



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

METROPOLITAN EDISON COMPANY

JERSEY CENTRAL POWER & LIGHT COMPANY

PENNSYLVANIA ELECTRIC COMPANY

GPU NUCLEAR CORPORATION

DOCKET NO. 50-289

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 141
License No. DPR-50

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by GPU Nuclear Corporation, et al. (the licensee) dated January 26 and January 29, 1988 comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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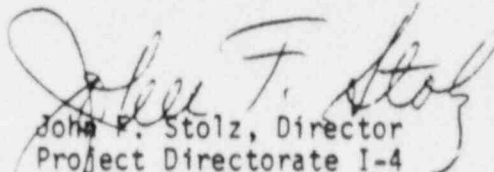
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.c.(2) of Facility Operating License No. DPR-50 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 141, are hereby incorporated in the license. GPU Nuclear Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John P. Stolz, Director
Project Directorate I-4
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 3, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 141

FACILITY OPERATING LICENSE NO. DPR-50

DOCKET NO. 50-289

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove

1-7
3-13
3-15
3-15a
-
6-4
6-11
6-19a
6-20

Insert

1-7
3-13
3-15
3-15a
3-15b
6-4
6-11
6-19a
6-20

1.19 PURGE - PURGING

PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions in such a manner that replacement air or gas is required to purify the confinement.

1.20 VENTING

VENTING is the controlled process of discharging air as gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating conditions in such a manner that replacement air or gas is not provided. Vent used in system name does not imply a VENTING process.

1.21 REPORTABLE EVENT

A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

1.22 MEMBER(S) OF THE PUBLIC

MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the GPU System, GPU contractors or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries.

1.23 SUBSTANTIVE CHANGES

SUBSTANTIVE CHANGES are those which affect the activities associated with a document or the document's meaning or intent. Examples of non-substantive changes are: (1) correcting spelling; (2) adding (but not deleting) sign-off spaces; (3) blocking in notes, cautions, etc.; (4) changes in corporate and personnel titles which do not reassign responsibilities and which are not referenced in the Appendix A Technical Specifications; and (5) changes in nomenclature or editorial changes which clearly do not change function, meaning or intent.

- 3.1.6.9 Loss of reactor coolant through reactor coolant pump seals and system valves to connecting systems which vent to the gas vent header and from which coolant can be returned to the reactor coolant system shall not be considered as reactor coolant leakage and shall not be subject to the consideration of Specifications 3.1.6.1, 3.1.6.2, 3.1.6.3, 3.1.6.4, 3.1.6.5, 3.1.6.6 or 3.1.6.7, except that such losses when added to leakage shall not exceed 30 gpm. If leakage plus losses exceeds 30 gpm, the reactor shall be placed in HOT SHUTDOWN within 24 hours of detection.
- 3.1.6.10 Operating conditions of POWER OPERATION, STARTUP and HOT SHUTDOWN apply to the operational status of the high pressure isolation valves between the primary coolant system and the low pressure injection system.
- a. During all operating conditions in this specification, all pressure isolation valves listed in Table 3.1.6.1 that are located between the primary coolant system and the LPIS shall function as pressure isolation devices except as specified in 3.1.6.10.b. Valve leakage shall not exceed the amount indicated in Table 3.1.6.1.(a)
 - b. In the event that integrity of any high pressure isolation check valves specified in Table 3.1.6.1 cannot be demonstrated, reactor operation may continue provided that at least two valves in each high pressure line having a non-functional valve are in and remain in, the mode corresponding to the isolated condition. (b)
 - c. If Specification 3.1.6.10.a or 3.1.6.10.b cannot be met, an orderly shutdown shall be accomplished by achieving HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within an additional 30 hours.

Bases

Any leak of radioactive fluid, whether from the reactor coolant system primary boundary or not, can be a serious problem with respect to in-plant radioactive contamination and required cleanup or, in the case of reactor coolant, it could develop into a still more serious problem and, therefore, the first indications of such leakage will be followed up as soon as practical. The unit's makeup system has the capability to makeup considerably more than 30 gpm of reactor coolant leakage plus losses.

Water inventory balances, monitoring equipment, radioactive tracing, boric acid crystalline deposits, and physical inspections can disclose reactor coolant leaks.

- (a) For the purpose of this specification, integrity is considered to have been demonstrated by meeting Specification 4.2.7.
- (b) Motor operated valves shall be placed in the closed position and power supplies deenergized.

