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FEB 24 1981

Docket No. 50-341

MEMORANDUM FOR: D. Muller, Assistant Director
for Environmental Technology, DE
V. Noonan, Assistant Director
for Materials & Qualifications Engineering, DE
P. Check, Assistant Director
for Plant Systems, DI
W. Kreger, Assistant Director
for Radiation Protection, DSI
L. Rubenstein, Assistant Director
for Reactor Systems, DSI
J. Kramer, Deputy Director
Division of Human Factors Safety
B. Grimes, Director
Division of Inspection & Enforcement



FROM: E. L. Tedesco, Assistant Director
for Licensing, DL

SUBJECT: FERMI 2 OPERATING LICENSE REVIEW

Enclosure 1 is a schedule for the environmental review and the safety review of the Fermi 2 OL application intended to meet the dates in H. Denton's February 22, 1981 memorandum.

Status and Scope of Environmental Review

The environmental review was completed by Argonne National Laboratory (ANL) to the extent of preparing a draft of the Draft Environmental Statement (DES) about two years ago, except for those sections addressing radiological impacts and radioactive waste management systems. This draft DES was reviewed by the staff but requires a re-review to update it, including "Class 9" accident consideration. Guidelines for the review are:

- (1) The text should focus on new operating phase information and revised regulatory procedures, as required by law or as undertaken in accordance with regulatory procedures. Repetition of data or unchanged analysis from the CP review is unnecessary because the FES-CP will be circulated with DES-OL.

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

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FEB 24 1981

- (2) Purely descriptive material, should be severely limited. Species lists should be eliminated; such lists should be acknowledged as references in the FFES-CP or the Applicant's ER.
- (3) All sections requiring conclusions should contain the staff's judgment. Insufficient data from the Applicant is not an adequate basis for omitting conclusions.
- (4) Staff "recommendations" to reduce environmental impacts should be changed to indicate conditions on the license.

You are requested to assign reviewers in applicable review branches (EEB, SAP, UFB, HGER, AEB, RAD and ETSE) and send this information to the licensing project manager, L. Kintner, and the environmental review coordinator M. Kaltman.

Status and Scope of the Safety Review

The review of the Final Safety Analysis Report was completed, except for review of reactor systems (Chapter 4), ECCS (Chapter 6.3) and Safety Analysis (Chapter 15). Due to a three year delay in plant construction, the review was also delayed and the status of the review was reported in NUREG-0314 "Interim Safety Evaluation Report (September 1977)." Open review areas were identified in NUREG-0314. In June 1978, the FSAR was updated and the review restarted. The review progressed to the point where positions were issued by March 1979. At that time, the plant completion and review was again deferred because of TMI matters. The open review areas at the time the review was stopped in March 1979 are in Enclosure 1, together with new TMI requirements identified in NUREG-0737. Applicant has responded to most non-TMI areas so review can begin immediately in these areas. The response to NUREG-0737 requirements is expected March 15.

The scope of the review should include resolution of open areas identified in the Interim SER (included in Enclosure 2) and any new issues that have arisen since its completion. For all branches except Reactor Systems Branch, SE input should include applicable sections of the Interim SER, which should be updated if necessary.

SE input for Reactor Systems Branch will be completely new and include an evaluation of responses to questions from staff and Savannah River Laboratory personnel. A complete SER will be issued - not just a supplement to the Interim SER.

You are requested to assign reviewers in applicable review branches and send this information to the licensing project manager. In addition provide schedule

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FEB 24 1981

and assignment information for special team reviews (such as fire protection, control room design, etc.) that will be consistent with completing all SE inputs by June 10, 1981.

/s/
Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

cc: D. Eisenhut
Directors
BC's
S. Treby

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FEB 24 1981

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Robert L. Tedesco, Assistant Director
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| OFFICE | DL:LB#2 <i>JK</i> | DL:LB#2 <i>AS</i> | DL:AD: <i>L</i> | | | | |
| NAME | LKintner:ph | ASchwencer | RTedesco | | | | |
| DATE | 2/ 24 /81 | 2/ 24 /81 | 2/ 24 /81 | | | | |

