



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

GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION

DOCKET NO. 50-320

THREE MILE ISLAND NUCLEAR STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 29
License No. DPR-73

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment dated May 16, 1986 by General Public Utilities Nuclear Corporation (the licensee), complies 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.
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-73 is hereby amended to read as follows:

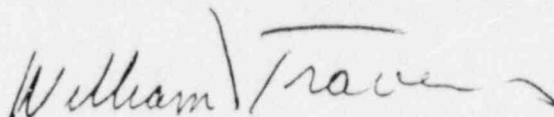
2.C (2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 29, are hereby incorporated

in the license. The licensee shall operate the facility in accordance with the Technical Specifications and all Commission Orders issued subsequent to March 28, 1979.

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

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in dark ink, appearing to read "William D. Travers", with a long horizontal flourish extending to the right.

William D. Travers, Director
TMI-2 Cleanup Project Directorate
Division of Reactor Projects - III, IV, V
and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 17, 1988

ATTACHMENT TO LICENSE AMENDMENT NO. 29

FACILITY OPERATING LICENSE NO. DPR-73

DOCKET NO. 50-320

Replace the following pages of the Appendix B Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain a vertical line indicating the area of change.

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THREE MILE ISLAND NUCLEAR STATION UNIT 2
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1.0 Definitions

Accuracy: Refers to the deviation of a result obtained by a particular method from the value accepted as true.

Aerial Remote Sensing: The measurement or acquisition from aircraft or spacecraft of information on some property of an object or phenomenon by a recording device that is not in physical or intimate contact with the object or phenomenon under study. The technique employs such devices as the camera, radio frequency receivers, and radar systems.

Batch Release: A batch release is the discharge of fluid wastes of a discrete volume.

Calibration: An instrument or device calibration shall be the adjustment, as necessary, of the output such that it responds with the necessary range and accuracy to known values of the parameter(s) which the instrument sensor or device monitors. The calibration shall encompass the entire circuit including the sensor, indicatory control feature, alarm and/or trip function(s), and shall include the functional test. The calibration may be performed by any series of sequential, overlapping or total circuit steps such that the entire circuit is calibrated as specified.

Closed Cycle Cooling: The condenser cooling method in which the circulating water, after passing through cooling towers, is recirculated back to the condenser intake with the exception of the blowdown which is discharged to the receiving water body.

Combined Available Chlorine: Chlorine existing in water in chemical combination with ammonia or organic nitrogen compounds.

Composite Sample: A combination of individual samples obtained at regular intervals over a time period. Either the volume of each individual sample is proportional to the low rate discharge at the time of sampling or the number of equal volume samples is proportional to the time period used to produce the composite.

Continuous Release: A continuous release is the discharge of fluid waste of a non-discrete volume, e.g., from a volume or system that has an input flow during the continuous release.

Daily Average Concentration: Daily average concentration means the arithmetic average of all daily determinations of concentration made during a calendar month. Daily determinations of concentration using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily determination of concentration shall be the arithmetic average of all the samples collected during that calendar day.

Daily Maximum Concentration: Daily maximum concentration means the maximum concentration recorded for any calendar day.

Free Available Chlorine: Chlorine existing in water as hypochlorous acid and hypochlorite ions.

Functional Check: A functional check shall be the injection of a simulated signal into a circuit at the primary sensor to verify circuit behavior during observation. Instrument checks shall permit observation of an established value other than a value observed when the instrument is de-energized. Sensor checks shall permit observation of an established value while disconnected from its normal circuit function and subjecting the sensor to the parameter(s) normally monitored. Functional checks shall include alarm and/or trip functions but may be blocked from performing the ultimate specified function.

Functional Test: A functional test shall be verification of operability by performing all specified functions using the parameter(s) which the instrument sensor or device monitors.

Grab Sample: A grab sample is an individual sample collected in less than fifteen minutes.

Ground Truth or Ground Data Survey: Supporting data collected on the ground and information derived therefrom, as an aid to the interpretation of remotely-recorded survey, such as aerial imagery, etc. Generally, this should be performed concurrently with the airborne surveys.

Herbicides: Chemicals that kill plants or inhibit their normal growth.

Infrared, Photographic: Pertaining to or designating the portion of the electromagnetic spectrum with wavelengths just beyond the red end of the visible spectrum; generally defined as from 0.7 to about 1.0 um, or the useful limits of film sensitivities.

