

Docket No. 50-289

February 15, 1984

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Mr. Henry D. Hukill, Vice President  
and Director - TMI-1  
GPU Nuclear Corporation  
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Dear Mr. Hukill:

Enclosed for your information is a table indicating the review and inspection status of the TMI-1 Restart Certification items. The indicated status is as of January 31, 1984. The current schedule calls for completion of all items not requiring hot functional testing by June 1984, with the exception of item number 64. The schedule for item 64, which deals with management competence and integrity, remains to be determined. Please note that we are awaiting information from you for items five and 82 and that we expect to be requesting information from you for item 113 shortly.

Sincerely,

John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing

Enclosure:  
As stated

cc w/enclosure:  
See next page

ORB#4:DL  
JVanVliet;ef  
02/14/84

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TABLE 1 RESTART CERTIFICATION ITEMS

1/31/84

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
<u>Commission Order of 8/9/79</u>					
<u>EFW Reliability</u>					
1	Auto Initiation of Erw	Provide automatic initiation of the motor driven EFW pumps on loss of both feed-water pumps or loss of four RCPs. (See also items 81 and 121).	NUREG-0680 Inspection Report (IR-80-26) IR-81-28 IR-82-01 IR-82-26 IR-84-01	Complete. Test during power escalation testing (PET) to be implemented by license condition.	No (Reg. 1) PET
2	EFW Valves Fail Open	Modify the EFW control valves such that they fail open on loss of air.	NUREG-0680 IR-80-26 IR-81-22 IR-81-28 IR-82-01 IR-82-26	Complete	Yes
3	Auto EFW Load on Diesels	Provide automatic block loading of the motor driven EFW pumps on the diesel.	NUREG-0680 IR-80-26 IR-81-14 IR-81-28 IR-82-01 IR-82-26 IR-83-14	Complete	Yes
4	EFW Tech Specs	Incorporate EFW in the TMI-1 Technical Specifications per IE Bulletin 79-05A, Item 8. Staff verify that EFW capacity Technical Specification requirements are in accordance with accident analyses.	License Amendment (AMD) 7B. IR-81-17 IR-81-21 IR-83-14	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	HRC Inspection Complete
5	EFW Flow Indication (Control Grade)	Provide indication in the control room of EFW flow to each steam generator. (See also item 82.)	NUREG-0680 IR-82-17 IR-83-01 IR-83-02 IR-83-06 IR-84-01 NRC letter 9/22/83	Licensee installing safety grade system per long-term requirement. Installed modification does not meet NUREG-0680 accuracy requirements at low flow. NRR review pending receipt of additional information. (4/84)	No (Reg. 1) (5/84)
6	EFW Procedures	Provide procedures and training to assure that EFW is available and properly applied when required. Procedures will identify the need to verify proper operation when EFW is initiated.	NUREG-0680	Complete	Yes
7	EFW Alignment	To assure that EFW will be aligned in a timely manner to inject on all EFW demand events when in surveillance test mode, procedures will be implemented and training conducted to provide an operator at the necessary location in communication with the control room during the surveillance mode to carry out alignment changes necessary upon EFW demand events.	NUREG-0680 IR-81-21	Complete	Yes
8	EFW Auto-Start Annunciation	Design review and modifications, as necessary, will be conducted to provide control room annunciation for all auto start conditions of the EFW system.	NUREG-0680 IR-81-28 IR-82-01	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NEC Inspection Complete
<u>Reliability Analysis</u>					
9	CST Level Alarm	Provide redundant level indication and control room alarms for the primary EFW system water supply.	NUREG-0680 IR-82-01 IR-82-19 IR-82-26	Complete	Yes
10	Endurance Test	Perform a 48-hour endurance test on all EFW system pumps.	IR-81-28	Complete	Yes
11	Transfer of EFW Supply	Revise emergency procedures to assure proper transfer of EFW supply to alternate sources when required.	NUREG-0680	Complete	Yes
12	EFW to Intact DTSG	Provide automatic termination of EFW flow to a depressurized steam generator and automatic supply to the intact steam generator. (See also item 122.)	NUREG-0680	Complete	N/A Note 1
13	Auto EFW Protection on Loss of Water Source	Evaluate the need for automatic protection of EFW system pumps on loss of unprotected primary EFW system water source (following a seismic event or tornado).	NUREG-0680	Complete	N/A Note 1