Bases (Continued)

If reactor coolant leakage is to the containment, it may be identified by one or more of the following methods:

- a) The containment radiation monitor is a three channel monitor consisting of a particulate channel, an iodine channel, and a gaseous channel. All three channels read out in the Control Room and alarm to indicate an increase in containment activity.

The containment particulate channel is sensitive to the presence of Rb-88, a daughter product of Kr-88, in the containment air sample. Since this activity originates predominantly in the Reactor Coolant System, an increase in monitor readings could be indicative of increasing RCS leakage. The sensitivity of the particulate monitor is such that a leakrate of less than 1 gpm will be detected within one (1) hour under normal plant operating conditions.

- b) The mass balance technique is a method of determining leakage by stabilizing the Reactor Coolant System and observing the change in water inventory over a given time period. Level decreases in the Makeup Tank may also serve as an early indication of abnormal leakage.
- c) The Reactor Building sump receives leakage from systems inside containment. Sump level readings are checked and recorded regularly for rate of water accumulation. High accumulation rates alert the operators to increase their surveillance of possible leak sources. Level is detected in one-half inch increments which correspond to a volume of ~56 gallons.
- d) Humidity Monitoring: This system collects moisture condensed from the containment atmosphere by the cooling coils of the main recirculation units. The drain lines of these units are equipped with flow switches which alarm in the Control Room on high flow.

The leakage detection capability provided by the above methods can be used to determine potential pressure boundary faults. Such leakage, while tolerable from a dose point of view, could be indicative of material degradation which if not dealt with promptly, could develop into larger leaks.

This specification is concerned with leakage from the Reactor Coolant System (RCS) and Makeup and Purification System (MUPS). The methods discussed above provide a means of detecting, as early as possible, leakage which could be the result of a fault in the reactor coolant system pressure boundary. The primary method used at TMI-1 for quantifying RCS and MUPS leakage is the mass balance technique.

Bases (Continued)

The unidentified leakage limit of 1 gpm is established as a quantity which can be accurately measured while sufficiently low to ensure early detection of leakage. Leakage of this magnitude can be reasonably detected within a matter of hours, thus providing confidence that cracks associated with such leakage will not develop into a critical size before mitigating actions can be taken.

Total reactor coolant leakage is limited by this specification to 10 gpm. This limitation provides allowance for a limited amount of leakage from known sources whose presence will not interfere with the detection of unidentified leakage.

The primary to secondary leakage through the steam generator tubes is limited to 1 gpm total. This limit ensures that the dosage contribution from tube leakage will be limited to a small fraction of Part 100 limits in the event of a steam line break. Steam generator leakage is quantified by analysis of secondary plant activity.

If reactor coolant leakage is to the auxiliary building, it may be identified by one or more of the following methods:

- a. The auxiliary and fuel handling building vent radioactive gas monitor is sensitive to very low activity levels and would show an increase in activity level shortly after a reactor coolant leak developed within the auxiliary building.
- b. Water inventories around the auxiliary building sump.
- c. Periodic equipment inspections.
- d. In the event of gross leakage, in excess of 13 + 2 gpm, the individual cubicle leak detectors in the makeup and decay head pump cubicles, will alarm in the control room to backup "a", "b", and "c" above.

When the source and location of leakage has been identified, the situation can be evaluated to determine if operation can safely continue. This evaluation will be performed by TMI-1 Plant Operations.

TABLE 3.1.6.1

PRESSURE ISOLATION CHECK VALVES BETWEEN
THE PRIMARY COOLANT SYSTEM & LPIS

<u>System</u>	<u>Valve No.</u>	<u>Maximum(a) Allowable Leakage</u>
Low Pressure Injection		(<u><5.0 GPM</u> for all valves)
Train A	CF-V5A DH-V22A	(<u><5.0 GPM</u> for all valves)
Train B	CF-V5B DH-V22B	(<u><5.0 GPM</u> for all valves)

Footnote:

(a)

1. Leakage rates less than or equal to 1.0 gpm are considered acceptable.
2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable if the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
3. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.
4. Leakage rates greater than 5.0 gpm are considered unacceptable.

