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MEMORANDUM FOR: Roger S. Boyd, Director, Division of Project Management, NRR

FROM: H. D. Thornburg, Director, Division of Reactor Operations Inspection, IE

SUBJECT: METROPOLITAN EDISON COMPANY, THREE MILE ISLAND NUCLEAR STATION UNIT 2
DOCKET NO. 50-320

We have been informed by our Region I Office, based on their inspection findings, that construction and preoperational testing of the subject facility have been completed in substantial agreement with docketed commitments and regulatory requirements, with the exceptions listed in the enclosures. The Office of Inspection and Enforcement has no further items which would preclude issuance of an Operating License to permit facility operation up to its full design rating (or alternate operating limitations as appropriate). It is recommended that the operating license be conditioned with the information contained in the enclosures.

We have reviewed the licensee's preparations for implementation of the Quality Assurance Program for Operations, and have found that they meet the requirements of 10 CFR 50, Appendix B, as specified in the licensee's Quality Assurance Program (Chapter 17 of the FSAR), which was reviewed by the Office of Nuclear Reactor Regulation.

H. D. Thornburg, Director
Division of Reactor Operations Inspection
Office of Inspection and Enforcement

Enclosures(3):
A/B/C: Items Lists (categorized by completion milestones)

cc w/encls:
B. H. Grier, RI
A. B. Davis, RI
H. Silver, NRR
S. A. Varga, NRR
D. B. Vassallo, NRR

bcc w/encls(3):
N. C. Moseley, IE
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N. M. Haller, IE

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ENCLOSURE A

The Office of Inspection and Enforcement recommends that the following items be completed prior to issuance of the operating license.

ITEM	RESPONSIBLE ORGANIZATION
1. Partial Approval of TP 120/5, 6, 7, 8 Fuel Handling and Transfer Equipment. Assessment: Those portions which are utilized to transfer fuel for initial fuel loading will be completed. Those sections not tested will not be utilized for initial fuel load.	Licensee
2. Partial Approval of TP 160/3 Reactor Building Emergency Cooling Functional Test and resolution of pump capacity problems. Assessment: Test is 95% complete. Reduced pump capacity (approximately 90% of design) need not be determined acceptable prior to fuel loading.	Licensee
3. Partial Approval of TP 172/2 Control Building Ventilation Functional Test. Assessment: Test is 95% complete. The remaining portions of the test are kitchen and water closet fans which will not affect operation of system and therefore are not required prior to fuel loading.	Licensee
Partial Approval of TP 180/3 Fire Protection System Functional Test. Assessment: Test is 65% complete. Those portions not accomplished will be covered by continuous fire watches.	Licensee

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5.	Partial Approval of TP 203/4 Decay Heat Removal System Functional Test. Assessment: Test is 95% complete. Low flow boron precipitation remains to be tested. Not necessary until fuel is irradiated.	Licensee
6.	Partial Approval of TP 202/3 Makeup and Purification System Functional Test. Assessment: Test is 95% complete. The remaining portions to be tested are a new RCP seal injection line added to prevent loss of seals. Requires system pressure for testing.	Licensee
7.	Completion of Source Range NI Detector portion of Test 301/2. Assessment: Source Range Instruments required for Fuel Load.	Licensee
8.	Completion of Source range NI setting of detector voltages Test 301/3D. Assessment: Source Range instruments required for fuel load.	Licensee

9. Partial Approval of TP's 360/1A. B, C. Radiation Monitoring System Test. — Licensee

   Assessment: All monitors required by Technical Specifications for Mode 6 will be completed.