14	EFW Initiation Independent of AC	Verify that EFW system initiation and operation is assured independent of alternating current power source for at least two hours.	NUREG-0680 IR-82-01 IR-83-19 IR-84-02	Complete-Test during PET to be implemented by license condition.	No (Reg. 1) PET
15	Cross-Tie Break	Perform volumetric nondestructive examination (NDE) of 10 welds in the EFW pump discharge lines.	IR-81-26 IR-82-19	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
16	EFW Independent of ICS	Develop and implement operating procedures for initiating and controlling EFW independent of Integrated Control System (ICS) control.	NUREG-0680 IR-81-22 IR-81-28 IR-82-03	Complete	Yes
17	Small Break Analysis	Complete analyses for potential small breaks and develop and implement operating instructions to define operator action.	NUREG-0680 IR-83-11	Complete	Yes
18	Operator Retraining	Augment the retraining of all Reactor Operators and Senior Reactor Operators assigned to the control room, including training in the areas of natural circulation and small break loss-of-coolant accidents, revised procedures and the TMI-2 accident. All operators will also receive training at the B&W simulator on the TMI-2 accident and the licensee will conduct a 100 percent reexamination of all operators in those areas. NRC will administer complete examinations to all licensed personnel in accordance with 10 CFR 55.20-23.	NUREG-0680 Board Notification BN-82-21 of 3/5/82.	Complete	N/A Note 1
	<u>IE Bulletins</u>				
19	Accident Understanding	Review TMI-2 accident circumstances and chronology per IE Bulletin 79-05A.	NUREG-0680	Complete	Yes
20	Plant Transient Review	Review past transients and provide details of significant deviations from expected performance per IE Bulletin 79-05A.	NUREG-0680 IR-83-02	Complete	Yes
21	Transient Procedures	Review procedures for coping with transients and accidents per IE Bulletin 79-05A.	NUREG-0680	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
22	Operating Procedures	Review procedures to ensure operators do not override automatic ESF initiation per IE Bulletin 79-05A.	NUREG-0680	Complete	Yes
23	Valve Position Review	Perform a complete safety-related system valve lineup prior to plant restart. (See also item 116.)	NUREG-0680	Perform verification at final hot functional test (HFT).	No (Req. 1) (HFT)
24	EFW Valve Procedures	Prepare and implement procedures to assure critical EFW valves remain in the correct position.	NUREG-0680	Complete	Yes
25	EFW Operability	Prepare and implement procedures to assure operability of two 100% capacity EFW flow paths per IE Bulletin 79-05A.	NUREG-0680	Complete	Yes
26	Transfer of Containment Liquids	Review systems and procedures to assure that undesired inadvertent pumping of liquids and gases will not occur per IE Bulletin 79-05A.	NUREG-0680	Complete	Yes
27	Safety System Operability	Review and modify procedures to verify operability of safety systems prior to removing redundant systems from service per IE Bulletin 79-05A.	NUREG-0680	Complete	Yes
28	Personnel Actions TMI-2	Advise operating and maintenance personnel of the extreme seriousness and consequences of the simultaneous blocking of both auxiliary feedwater trains at the Three Mile Island Unit 2 plant and other actions taken during the early phases of the accident.	NUREG-0680	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
29	Prompt Reporting	Review prompt reporting procedures for NRC notification to assure very early notification of serious events.	NUREG-0680	Complete	Yes
30	Natural Circulation	Develop procedures and train personnel on methods of establishing and maintaining natural circulation per IE Bulletin 79-05B.	NUREG-0680	Complete	Yes
31	Vessel Integrity	Modify procedures of Item 22 above to consider vessel integrity per IE Bulletin 79-05B.	NUREG-0680	Complete	Yes
32	PORV Setpoint	Perform analyses and modifications to reduce the likelihood of PORV actuations during anticipated transients per IE Bulletin 79-05B.	NUREG-0680 AMD 78 IR-81-21 IR-82-15 IR-83-09	Complete	Yes
33	Manual Reactor Trip	Provide procedures and training for prompt manual reactor trip for transients resulting in pressure increases per IE Bulletin 79-05B.	NUREG-0680	Complete	Yes
34	Anticipatory Reactor Trip	Provide for NRC approval a design review and schedule for implementation of a safety grade automatic anticipatory reactor scram for loss of feedwater, turbine trip or significant reduction in steam generator level. (IE Bulletin 79-05B).	NUREG-0680 ADM 78 IR-80-31 IR-81-03 IR-81-11 IR-81-21 IR-81-28 IR-82-06 IR-82-14 IR-82-26	Complete - Test during PET to be implemented by license condition.	No (Reg. 1) PET