Lake Frederic: Formerly York Haven Reservoir.

Manner of Herbicide Application

- a. Basal injection in which selected individual trees receive herbicide injections beneath the bark;
- b. Basal application in which individual plants are treated with pellets or sprays applied to soil at the base of the plant;
- c. Selective foliar spray (spot treatments or directed spray) in which individual plants are sprayed with ground-based equipment;
- d. Broadcast application in which herbicide is distributed either as pellets or spray uniformly over the entire predetermined area of land;
- e. Aerial application in which entire segments of the corridor are treated primarily by broadcast applications employing various types of aircraft.

Multispectral or Multiband Photographs: A color picture produced by assigning a color to a particular spectral band.

Normal Operation: Operation of either unit at the station at greater than 2% of rated thermal power in other than a safety or power emergency situation.

NPDES Permit: NPDS Permit is the National Pollutant Discharge Elimination System Permit No. PA0009920 issued by the Environmental Protection Agency to Metropolitan Edison Company. This permit authorizes Metropolitan Edison Company to discharge from TMINS, controlled waste water into the waters of the Commonwealth of Pennsylvania.

Precision: Relates to the reproducibility of measurements within a set, that is, to the scatter or dispersion of a set about its central value.

Protected Areas: Ecological areas designated by the staff to receive special mitigative actions such as selected vegetative communities bordering rivers or streams which are not to receive herbicidal applications, etc.

Sampling Frequency: The frequency of sampling specified for the performance of surveillance requirements shall correspond to the intervals defined in Table 1.1.

Scale: The ratio of a distance on a photograph or map to its corresponding distance on the ground.

Spectral Band: A width, generally expressed in wavelength or frequency of a particular portion of the electromagnetic spectrum. A given sensor (e.g., radiometer detector or camera film) is designed to measure or be sensitive to energy received from that part of the spectrum.

Station and Unit: Station refers to TMI Units 1 and 2. Unit refers only to TMI-1 or TMI-2, as defined by its usage. Reference to specific instrumentation will be indicated by placing each unit's instrument number in parentheses, Unit 1 preceding Unit 2. Only the individual unit's instrument is applicable to specifications applied to that unit.

Total Residual Chlorine: (residual chlorine) chlorine existing in water as either hypochlorous acid, hyhypochlorite or in chemical combination with ammonia or organic nitrogen compounds.

Surveillance Requirements: Each Surveillance Requirement shall be performed within the specified time interval with:

- a. A maximum allowable extension not to exceed 25% of the surveillance interval, and
- b. A total maximum combined interval time for any 4 consecutive tests not to exceed 3.25 times the specified surveillance interval.

TABLE 1.1
SAMPLING FREQUENCY AND NOTATION

<u>SPECIFIED FREQUENCY</u>	<u>NOTATION</u>	<u>PERIOD</u>
Shift	S	At least once per 12 hrs
Daily	D	At least once per 24 hrs
Weekly	W	At least once per 7 days
Monthly	M	At least once per 31 days
Quarterly	Q	At least once per 92 days
Semiannually	SA	At least once per 184 days
Semimonthly	SM	At least once per 15 days
Annually	A	At least once per 12 months
Not Applicable	N.A.	Not Applicable

3.2 RADIOLOGICAL ENVIRONMENTAL MONITORING

3.2.1 MONITORING PROGRAM REQUIREMENTS

LIMITING CONDITIONS FOR OPERATION

The radiological environmental monitoring program shall be conducted and samples shall be collected as specified in Table 3.2-1. Samples shall be analyzed pursuant to the requirements of Table 3.2-1 and the detection capabilities required by Table 3.2-2.

Applicability: At all times.

Action:

- a. With the radiological environmental monitoring program not being conducted as specified in Table 3.2-1, prepare and submit to the Commission in the Annual Radiological Environmental Operating Report, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence.
- b. With the level of radioactivity as the result of plant effluents in an environmental sampling medium exceeding the reporting levels of Table 3.2-3 when averaged over any calendar quarter, prepare and submit to the Commission within 60 days from the end of the affected calendar quarter, a special report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose* to a member of the public is less than the calendar year limits of Specifications 2.1.1 and 2.1.2 of Appendix B. When more than one of the radionuclides in Table 3.2-3 are detected as the result of plant effluents in the sampling medium, this report shall be submitted if:

$$\frac{\text{concentration (1)}}{\text{reporting level (1)}} + \frac{\text{concentration (2)}}{\text{reporting level (2)}} + \dots \geq 1.0$$

When radionuclides other than those in Table 3.2-3 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose* to a member of the public is equal to or greater than the calendar year limits of Specification 2.1.1 or 2.1.2 of Appendix B. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

- c. With milk or fresh leafy vegetables unavailable from one or more of the sample locations required by Table 3.2-1, identify locations for obtaining replacement samples and add them to the radiological environmental monitoring program within 30 days.

