (2) EMERGENCY conditions?

- A. (1) CRS
(2) CRS
- B. (1) CRS
(2) SM
- C. (1) SM
(2) CRS
- D. (1) SM
(2) SM

Explanation:

Answer B – Per MOP01 There shall be one individual with an active Senior Reactor Operator (SRO) license for Fermi 2 assigned the Command Function for and located in the Control Room at all times when the plant is in Operational Condition 1, 2, or 3. During emergency conditions this shall be the SM. During routine operations, it shall be the CRS except for short periods of relief, during which the SM should be in the Control Room, but another individual possessing an active SRO license for Fermi 2 may provide relief.

A – Incorrect – Distractor is plausible and incorrect based on answer.

C – Incorrect – Distractor is plausible and incorrect based on answer.

D – Incorrect – Distractor is plausible and incorrect based on answer.

Technical Reference(s):

MOP01, Conduct of Operations; Section 3.7.4, Pg. 20

Task 02SFGA004; Objective 45397

Administrative Qualification Card (QP0013)

APPLICANT COMMENT/CONTENTION

There were no comments or contentions by the applicant's; however, at least half of the applicants answered the question incorrectly, which prompted a review by the NRC written examination graders.

FACILITY RESPONSE AND PROPOSED RESOLUTION

The station did not submit any post examination comments.

POST-EXAMINATION COMMENT, EVALUATION, AND RESOLUTION

QUESTION No. 75 (page 2 of 2)

NRC EVALUATION/RESOLUTION

A review of the administered written examination question and references indicated Choice A, vice B was the correct answer.

CONCLUSION

Based the information provided and a review of the applicable references, the NRC concludes that Choice A vice B is the correct answer to the question.

SIMULATION FACILITY FIDELITY REPORT

Facility Licensee: Fermi Power Plant, Unit 2

Facility Docket No: 50-341

Operating Tests Administered: March 27 through 31, 2017

The following documents observations made by the NRC examination team during the initial operator license examination. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with Title 10 of the *Code of Federal Regulations* 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information, which may be, used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed:

ITEM	DESCRIPTION
East and West Battery Rm Remote Trigger	<u>Scenario 2, Normal Event 1 (BOP), Shifting Reactor Building Closed Cooling Water pumps</u> : No remote trigger developed to turn off the East and West Battery Room A/C Units, which would make the Emergency Fans start.
Isolation Valve F510A failed close	<u>Scenario 2, Instrument Failure Event 2 (SRO), Drywall (DW) Pressure Xmitter Failure with Individual Rod Scram</u> : Received DW pressure transmitter failure and half scram. A few minutes later, the B side fuse clip burnt and the associated rod scrambled; however, also received alarms for #1 Circulating Water Pump cooling because the motor lube oil cooling isolation valve F510A failed close and isolated the motor cooling. Simulator put in freeze to investigate but cause of the isolation was never identified (ghost occurrence).
Diesel Fire Pump (DFP) started	<u>Scenario 3 (first run), Normal Event 3 (BOP), trip of General Service Water (GSW) pump and shutdown Electric Fire Pump (EFP)</u> : As part of the crew turnover, the DFP was tagged out-of-service (OOS). During loss of the GSW pump, the EFP started as expected; however, the DFP also started (unexpected).
EFP failed to start	<u>Scenario 3 (second run), Normal Event 3 (BOP), trip of GSW pump and shutdown EFP</u> : As part of the crew turnover, the DFP was tagged OOS. During loss of the GSW pump, the DFP did not start (as expected); however, the EFP also failed to start (unexpected).
Division 2 Residual Heat Removal (RHR) pump A tripped	<u>Simulator JPM 5e, Shift Division 2 RHR from Torus Spray Mode to Low Pressure Coolant Injection (LPCI) Mode</u> : Division 2 RHR pump A was initially in Torus Spray mode and Division 2 RHR pump B would not start such that the operator was forced to do a valve realignment to LPCI mode. However, the Division 2 RHR pump A tripped for no reason and forced the operator to restart the tripped pump. Cause of the tripped pump was never identified (ghost).

These events were captured in CARDS 17-23824 and 17-23174