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	RCC Inspection Complete
35	Prompt Reporting	Review prompt reporting procedures to assure NRC is notified within one hour of the time the reactor is not in a controlled condition per IE Bulletin 79-05B.	NUREG-0680	Complete	Yes
36	Tech Spec Changes	Propose changes as required to those Technical Specifications which must be modified as a result of implementing IE Bulletin 79-05B.	ADM 78 IR-82-19 IR-83-32	Complete	Yes
37	Trips	Upon reactor trip and initiation of HPI, immediately trip all RCPs. Provide two licensed operators to do this. (IE Bulletin 79-05C).	NUREG-0680	Complete	Yes
	Small LOCA Analyses	Perform and submit a report of small LOCA analyses per IE Bulletin 79-05C.	NUREG-0680	Complete	N/A Note 1
39	Operator Action-RCP Trips	Based on the analyses of item 38, develop guidelines for operator action for LOCA and non-LOCA transients per IE Bulletin 79-05C.	NUREG-0680	Complete	N/A Note 1
40	Reactor Trip Training	Based on the guidelines developed for item 39, revise emergency procedures and train all operators. (IE Bulletin 79-05C).	NUREG-0680	Complete	Yes
41	Inadequate Core Cooling	Provide analyses and develop guidelines and procedures related to inadequate core cooling per IE Bulletin 79-05C.	NUREG-0680	Complete	Yes
42	Emergency Preparedness	Improve emergency preparedness per order item 3 of Commission order dated 8/9/79.	NUREG-0746 IR-E1-20	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
<u>Separation of TMI-1 and TMI-2</u>					
43	Liquid Radwaste	Isolate specific liquid radwaste connections between units.	NUREG-0680 IR-82-21 IR-83-01	Complete	Yes
44	Gaseous Radwaste Leak Test	Perform a helium leak test of the gaseous waste processing system.	NUREG-0680 IP-82-21 IR-83-11	Complete	Yes
45	Fuel Handling Building Isolation	Modify the TMI-1 fuel handling building layout to isolate the fuel handling floor from the auxiliary building and control building.	NUREG-0680 IR-82-21	Complete	Yes
46	Fuel Handling Building Ventilation Modification	Modify auxiliary building and fuel handling building ventilation system by adding two leak tight dampers.	NUREG-0680 IR-82-21	Complete	Yes
47	Hittman System	Install interim (Hittman) radwaste solidification system.	NUREG-0680 IR-81-34 IR-82-03 IR-82-21	Complete	Yes
48	Trash Segregation	Segregate trash during collection to insure TMI-1 and TMI-2 wastes remain separate.	NUREG-0680 IR-82-21	Complete	Yes
49	Monitoring System	Verify complete separation of TMI-1 and TMI-2 process and effluent radiological monitoring systems.	NUREG-0680	Complete	N/A Note 1
50	Independent TMI-2 Sampling System	Construct an independent radioactive liquid sampling system for TMI-2.	NUREG-0680 IR-82-21	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
<u>Waste Management</u>					
51	Liquid and Gaseous Radwaste Systems	Demonstrate that the waste management capability including storage and processing for liquid and gaseous wastes is adequate to assure safe operation of TMI-1 and that TMI-1 waste handling capability is not relied on by operations at TMI-2.	NUREG-0680	Complete	N/A Note 1
52	Solid Radwaste System	Demonstrate that the waste management capability including storage and processing for solid wastes is adequate to assure safe operation of TMI-1 and that TMI-1 waste handling capability is not relied on by operations at TMI-2 (Expand low activity solid waste storage).	NUREG-0680 IR-82-21 IR-83-01	Complete	Yes
<u>Managerial Capability</u>					
53	Training of Operating Staff	Perform retraining of operating staff per numerous requirements summarized in NUREG-0680, page C6-5.	NUREG-0680	Complete	N/A Note 1
54	Facility Procedures	Revise facility procedures to conform with requirements of CL1 80-5, IE Bulletins 79-05A, B, C and NUREG-0578.	NUREG-0680	Complete	Yes
55	Operational Quality Assurance Program	Demonstrate the adequacy of the Operational Quality Assurance Program.	NUREG-0680 NRC letter 8/3/83	Complete	Yes
56	Plant Maintenance	Demonstrate the adequacy of the plant maintenance support organization.	NUREG-0680 IR-80-19 IR-80-21	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
57	Command and Administrative Structure Review	Determine whether the licensees command and administrative structure at both the plant and corporate levels, is appropriately organized to assure safe operation of TMI-1.	NUREG-0680 IR-80-19	Complete	Yes
58	Operations and Technical Staff Qualifications Review	Determine whether the operations and technical staff of TMI-1 is qualified to operate Unit 1 safely (adequacy of the facility's maintenance program should be considered).	NUREG-0680 IR-80-21	Complete	Yes
59	Radwaste Operator Qualifications	Determine whether the TMI-1 Radioactive Waste system is appropriately staffed with qualified individuals to ensure safe operation of the facility.	NUREG-0680 {R-80-21	Complete	Yes
60	Finance & Technical Department Relationship	Determine whether the relationship between licensee's corporate finance and technical departments is such as to prevent financial considerations from having an improper impact upon technical decisions.	NUREG-0680	Complete	Yes
61	Qualifications of Safety Review Groups	Determine whether the licensee has made adequate provision for groups of qualified individuals to provide safety review of and operational advise regarding TMI-1.	NUREG-0680	Complete	Yes
62	Comparison of TMI-1 Infractions with Industry-wide Statistics	Determine what, if any, conclusions regarding licensee's ability to operate TMI-1 safely can be drawn from a comparison of of the number and type of past infractions of NRC regulations attributable to the Three Mile Island Units with industry-wide statistics.	NUREG-0680	Complete	N/A Note 1