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ENCLOSURE 1

FERMI 2 OL REVIEW SCHEDULE

Environmental Review

| | |
|--------------------------------------------------------------------------|-------------------|
| Complete Review of Draft DES (EEB, SAB, UFB, ETSB, RAB, AEB, HGEB) | March 20, 1981 |
| Send Draft DES to EPA | April 15, 1981 |
| Issue DES | May 1, 1981 |
| Issue FES | September 1, 1981 |

Safety Review

| | |
|------------------------------------------------------------------------------------------|----------------|
| Review non-TMI SE Input and Identify Open Issues (All Branches Except RSB and CPB) | April 1, 1981 |
| RSB & CPB Prepare Draft SE Input and Identify Open Issues | April 15, 1981 |
| Prepare TMI Draft SE Input and Identify Issues | May 1, 1981 |
| Resolve Open Issues | May 1-31, 1981 |
| Complete Final SE Input | June 10, 1981 |

| Division | Branch | Reviewer | Open Items* |
|----------|--------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DOE | MEB | | Asymmetrical loads due to LOCA combined with seismic loads - effect on reactor internals and reactor support. Evaluation to assure operability ECCS valves and pumps subject to hydrodynamic loads from suppression pool Inspection programs for operability of ASME Class 1, 2 & 3 pumps of valves Confirmatory Piping Analysis II.D.1 Relief & safety-valve test requirements |
| | SEB | | Structural evaluation of Mark I Containment modification to account for hydrodynamic loads in suppression pool Structural evaluation of sacrificial shield Fuel Pool Structural Adequacy for High Density Fuel Storage |
| | GB | | *Revised response spectra |
| | HGES | | Quality Assurance & Inservice Survey of Breakwater (shore barrier) |
| | MTES | | Exemptions from 10 CFR 50 Appendix G and Appendix H Inspection programs for material integrity of ASME Class 1, 2, & 3 components |
| | EQB | | Review by SORT of NSSS and BOP equipment, including effect of hydrodynamic loads from suppression pool Environmental qualification of electrical Equipment conformance to NUREG-0528, |
| | CEB | | Steps to minimize stress corrosion in SS components (recirculation nozzles, CRD mechanism, RHR lines Fire protection; capability for remote shutdown; IEEE-183 requirements, separation of redundant systems Spent fuel pool filtration |
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*Questions not completed - could require long review time.

| Division | Branch | Reviewer | Open Items* |
|----------|--------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DSI | | | High energy line break protection for control rod drive hydraulic system |
| | ICSB | | High density fuel storage racks II.D.3 Valve position indication Instrument set points Startup monitoring and recording systems |
| | PSB | | Offsite emergency power - protection for degraded grid voltage;bypass for load shedding feature when on diesel generators |
| | RSS | | Potential for missile damage from high pressure gas storage bottles Potential for missile damage from recirculation pump overspeed Effect of modifications to control rod drive return line on water make-up capability Overpressurization protection for reactor coolant system and connected low pressure systems (RHR, WPCI, RCIC, Core Spray) Leak detection systems to meet Regulatory Guide 1.45 Component design - switchover of RCIC suction line to torus; loss of recirculation pump seal water; capability of relief valves for RHR Steam Condensing Mode (50.55e Report) Water hammer potential damage for RHR in steam condensing mode; dynamic loads on RHR relief valve discharge pipes ECCS analysis per 10 CFR 50.46 Appendix K and questions on FSAR Section 6.3 Main steam bypass system and reheater method of analysis for credit during turbine trip; failure mode and effect analysis Reactor transient analysis **Reactor Systems Branch Evaluation 1.C.1 Short-term accident & procedure review 1.G.1 Training during low-power testing |