*The methodology and parameters used to estimate the potential annual dose to a member of the public shall be indicated in this report.

RADIOLOGICAL ENVIRONMENTAL MONITORING

ACTION: (Continued)

The locations from which samples were unavailable may then be deleted from the monitoring program. Identify the cause of the unavailability of samples and identify the new location(s) for obtaining replacement samples in the next semi-annual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new locations.

BASES:

The radiological monitoring program required by this specification provides representative measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of members of the general public resulting from the station operation. This monitoring program thereby implements Section IV B.2 of Appendix I to 10 CFR 50 and supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways. Guidance for this monitoring is provided by the Radiological Assessment Branch Technical Position on Environmental Monitoring (Revision 1, November 1979). Program changes may be initiated based on operational experience.

TABLE 3.2-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency	Type and Frequency of Analysis
1. AIRBORNE			
Particulates	Samples from 5 locations from Table 1 of the ODCM.	Continuous sampler operation with sample collection weekly, or more frequently if required by dust loading.	Analyze for gross beta radioactivity following filter change ^c . Perform gamma isotopic analysis ^d on composite (by location) sample quarterly.
2. DIRECT RADIATION ^b	Samples from 40 locations from Table 2 of the ODCM (using either 2 dosimeters or at least 1 instrument for continuously measuring and recording dose rate at each location).	Quarterly	Gamma dose-quarterly

TABLE 3.2-1 (Con't)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency	Type and Frequency of Analysis
3. WATER BORNE			
a. Surface ^e	Samples from 2 locations from Table 3 of the ODCM. - 1 sample from downstream (indicator) location - 1 sample from upstream (control) location (or location not influenced by plant discharges)	Composite ^f sample over 1-monthly period.	Gamma isotopic analysis ^d monthly. Composite for tritium analysis quarterly.
b. Drinking	Samples from 2 locations from Table 3 of the ODCM. - 1 sample at the location of the nearest water supply that could be affected by station discharge. - 1 sample from a control location.	Composite ^f sample over 1-monthly period.	Gross beta and gamma isotopic analysis ^d monthly. Sr-90 analysis if gross beta of monthly composite >10 times control. Composite for tritium analysis quarterly.
c. Sediment from Shoreline	Samples from 2 locations (1 Control and 1 Indicator) from Table 4 of the ODCM.	Sample twice per year (Spring and Fall)	Gamma isotopic analysis ^d of each sample.
4. INGESTION			
a. Milk	Samples from 4 locations from Table 5 of the ODCM.	Semi-monthly when animals are on pasture, monthly at other times.	Gamma isotopic analysis ^d of each sample. Composite for Sr-90 analysis quarterly.

TABLE 3.2-1 (Con't)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathway and/or Sample	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency	Type and Frequency of Analysis
4. INGESTION (Cont'd)			
b. Fish	<p>Samples from 2 locations from Table 6 of the ODCM.</p> <ul style="list-style-type: none"> - 1 sample of recreationally important bottom feeders and 1 sample of recreationally important predators in the vicinity of the plant discharge. - 1 sample of recreationally important bottom feeders and 1 sample of recreationally important predators from an area not influenced by the plant discharge. 	Sample twice per year (Spring and Fall)	Gamma isotopic ^d and SR-90 analysis on edible portions.
c. Food Products	<p>Samples from 2 locations from Table 7 of the ODCM (when available).</p> <ul style="list-style-type: none"> - 1 sample of green leafy vegetables or leafy vegetation at a location in the immediate plant vicinity (indicator). - 1 sample of same species or group from a location not influenced by plant discharge. 	At time of harvest.	Gamma isotopic ^d and SR-90 analysis on edible portion.