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
63	Comparison of TMI-1 LERs with Industry-wide Statistics	Determine what, if any, conclusions regarding licensee's ability to operate TMI-1 safely can be drawn from a comparison of the number and type of past licensee Event Reports ("LER") and the licensee's operating experience at the Three Mile Island Units with industry-wide statistics on LER's and operating experience.	NUREG-0680	Complete	N/A Note 1
64	Review of Management Actions During the TMI-2 Accident	Determine whether the actions of Licensee's corporate or plant management (or any part or individual member thereof) in connection with the accident at TMI-2 reveal deficiencies in the corporate or plant management that must be corrected before TMI-1 can be operated safely.	NUREG-0680 IR-83-10	Item to remain open pending resolution of GPU management integrity/competency issue. Commission approach outlined in 1/27/84 Chilk memorandum.	Inspection TBD
65	Technical Capability Review	Determine whether licensee possesses sufficient in-house technical capability to ensure the simultaneous safe operation of TMI-1 and clean-up of TMI-2.	NUREG-0680 IR-80-19	Complete	Yes
66	Management & Technical Capability	Assess management and technical capability and the training of the operations staff (Training Manual).	NUREG-0680 IR-80-19 IR-81-33 IR-82-16	Complete	Yes
67	Safety Review	Licensee make acceptable provisions for reviews and audits of changes to plant design and procedures (EP-013 and AP-1032). (See also item 106)	IR-80-19 IR-81-33 IR-82-09 IR-82-16 IR-82-18 IR-83-02	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
68	Health Physics Qualifications Review	Determine whether the TMI-1 Health Physics program is appropriately organized and staffed with qualified individuals to ensure safe operation of the facility.	NUREG-0680 IR-83-04	Complete	Yes
69	Training for Mitigating Core Damage	Complete training program prior to exceeding 5% power.	NRC letter 4/22/81 IR-81-33 IR-83-06	Complete	Yes
70	Training Program Description	Prepare program description for training per item 69.	NRC letter 4/22/81	Complete	N/A Note 1
71	Inspector Views	Resolve inspector concerns regarding quality of plant management, corporate management, staffing, organization and resources.	NUREG-0600 IR-80-19 IR-80-21 IR-80-22 NUREG-0680 IR-83-15	Complete	Yes
<u>Lessons Learned-Short Term</u>					
<u>2.1.1 Emergency Power Supply</u>					
72	Pressurizer Heaters	Provide redundant emergency power for the minimum number of pressurizer heaters required to maintain natural circulation in the event of a loss of offsite power. (See also item 110).	NUREG-0680 IR-81-08 IR-81-28 IR-82-01 IR-82-19 IR-82-26	Complete	Yes

TABLE I (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
73	Pressurizer Level, Relief and Block Valves	Provide emergency power to the control and motive power systems for the power-operated relief valve and associated block valve and to the pressurizer level indication instrument channels.	NUREG-0680	Complete	Yes
74	Relief Valve Testing Program Description	Commit to provide performance verification by full scale prototypical testing for all relief and safety valves.	NUREG-0680	Complete	N/A Note 1
75	Valve Position Indication	Provide in the control room either a reliable, direct position indication for the PORV and SPVs or reliable flow indication devices downstream of the valves.	NUREG-0680 IR-80-04 IR-80-05 IR-81-04 IR-81-22 IR-81-24 IR-81-28 IR-82-19 IR-82-21 IR-82-26	Complete	Yes
76	Inadequate Core Cooling	Perform analyses and implement procedures and training for prompt recognition of low reactor coolant level and inadequate core cooling using existing reactor instrumentation (flow, temperature, power, etc.) or short-term modifications of existing instruments. (See also item 113) (Note: License condition required by ALAB-729, p. 176)	NUREG-0680 NUREG-0752 NRC letter 6/14/83 IR-81-10 IR-81-14 IR-81-24 IR-81-28 IR-82-01 IR-82-07 IR-82-10 IR-82-14 IR-82-17 IR-82-19 IR-82-26	Complete - Test during PET to be implemented by license condition.	No (Reg. I) PET