10. The following test procedures (TP's) are not completed/approved. The licensee intends to complete/approve these procedures. — Licensee

   -- TP 150/2, Reactor Building Structural Integrity Test

   -- TP 150/3, Reactor Building Initial Leak Rate Test

   -- TP 151/1, Reactor Building Isolation Valve Leak Test

   -- TP 160/2, Reactor Building Air Cooling Functional Test

   -- TP 171/2, Control Building Area Ventilation Functional Test

   -- TP 176/2, Diesel Generator Building Ventilation Functional Test

   -- TP 204/3, Reactor Building Spray System Functional Test

   -- TP 230/1, Rad Waste Disposal (Misc. Liquid) Functional Test

   -- TP 235/9, Diesel Generator Building Sump Test

-- TP 256/4, Loss of Instrument Air Test

-- TP 266/4, Nuclear Service River Water Functional Test

-- TP 301/3C, NI Pre-Op Calibration (Power Range)

-- TP 310/3, SFAS Detection and Actuation Test

-- TP 365/1, Loose Parts Monitor Functional Test

-- TP 380/1, Communications Systems Functional Test

-- TP 401/1, Diesel Generator Functional Test

-- TP 401/3, Station Batteries Discharge and Charge Test

-- TP 600/3, Soluble Poison Concentration Control Test

-- TP 600/5, Nuclear Chemical Addition Operational Test

-- TP 600/21, Integrated Safety Features Actuation Test

Complete fire barrier and seal installation. Licensee

Assessment: Ensure capability of fire systems to support operations.

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12.	Resolve cable tray and transition installation. Assessment: Ensures operability of components supplied.	Licensee
13.	Resolve mechanical snubber and hanger deficiencies. Assessment: Generic problems with installation which render the systems inoperable until corrected.	Licensee
14.	Review incomplete work list for significant items to be added to milestones.	IE:RI
15.	Review exceptions to AMSE Section XI and grant written relief.	NRR
16.	Ensure preoperational testing satisfies requirements for ESFAS and RFS response timers.	IE:RI
17.	Verify Emergency Plan Implementation.	IE:RI
18.	Verify licensee's corrective action on 1977 bulletins and circulars.	IE:RI
19.	Resolve air start pressures for diesels.	Licensee
20.	Resolve ILRT corrections and ensure test satisfactory.	Licensee, IE:RI
21.	Verify Security Plan Implementation.	IE:RI
22.	Completion of Auxiliary Building Heating and Ventilation Test 173/2.	Licensee

Assessment: System provides safety functions in the event of a fire in the Auxiliary Building.

23. Completion of Fuel Handling Building Heating and Ventilation System test 177/2. — Licensee

Assessment: System provides safety function in the event of a fire in the Fuel Handling Building.

ENCLOSURE B

The Office of Inspection and Enforcement recommends that the following items be completed prior to entering Operational Mode 4.

ITEM	RESPONSIBLE ORGANIZATION
1. Approval of TP 160/3 Reactor Building Emergency Cooling Functional Test. Assessment: Resolve pump problems and complete testing prior to system being required for operation.	Licensee
2. Approval of TP 160/4 Reactor Building Hydrogen Control Functional Test. Assessment: Provide data on system flows and establish operability prior to system being required.	Licensee
3. Approval of TP 160/6 Reactor Building Purge Supply and Exhaust Functional. Assessment: Complete test before establishing containment integrity.	Licensee
Approval of TP 210/12 Nuclear Chemical Addition System Functional Test. Assessment: Ensures system will support RCS chemistry prior to heatup.	Licensee

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5.	Approval of TP 267/4 Nuclear Service Closed Cooling System Functional Test. Assessment: Resolution of supply to Building Spray pumps is required prior to heatup.	Licensee
6.	Approval of TP 350/2 Computer Software Verification and 350/10 Computer Inputs Verification. Assessment: Ensures computer points are available to support technical specification limits.	Licensee
7.	Partial Approval of TP 370/1 Heat Tracing Functional Test. Assessment: Ensures those systems required for reactor support are operational.	Licensee
8.	Approval of TP 160/1 H2 Recombiner Functional Test. Assessment: Recombiners are required to support mode requirements.	Licensee
9.	Approve startup test procedures and incorporate IE:RI review comments.	Licensee IE:RI

ENCLOSURE C

The Office of Inspection and Enforcement recommends that the following items be completed prior to initial criticality (entry into Operational Mode 2).