TABLE 3.2-1 (Cont'd)

TABLE NOTATION

- a. Sampling locations are provided in the ODCM. Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment and other legitimate reasons. All deviations from the sampling schedule shall be explained in the Annual Radiological Environmental Operating Report.
- b. One or more instruments, such as a pressurized ion chamber for measuring and recording dose rate continuously, may be used in place of, or in addition to, integrating dosimeters. For the purpose of this table, a thermoluminescent dosimeter (TLD) is considered to be one phosphor; two or more phosphors in a packet are considered as two or more dosimeters. Film badges shall not be used as dosimeters for measuring direct radiation.
- c. Airborne particulate sample filters shall be analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter decay. If gross beta activity in air particulate samples is greater than ten times the mean of control samples, Sr-90 and gamma isotopic analysis shall be performed on the individual samples.
- d. Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.
- e. The "upstream sample" shall be taken at a distance beyond significant influence of the discharge. The "downstream sample" shall be taken in an area beyond but near the mixing zone.
- f. Composite sample aliquots shall be collected at time intervals that are short (e.g., hourly) relative to the compositing period (e.g., monthly) in order to assure obtaining a representative sample.

TABLE 3.2-2

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSES^aLOWER LIMIT OF DETECTION (LLD)^{b,c}

Analysis	Water (pCi/l)	Airborne Particulate (pCi/m ³)	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Products (pCi/kg, wet)	Sediment (pCi/kg, dry)
gross beta	4	1 x 10 ⁻²				
³ H	2000					
⁵⁴ Mn	15		130			
⁵⁹ Fe	30		260			
^{58,60} Co	15		130			
⁶⁵ Zn	30		260			
⁹⁵ Zr	30					
⁹⁰ Sr	2	1 x 10 ⁻²	10	2	10	
⁹⁵ Nb	15					
¹³⁴ Cs	15	5 x 10 ⁻²	130	15	60	150
¹³⁷ Cs	18	6 x 10 ⁻²	150	18	80	180
¹⁴⁰ Ba	60			60		
¹⁴⁰ La	15			15		

TABLE 3.2-2 (Cont'd)

TABLE NOTATION

- a. This list does not mean that only these nuclides are to be considered. Other peaks that are identifiable, which may be related to plant operations, together with those of the above nuclides, shall also be analyzed and reported in the Annual Radiological Environmental Operating Report.
- b. Required detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13.
- c. The LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system, which may include radiochemical separation:

$$LLD = \frac{4.66 S_b}{E \cdot V \cdot 2.22 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

Where:

LLD is the "a priori" lower limit of detection as defined above, as picocuries per unit mass or volume.

S_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate, as counts per minute

E is the counting efficiency, as counts per disintegration,

V is the sample size in units of mass or volume,

2.22 is the number of disintegrations per minute per picocurie,

Y is the fractional radiochemical yield, when applicable,

λ is the radioactive decay constant for the particular radionuclide and

Δt for environmental samples is the elapsed time between sample collection, or end of the sample collection period, and time of counting.

Typical values of E, V, Y and Δt should be used in the calculation.

TABLE 3.2-2 (Con't)

TABLE NOTATION

It should be recognized that the LLD is defined as an "a priori" (before the fact) limit representing the capability of a measurement system and not as an "a posteriori" (after the fact) limit for a particular measurement. Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally background fluctuations, unavoidable small samples sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors shall be identified and described in the Annual Radiological Environmental Operating Report.

TABLE 3.2-3

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Analysis	Water (pCi/l)	Airborne Particulate (pCi/m ³)	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Products (pCi/kg, wet)
H-3	2 x 10 ⁴ (a)				
Mn-54	1 x 10 ³		3 x 10 ⁴		
Fe-59	4 x 10 ²		1 x 10 ⁴		
Co-58	1 x 10 ³		3 x 10 ⁴		
Co-60	3 x 10 ²		1 x 10 ⁴		
Zn-65	3 x 10 ²		2 x 10 ⁴		
Sr-90	8	0.1	1 x 10 ²	8	1 x 10 ²
Zr-Nb-95	4 x 10 ²				
Cs-134	30	10	1 x 10 ³	60	1 x 10 ³
Cs-137	50	20	2 x 10 ³	70	2 x 10 ³
Ba-La-140	2 x 10 ²			3 x 10 ²	

(a) For drinking water samples. This is 40 CFR 141 value.