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
77	Containment Isolation	Provide containment isolation on diverse signals, review isolation provisions for nonessential systems and revise as necessary, and modify containment isolation designs as necessary to eliminate the potential for inadvertent reopening upon reset of the isolation signal.	NUREG-0680 NRC letter 4/22/81 IR-80-05 IR-80-31 IR-81-04 IR-81-05 IR-82-01 IR-82-07 IR-82-19 IR-82-24 IR-82-26 IR-83-02 IR-83-14	Complete	No (Reg. I) (2/84)
78	Dedicated Hydrogen Penetrations	Provide dedicated penetrations and isolation systems that meet redundancy and single failure requirements.	NUREG-0680 IR-80-17 IR-82-06 IR-82-26 IR-83-05	Complete	Yes
79	Integrity of Systems Outside Containment	Perform leakage rate tests on systems outside containment that process primary coolant and could contain high level radioactive materials. Develop and implement a periodic testing and preventative maintenance programs.	NUREG-0680 IR-83-14 NRC letter 8/30/83	Complete.	No (Reg. I) (5/84) NRR review leakage sensitivity issues raised by Regional memos 6/23/83 and 7/5/83 and provide response to Region prior to completion of inspection. (4/84)
80	Plant Shielding	Perform a design review of the shielding of systems processing primary coolant outside of containment. Determine any areas or equipment that are vital for post-accident occupancy or operation and assure that access and performance will not be unduly impaired due to radiation from these systems.	NUREG-0680	Complete	N/A Note 1

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
81	EFW Auto-Initiation	Provide automatic initiation of all EFW systems. (See also items 1 and 121).	NUREG-0680 IR-80-26 IR-82-01 IR-81-28 IR-82-26	Complete - Test during PET to be implemented by license condition.	No (Reg. I) PET
82	EFW Flow Indication (Control Grade)	Provide indication in the control room of EFW flow for each steam generator. (See also item 5).	NUREG-0680 IR-82-17 IR-83-01 IR-82-02 IR-83-06 NRC letter 9/22/83	Licensee installing safety grade system per long-term requirement. Installed modification does not meet NUREG-0680 accuracy requirements at low flow. NRR review pending receipt of additional information. (4/84)	No (Reg. I) (5/84)
83	Post-Accident Sampling	Review and upgrade the capability to obtain samples from the reactor cooling system and containment atmosphere under high radioactivity conditions. Provide the capability for chemical and spectrum analysis of high-level samples on site.	NUREG-0680 IR-83-04	Complete	Yes
84	Radiation Monitors	Install safety-grade in containment radiation monitors.	NUREG-0680 IR-83-04 IR-84-03	Complete	Yes
85	Gaseous Effluent Monitors (Noble Gas)	Install high-range gaseous effluent monitors. (See also item 114).	NUREG-0680 IR-83-04 IR-84-03	Complete	Yes
86	Radioiodine/Particulate Sampling	Install expanded range radioiodine/particulate sampling system. (See also item 115)	NUREG-0680 IR-82-26 IR-83-04 IR-84-03	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	RRC Inspection Complete
87	Iodine Instrumentation	Provide instrumentation for accurately determining in-plant airborne radioiodine concentrations to minimize the need for unnecessary use of respiratory protection equipment.	NUREG-0680 IR-83-04	Complete	Yes
88	Shift Supervisor	Review plant administrative and management procedures and revise as necessary to assure that reactor operations command and control responsibilities and authority are properly defined.	NUREG-0680	Complete	Yes
89	Shift Technical Advisor	Provide on shift a qualified person (the shift technical advisor) with a bachelor's degree or equivalent in a science or engineering discipline and with specific training in the plant response to off-normal events and in accident analysis of the plant.	NUREG-0680	Complete	N/A Note 1
90	Shift turnover	Review, revise and evaluate effectiveness of plant procedures as necessary to assure that a shift turnover checklist is provided and required to be completed and signed by the on-coming and off-going individuals responsible for command of operations in the control room.	NUREG-0680 IR-82-18	Complete	Yes
91	Control Room Access	Assure that access to the control room under normal and accident conditions is limited to those persons necessary to the safe command and control of operations.	NUREG-0680	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	HPC Inspection Complete
92	Onsite Technical Support Center	A separate technical support center shall be provided for use by plant management, technical, and engineering support personnel.	NUREG-0680 NUREG-0746 IR-83-02	Complete	Yes
93	Onsite Operational Support Center	Establish and maintain an operational support center outside the control room.	NUREG-0680 NUREG-0746	Complete	Yes
<u>ASLB Management PID of 8/27/81</u>					
94	Human Factors Components	Implement Human Factors items cited in GPU letter dated 1/21/81, (Hukill to Reid) that were to be done prior to restart and prior 1983.	IR-82-17 NRC letter 8/30/83	Complete	Yes
95	Accuracy of Maintenance Records	Staff perform inspections and licensee perform actions described in Section II.D of 8/27/81 PID.	IR-81-27 IR-83-02 Board Notification BN-84-16 of 1/27/84	Complete	Yes
96	Overtime Policy	Verify continued implementation of policy set forth in GPU memo of February 1980 (PID paragraph 343).	IR-81-01 NRC letter 9/1/83	Complete	Yes
97	IOSPG	Document proper staffing of Independent On-Site Review Group (IOSRG).	NRC letter 9/1/83	Complete	Yes
98	Category T Examinations	Licensee administer Category T examinations to license candidates.	Board Notification BN-82-21 of 3/5/82	Complete	H/A Note 1
99	IMI-2 Accident Training	Licensee demonstrate that all licensed operators received three days additional training on IMI-2 accident.	IR-82-16	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
100	Simulator Examinations	Licensee demonstrate that all operators not previously NRC licensed have completed an NRC exam at BRW simulator.	BN-82-21 of 3/5/82.	Complete	N/A Note 1
101	CRT Simulator	Licensee demonstrate that a CRT part-task simulator which displays temperature and pressure, is available at TMI-1.	IR-81-33	Complete	Yes
102	Replica Simulator	Licensee prepare for bids and distribute specifications for a TMI-1 exact replica simulator. Make reasonable effort to install by 1985.	NRC letter 12/22/82	Complete	N/A Note 1
103	Contract for Basic Principles Trainer	Licensee demonstrate that a basic principles trainer for TMI-1 is contracted to be installed in 1982.	NRC letter 12/22/82	Complete	N/A Note 1
104	Emergency Director/Support Director Training	Licensee demonstrate that members of senior management (since July 1, 1979) who are designated to act as Emergency Directors or Emergency Support Director, have received a formal training course.	IR-83-02	Complete	Yes
105	License Conditions for Shift Manning	At time of restart, staff impose and enforce license conditions per PID Section 11.M.9(a)-(g) for operation at TMI-1 concerning shift manning.	--	NRR issue license condition. (4/84)	No (Reg. 1) (5/84)
106	Operating Information Management System	License provide and maintain a management system to perform functions per PID Section 11.M.10(a)-(c). (See also item 67).	IR-80-19 IR-81-33 IR-82-09 IR-82-16 IR-82-18 IR-83-02	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	HRC Inspection Complete
ASLB Plant Design, Procedures, and Modifications PID of 12/14/81					
107	Natural and Forced Circulation	Install new shield walls between the HPI piping and motor control centers.	NUREG-0680 IR-82-13	Complete	Yes
108	Abnormal Transients Operating Guidelines	Staff review revised ATOG program and report to Commission on reasonable progress.	NRC letter 10/26/82	Complete	N/A Note 1
109	Pressurizer Heaters	Demonstrate reactor coolant pressure control using HPI system.	IR-83-01	Complete	Yes
110	Connecting Pressurizer Heaters to Diesel - Procedures	Staff verify procedures for reconnecting pressurizer heaters. (See also item 72). (Note: License condition required per ALAB-729).	NUREG-0680 IR-83-22	Complete	Yes
111	Connecting Pressurizer Heaters to Diesel - Demonstration	Licensee demonstrate connection of heaters to emergency buses; staff monitor test and evaluate results. (Note: Staff advise Commission if test disables emergency power supply. (ALAB-729)).	IR-83-01 IR-83-25	Complete	Yes
112	Computers - Operator Reliance	Staff verify that operators do not rely solely on computer information for making operational decisions.	IR-82-18	Complete	Yes