ITEM	RESPONSIBLE ORGANIZATION
1. Approval of Preoperational Test 120/5, 6, 7, 8 Fuel Handling and Transfer System. Assessment: Completion of remaining test items will ensure deficiencies are identified prior to increasing radiation levels in the areas.	Licensee
2. Approval of TP 172/2 Control Building Area Heating and Ventilation Functional Test. Assessment: Completion of remaining items for habitability of control room.	Licensee
3. Completion of Makeup and Purification System Functional Test 202/3. Assessment: Test is 95% complete. Remaining portion requires system pressure for setting flows as a result of reactor coolant pump seal injection modification.	Licensee
4. Completion of Decay Heat Removal System Functional Test 203/4. Assessment: Test is 95% complete. The boron precipitation flow is the outstanding item. This feature is not required until fuel is irradiated.	Licensee

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5.	Completion of Emergency Feedwater Functional Test 273/3. Assessment: Test is 90% complete. A head flow curve is needed on pump EP-P-1.	Licensee
6.	Completion of NI Detector Cabling and Response Test 301/2. Assessment: Remainder of NI's to be operable prior to criticality.	Licensee
7.	Approval of TP's 230/3, 231/3, 232/1 Radwaste Disposal Functional Tests. Assessment: Assures radwaste system will support reactor operations.	Licensee
8.	Approval of TP's 360/1A, B, C. Radiation Monitoring System Functional Test. Assessment: Ensures all monitors operable before radiation levels increase.	Licensee
9.	Approval of TP 370/1 Heat Tracing Functional Test. Assessment: Ensures remaining circuits are operational before radiation levels increase.	Licensee
10.	Approval of TP 600/14, 29, Piping Expansion Functional Tests. Assessment: Tests are being repeated due to extensive work on systems following hot functional testing.	Licensee

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11.	Approval of SP-2, Filter Efficiency Tests. Assessment: Ensures operability to support reactor operations.	Licensee
12.	Approval of TP 180/3 Fire System Functional Test. Assessment: Ensure Fire System is in a maximum reliability condition prior to criticality.	Licensee
13.	Install redundant non-nuclear instrumentation indications for post accident shutdown monitoring. Assessment: Present non-redundant indications are sufficient through Mode 4.	Licensee
14.	Approval of TP 200/2 Surveillance and Radiation Specimen Handling Test. Assessment: Test to be performed as specimens are installed in conjunction with fuel loading.	Licensee
15.	Complete environmental/ administrative procedures. Assessment: Assures that adequate procedures exist in the areas of effluent temperature monitoring and radio-analyses.	Licensee

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MEMORANDUM FOR: T. Novak, Chief, Reactor Systems Branch, DSS

FROM: P. Check, Chief, Core Performance Branch, DSS

SUBJECT: STEAM LINE BREAK ANALYSIS FOR B&W RODDED PLANTS

Previous B&W hot channel thermal hydraulic analyses for the steam line break accident had indicated that approximately 15% of the core would experience DNB. This is based on the assumption that a radial-local peak of 1.61 would correspond to an MDNBR of 1.30. B&W has reevaluated the use of the original peaking distribution for the determination of the percent of the core in DNB for the TMI-2 steam line break analysis and found it to be extremely conservative for TMI-2 because the distributions were based upon a rodded plant whereas TMI-2 is a bleed-feed core with rods nearly fully withdrawn. The reevaluation of the predicted peaking distribution indicates that there are no more than 5 fuel assemblies with predicted pin (radial x local) peaking factors greater than 1.60 including the 5% nuclear hot pin uncertainty factor. These 5 fuel assemblies represent 2.8% of the fuel in the core and therefore less than 3% of the core is now predicted to be in DNB (MDNBR<1.3) during the MSLB transient. The AAB finds the resulting doses acceptable now for this situation.

However, based on the previous analytical results, it appears that the SLB for existing rodded plants should be investigated to assure that fuel failures (fuel experiencing DNB) still result in acceptable doses.

Paul S. Check, Chief
Core Performance Branch
Division of Systems Safety

cc: D. Fieno
L. Kopp
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M. Tokar

CENTRAL FILES
NRR RDG FILE
CPB RDG FILE

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