**SC not completed - may result in several issues.

| Division | Branch | Reviewer | Open Items* |
|--------------|--------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DSI (Cont'd) | RSB | | <p>II.B.1 Reactor-coolant-system vents</p> <p>II.K.L IE Bulletins</p> <p>Review ESP Valves</p> <p>Operability status</p> <p>Aux. Heat Rem. System, procedures</p> <p>II.K.3 Final recommendations, B&O task force</p> <p>Reporting SV & RV failures & challenges</p> <p>HPCI & RCIC unit levels</p> <p>a) Analysis</p> <p>b) Modify</p> <p>Isolation of HPCI and RCIC</p> <p>Challenges to & failure of relief valve</p> <p>a) Study</p> <p>b) Modify</p> <p>ECCS outages</p> <p>ADS actuation</p> <p>a) Study</p> <p>b) Proposed mods</p> <p>c) Modify</p> <p>Restart of LPCS & LCP:</p> <p>a) Design</p> <p>b) Modification</p> <p>RCIC suction</p> <p>a) Procedures</p> <p>b) Modification</p> <p>Space cooling for HPCI/RCIC, modifications</p> <p>Power on pump seals</p> <p>a) Propose mods</p> <p>b) Modifications</p> <p>Common reference level</p> <p>Qual. of ADS accumulators</p> <p>SB LOCA methods</p> <p>a) Schedule outline</p> <p>b) Model</p> <p>c) New analyses</p> <p>Plant-specific analysis</p> <p>Evaluate transients with single failure</p> <p>Manual depressurization</p> <p>Michelson concerns</p> <p>Exclusion area and population center distance</p> <p>Potential for aircraft crash damage from new airport</p> <p>Tornado missile protection for RHR cooling tower fans</p> <p>Main steam isolation valve leakage control system - frequency of in-service leakage tests</p> <p>Design of ventilation systems to mitigate fuel handling accident.</p> |

AEB —

| Division | Branch | Reviewer | Open Items* |
|--------------|----------------------|----------|-------------------------------------------------------------------------------------------------------------------------|
| DSI (Cont'd) | AEB (Cont'd) ETSB | | III.D.3.4 Control-room habitability |
| | | | II.B.3 Postaccident sampling |
| | RAB | | II.F.1 Accident-monitoring instrumentation |
| | | | III.D.1.1 Primary coolant outside containment |
| | CSB | | II.B.2 Plant shielding |
| | | | III.D.3.3 Inplant I ₂ radiation monitoring |
| | CPB | | Suppression pool temperature limit |
| | | | Pressure distribution within sacrificial shield for reactor vessel nozzle break |
| | | | Secondary containment pressure transients following LOCA |
| | | | Containment isolation valve type C leakage test exemptions |
| | | | Evaluation of combustible gas control with air (not N ₂) in containment during operation |
| | | | II.E.4.1 Dedicated hydrogen penetration |
| DHFS | OLB | | II.E.4.2 Containment isolation dependability |
| | | | Asymmetrical loads due to LOCA combined with seismic loads - effect on fuel assemblies |
| | HFEB | | Methods of analysis of core performance thermal-hydraulic stability uncertainty in MPCR; flow distribution through core |
| | | | Loose Parts Monitor |
| | LQB | | II.F.2 Instrumentation for detection of inadequate core-cooling |
| | | | I.A.2.1 Immediate upgrade of RO & SRC training and qualifications |
| | | | I.A.2.3 Administration of training programs |
| | | | I.A.3.1 Revise scope & criteria for licensing exams |
| | | | I.D.1 Control-room design reviews |
| | | | I.D.2 Plant-safety-parameter display console |
| | | | I.A.1.1 Shift technical advisor |
| | | | I.A.1.2 Shift supervisor responsibilities |
| | | | I.A.1.2 Shift manning |
| | | | I.B.1.2 Evaluation of organization & management |

| Division | Branch | Reviewer | Open Items* |
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| DHFS (Cont'd) | LQB (Cont'd) | | I.C.2 Shift & relief turnover procedure I.C.3 Shift supervisor responsibility I.C.4 Control-room access I.C.5 Feedback of operating experience II.B.4 Training for mitigating core damage |
| | PTRB | | Test program - develop procedure for water hammer detection and correction in HPCI & RCIC Preoperational tests - test main steam isolation valve leakage control system under service conditions. Startup tests; response time of RPS; DC (battery); response time of valve in main steam & bypass steam system; test procedure modifications; identify non-essential tests; justify CRD set times for pressure less than 950 psi I.C.6 Verify correct performance of operating activities I.C.8 Pilot mon of selected emergency proc for NTOLs |
| IE | | Resident Inspector | I.C.7 NSSS vendor rev of proc |
| IE | EPPO | | III.A.1.1 Emergency preparedness, short term III.A.1.2 Upgrade emergency support facilities III.A.2 Emergency preparedness |

*Items listed reflect of review terminated by TMI in March of 79, and may not necessarily be open items. Reviewers have not been assigned to restart Fermi 2 review at this point.