TABLE I (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
113	Computers - Incore Thermocouple Backup	Install and have operational data logging or recording instrument displays of certain in-core temperature information (before 5% power -lic. condition). System must be safety-grade per ALAB-729, p. 176. (See also item 76).	NUREG-0680 NUREG-0752 IR-81-10 IR-81-28 IR-81-14 IR-81-24 IR-82-01 IR-82-07 IR-82-10 IR-82-14 IR-82-17 IR-82-19 IR-82-26	NRR reviewing seismic capability of system. Issuance of request for additional information pending. 4/84 review completion. NRR issue license conditions before 5% power. Test during PET.	No (Reg. I) PET
114	In-Plant Instrument Ranges - Effluent	Install extended range noble gas effluent monitors. (See also item 85).	NUREG-0680 IR-83-04 IR-84-03	Complete	Yes
115	In-Plant Instrument Range - Sampling	Install expanded sampling system capability for monitoring radioiodine and particulates. (See also item 86).	NUREG-0680 IR-82-26 IR-83-04 IR-84-03	Complete	Yes
116	Safety-System Status Panel - Valve Lineup	License perform complete review of safety system valve lineup. Staff perform independent verification. (See also item 23).	--	Perform verification at final HFT.	No (Reg. I) HFT
117	Safety-System Status Panel - Administrative Controls	Staff review licensee compliance with NUREG-0737 requirement to upgrade administrative controls for monitoring and verifying system status prior to restart.	NRC Letter 4/22/81 IR-82-16 IR-83-02	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
118	Control Room Design Review	Licensee perform NUREG-0752 recommended corrections, staff review modifications against criteria of NUREG-0752 and NUREG-0752 Supplement 1. (See also item 125).	NUREG-0752 IR-81-24 IR-82-17 IR-82-19 IR-82-26 IR-83-09 IR-83-14	Complete	Yes
119	Additional LOCA Analysis	Install HPI system cavitating venturis and cross-connect.	IR-81-19 IR-82-07 IR-82-10 IR-82-26	Complete - Test during HFT.	No (Reg. I) HFT
120	Pressurizer Level Instrumentation	Upgrade pressurizer level instrumentation by providing redundant vital power supplies.	IR-82-26	Complete	Yes
121	EFW Reliability	Provide auto initiation of EFW. (See also Items 1 and 81). (Note: System need not be safety grade at restart so long as an operator is dispatched to EFW station.) (ALAB-729).	NUREG-0680 IR-80-26 IR-81-28 IR-82-01 IR-82-26	Complete - Test during PET to be implemented by license condition.	No (Reg. I) PET
122	Prevent EFW Isolation by Rupture Detection System Failure	Licensee propose means for preventing feed-isolation due to failure in rupture detection system. (Reasonable progress). (See (See also item 153).	NRC letter 11/10/82 IR-83-01	Complete	Yes
123	Evaluate Organization and Management Improvements	Perform evaluation per Item I.B.1.2 of NUREG-0694.	NRC letter 4/22/81	Complete	N/A Note 1