ACTIVITIES

- 6.5.1.1 Each procedure required by Technical Specification 6.8 and other procedures which affect nuclear safety, and substantive changes thereto, shall be prepared by a designated individual(s)/group knowledgeable in the area affected by the procedure. Each such procedure, and substantive changes thereto, shall be reviewed for adequacy by an individual(s)/group other than the preparer, but who may be from the same organization as the individual who prepared the procedure or change.
- 6.5.1.2 Proposed changes to the Appendix "A" Technical Specifications shall be reviewed by a knowledgeable individual(s)/group other than the individual(s) group who prepared the change.
- 6.5.1.3 Proposed modifications that affect nuclear safety to unit structures, systems and components shall be designed by an individual/organization knowledgeable in the areas affected by the proposed modification. Each such modification shall be reviewed by an individual/group other than the individual/group which designed the modification but may be from the same division as the individual who designed the modification.
- 6.5.1.4 Proposed tests and experiments that affect nuclear safety shall be reviewed by a knowledgeable individual(s)/group other than the preparer but who may be from the same division as the individual who prepared the tests and experiments.
- 6.5.1.5 Investigation of all violations of the Technical Specifications including the preparation and forwarding of reports covering evaluation and recommendations to prevent recurrence, shall be reviewed by a knowledgeable individual(s)/group other than the individual/group which performed the investigation.
- 6.5.1.6 All REPORTABLE EVENTS shall be reviewed by an individual/group other than the individual/group which prepared the report.
- 6.5.1.7 Special reviews, investigations or analyses and reports thereon as requested by the Vice President TMI-1 shall be performed by a knowledgeable individual(s)/group.
- 6.5.1.8 The Security Plan and implementing procedures shall be reviewed by a knowledgeable individual(s)/group other than the individual(s)/group which prepared them.

6.8 PROCEDURES

- 6.8.1 Written procedures shall be established, implemented and maintained covering the items referenced below:
- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978.
 - b. Surveillance and test activities of equipment that affects nuclear safety and radioactive waste management equipment.
 - c. Refueling Operations.
 - d. Security Plan Implementation.
 - e. Fire Protection Program Implementation.
 - f. Emergency Plan Implementation.
 - g. Process Control Program Implementation.
 - h. Offsite Dose Calculation Manual Implementation.
 - i. Quality Assurance Program for effluent and environmental monitoring using the guidance in Regulatory Guide 4.15.
 - j. Plant Staff Overtime, to limit the amount worked by staff performing safety-related functions in accordance with NRC Policy Statement on working hours (Generic Letter No. 82-12).
- 6.8.2 Further, each procedure required by 6.8.1 above, and substantive changes thereto, shall be reviewed and approved as described in 6.5.1 prior to implementation and shall be reviewed periodically as set forth in administrative procedures.
- 6.8.3 Temporary changes to procedures of 6.8.1 above may be made provided:
- a. The intent of the original procedure is not altered;
 - b. The change is approved by two members of GPUNC Management Staff qualified in accordance with 6.5.1.14 and knowledgeable in the area affected by the procedure. For changes which may affect the operational status of unit systems or equipment, at least one of these individuals shall be a member of unit management or supervision holding a Senior Reactor Operator's License on the unit.
 - c. The change is documented, reviewed and approved as described in 6.5.1 within 14 days of implementation.

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- b. Records of principal maintenance activities, including inspection, repairs, substitution, or replacement of principal items of equipment related to nuclear safety.
- c. ALL REPORTABLE EVENTS
- d. Records of periodic checks, tests and calibrations.
- e. Records of reactor physics tests and other special tests related to nuclear safety.
- f. Changes to procedures required by Specification 6.8.1.
- g. Records of solid radioactive shipments.

- h. Test results, in units of microcuries, for leak tests performed on licensed sealed sources.
- i. Results of annual physical inventory verifying accountability of licensed sources on record.
- j. Control Room Log Book.
- k. Shift Foreman Log Book.

6.10.2 The following records shall be retained for the duration of Operating License DPR-50 unless otherwise specified in 6.10.1 above.

- a. Records and drawing changes reflecting facility design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.
- c. Routine unit radiation surveys and monitoring records.
- d. Records of radiation exposure history and radiation exposure status of personnel, including all contractors and unit visitors who enter radioactive material areas.
- e. Records of radioactive liquid and gaseous wastes released to the environment, and records of environmental monitoring surveys.
- f. Records of transient or operational cycles for those facility components which affect nuclear safety for a limited number of transients or cycles as defined in the Final Safety Analysis Report.
- g. Records of training and qualification for current members of the unit staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities required by the Operational Quality Assurance Plan.
- j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of reviews by the Independent Onsite Safety Review Group.
- l. Records of analyses required by the radiological environmental monitoring program.