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	IIRC Inspection Complete
124	NSSS Vendor Review of Procedures	Perform review per Item I.C.7 of NUREG-0694.	NRC letter 4/22/81 IR-82-16	Complete	Yes
125	Control Room Design Review	Perform review per Item I.D.1 of NUREG-0694. (See also item 118).	NUREG-0752 IR-81-24 IR-82-17 IR-82-19 IR-82-26 IR-83-09	Complete	Yes
126	Training During Low Power Testing	Perform training per Item I.G.1 of NUREG-0694	NRC letter 4/22/81 NRC letter 12/21/82 IR-81-33	Complete - Test during PET to be implemented by license condition.	No (Reg. 1) PET
127	Pilot Monitoring of Selected Emergency Procedures	Perform monitoring per Item I.C.8 of NUREG-0694.	NRC letter 4/22/81	Complete	N/A Note 1
128	Equipment Qualification	Staff certify to Commission a report on licensee's compliance with CLI-80-21 with respect to radiation.	1/28/82 staff filing to Commission	Complete	N/A Note 1
129	Equipment Qualification	Comply with six equipment qualification conditions of PID paragraph 1163.	NRC letter 10/8/82 IR-83-02	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
130	Flood Level Calculations	Staff perform an independent review of licensee's calculations of flood level in the reactor building. Staff conduct review of operational limitations that must be imposed.	NRC letters 7/26/82, 7/19/83 IR-81-28 IR-82-03 IR-82-07 IR-82-26 IR-82-06 IR-82-19	Complete	Yes
131	Position on Cold Shutdown	Licensee environmentally qualify a single path to cold shutdown or bring the matter to the attention of the Commission.	1/28/82 staff filing to Commission	Complete	N/A Note 1
132	Ventilation Separation Program	Licensee submit to the staff a program designed to test the adequacy of its Phase I ventilation separation program such that staff can certify that a satisfactory test program has been implemented.	NRC letter 3/9/83	Complete	No (Reg. 1) (7/84)
<u>ASLB Emergency Planning PID of 12/14/81</u>					
133	Emergency Planning Health Physics Matters	(1) Complete 1 training cycle of the Emergency Plan training program. (2) Verify upgrade of Reactor Building alarm. (3) Include high range noble gas monitor readings and radioiodine effluent analyses in the dose assessment scheme. (4) Implement procedures for collecting and analyzing absorbent media for radioiodine and gaseous effluents under accident conditions (Paragraphs 1404, 1479).	IR-83-04 IR-83-13 IR-84-03	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	HRC Inspection Complete
134	EALs	Verify and document that the General Emergency and reactor coolant system activity Emergency Action Levels (EALs) have been revised to be consistent with NUREG-0654.	NRC letter 7/25/83	Complete	Yes
135	Alert EAL	Verify and document that the reactor coolant system EAL for an Alert precisely conforms to the 300 Mci/ml equivalent I-131 criteria in NUREG-0654.	NRC letter 7/25/83	Complete	Yes
136	Dose Projection	Verify and document revision of procedures for off-site dose projection to include a curve of estimated containment leak rate as a function of containment design pressure and actual measured pressure.	NRC letter 7/25/83	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
137	Emergency Response Training	<p>(1) Verify and document completion of one full iteration of Emergency Organization Training for offsite support organizations including local fire depts, ambulance services, local police depts. State Police and Middletown police get specific training.</p> <p>(2) Verify and document Radiation Management Corp. Annual Training of Hospital and ambulance personnel.</p> <p>(3) Verify and document formal training course on plant design features for license senior management who joined the licensee since 6/9/79 and who will serve as Emergency Director or Emergency Support Director.</p>	IR-83-02 IR-83-13 IR-83-31	Complete	Yes
138	EOF Staffing Requirements	Implement EOF Support Director staffing requirements of PID 2010a and 1381 for restart.	NRC letter 7/25/83 CLI 83-22	Complete	Yes
139	County and PEMA EP Brochure Review	The staff shall review any changes made in the final risk county brochures and the PEMA Pamphlet on emergency preparedness, and advise the Commission prior to restart of the impact of the revisions on the intended purpose of these documents.	NRC letter 7/25/83	Complete	Yes (FEMA)

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
137	Emergency Response Training	<p>(1) Verify and document completion of one full iteration of Emergency Organization Training for offsite support organizations including local fire depts, ambulance services, local police depts. State Police and Middle-town police get specific training.</p> <p>(2) Verify and document Radiation Management Corp. Annual Training of Hospital and ambulance personnel.</p> <p>(3) Verify and document formal training course on plant design features for license senior management who joined the licensee since 6/9/79 and who will serve as Emergency Director or Emergency Support Director.</p>	IR-83-02 IR-83-13 IR-83-31	Complete	Yes
138	EOF Staffing Requirements	Implement EOF Support Director staffing requirements of PID 2010a and 1381 for restart.	NRC letter 7/25/83 CLI 83-22	Complete	Yes
139	County and PEMA EP Brochure Review	The staff shall review any changes made in the final risk county brochures and the PEMA Pamphlet on emergency preparedness, and advise the Commission prior to restart of the impact of the revisions on the intended purpose of these documents.	NRC letter 7/25/83	Complete	Yes (FEMA)

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
140	EP Brochure	Updated PEMA and 5 risk county brochures distributed (Public Information on Emergency Preparedness).	NRC letter 7/25/83	Complete	Yes (FEMA)
141	EP Brochures to Transient Locations	Updated county brochures distributed to transient (hotels, motels, parks, employers) locations.	NRC letter 7/25/83	Complete	Yes (FEMA)
142	Major Employer Briefings	At least be underway for licensee briefings to major employers and operators of transient locations.	NRC letter 7/25/83	Complete	Yes (FEMA)
143	Siren System Test	Siren System audibility test. Staff certify results and need for supplemental alerting.	NRC letter 7/25/83	Complete	Yes (FEMA)
144	Communications	Conduct communications drill to stress system.	NRC letter 7/25/83	Complete	Yes (FEMA)
145	School District Plans	Staff certify when plans for EP-2 school districts are completed and reviewed for adequacy.	NRC letter 7/25/83	Complete	Yes (FEMA)
<u>ASLB Reopened Proceeding on Cheating PID of 7/14/82</u>					
146	Operator Certification	Verify and document implementation of a procedure for certification of operators by signed statements from Training Personnel that operator candidates (to obtain or renew a license) have completed training requirements.	NRC letter 7/29/83	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NPC Inspection Complete
147	Qualifications of Instructors	Licensee establish criteria for qualifications of instructors.	NRC letter 7/28/83	Complete	Yes
148	Supervision of Start-up and Test Director	Any participation by Start-up and Test Director in start-up and test at TMI-1 is to be directly supervised by a qualified GPU official.	IR-82-19	Complete	Yes
<u>ASLAR-Imposed Emergency Planning Requirements</u>					
149	Agricultural Brochure	Commonwealth agriculture brochure shall be distributed to all farmers in 10-mile plume exposure EPZ.	NRC letter 11/22/83	Complete	Yes (FEMA)
<u>ASLB Management PID of 8/27/81 (Additional Items)</u>					
150	Feedback of Operating Experience	NUREG-0737, I.C.5 "Procedure for Feedback of Operating Experience to Plant Staff" must be enforced at TMI-1 if restart is permitted.	NRC letter 9/1/83	Complete	Yes
151	Start-up Test Program	Staff certify to Commission whether licensee has Startup Test Program which will provide additional operator training to satisfy the issue of whether to treat TMI-1 differently from other operating reactors because of the prolonged shutdown.	NRC letters 12/21/82, 9/1/83 IR-81-33	Complete	Yes

TABLE 1 (Continued)

No.	Item	Definition	Completion Documentation	Review Status/Remarks	NRC Inspection Complete
<u>ASLB Emergency Planning PID of 12/14/81 (Additional Items)</u>					
152	Dauphin County Plan	Staff certify to Commission that Dauphin County plan has been revised so that there is no suggestion in the plan that school students will be returned to their homes by bus in the early stages of an accident.	NRC letter 7/25/83	Complete	Yes (FEHA)
<u>ALAB-729 Items</u>					
153	Main Steam Rupture Detection System Long-Term Solution	Licensee submit proposed long-term solution to Commission prior to restart. (See also Item 122).	NRC letters 11/10/82, 8/30/83, IR-83-01	Licensee submittal to Commission complete. Commission reviewing per 1/27/84 Order.	N/A Note 1
154	Subcooling Margin Instrumentation Error	Ensure subcooling margin instrument error does not exceed 20 F.	IR-83-14	Licensee submittal complete. NRC review estimated 4/84.	No (Reg. 1) 5/84

NOTES:

1. N/A indicates completion of item involved only staff review of design or statistical information, licensee commitment, etc. Physical inspection of facility is not necessary.