RADIOLOGICAL ENVIRONMENTAL MONITORING

3.2.2 LAND USE CENSUS

LIMITING CONDITIONS FOR OPERATION

A land use census shall be conducted annually and shall identify within a distance of 8 km (5 miles) the location in each of the 16 meteorological sectors the nearest milk animal, the nearest garden* of greater than 50 m² (500 ft²) producing broad leaf vegetation, and the nearest residence.

APPLICABILITY: At all times.

ACTION:

- a. With a land use census identifying a location(s) which yields a calculated dose or dose commitment greater than the values currently being calculated in Specification 2.1.1 or 2.1.2 of Appendix B, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report.
- b. With a land use census identifying a location which yields a calculated dose or dose commitment (via the same exposure pathway) 20% greater than at a location from which samples are currently being obtained in accordance with Specification 3.2.1, add the new location(s) to the radiological environmental monitoring program within 30 days. The sampling location, excluding the control station location, having the lowest calculated dose or dose commitment (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted. Identify the new location(s) in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

BASES:

This specification is provided to ensure that changes in the use of unrestricted areas are identified and modifications to the monitoring program are made if required by the results of this census. The best survey information from the door-to-door or aerial surveys or consulting with local agricultural authorities shall be used. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50. Restricting the census to gardens of greater than 500 square feet (50 m²) provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 Kg/yr) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were used: 1) that 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and 2) a vegetation yield of 2 Kg/square meter.

*Broad leaf vegetation sampling of at least three different kinds of vegetation may be performed at the site boundary in each of two different sectors with the highest predicted D/Qs in lieu of the garden census. Specifications for broad leaf sampling in Table 3.2-1 shall be followed, including analysis of control samples.

RADIOLOGICAL ENVIRONMENTAL MONITORING

3.2.3 INTERLABORATORY COMPARISON PROGRAM

LIMITING CONDITIONS FOR OPERATION

Analysis shall be performed on radioactive materials supplied as part of an Interlaboratory Comparison Program which has been approved by the Commission (NRC).

APPLICABILITY: At all times

ACTION:

With analysis not being performed as required above, report the corrective action taken to prevent a recurrence to the Commission in the Annual Radiological Environmental Operating Report.

BASES:

The requirement for participation in an approved Interlaboratory Comparison Program is provided to ensure that independent checks on precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of a quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid.

5.0 ADMINISTRATIVE CONTROLS

5.1 RESPONSIBILITY

Deleted

5.2 ORGANIZATION

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5.3 REVIEW AND AUDIT

5.3.1 INDEPENDENT REVIEW

Deleted

Figure 5.2-1

METROPOLITAN EDISON COMPANY ORGANIZATION

Deleted

5.3.2 AUDIT RESPONSIBILITY

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5.4 STATE AND FEDERAL PERMITS AND CERTIFICATES

Section 401 of PL-92-500, the Federal Water Pollution Control Act Amendment of 1972 requires any applicant for a Federal license or permit to conduct any activity which may result in any discharge into navigable waters to provide the licensing agency a certification from the State having jurisdiction that the discharge will comply with applicable provisions of Sections 301, 302, 306, and 307 of the FWPCA. Section 401 of PL 92-500 further requires that any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with the applicable limitations. Certifications provided in accordance with Section 401 set forth conditions on the Federal license or permit for which the certification is provided. Accordingly, the licensee shall comply with the requirements, with respect to Sections 2, if applicable, and 3 of these ETS, set forth in the 401 certification dated November 9, 1977 or its currently applicable revision, issued to the licensee by the Pennsylvania Department of Environmental Resources, which requires, among other things, that the licensee comply with effluent limitations stipulated in NPDES permit PA-0009920, effective September 16, 1986. Subsequent revisions to the certifications will be accommodated in accordance with provisions of Subsection 5.7.2.

5.5 PROCEDURES

Detailed written procedures, including applicable checklists and instructions, shall be prepared and followed to implement the environmental technical specifications. Procedures shall include sampling, data recording and storage, instrument calibration, measurements and analyses, and actions to be taken when limits are exceeded. Testing frequency of any alarms shall be included. These frequencies shall be determined from experience with similar instruments in similar environments and from manufacturers' technical manuals.

Station standard operating procedures shall include provisions, in addition to the procedures specified above, to ensure that all station systems and components are operated in compliance with the appropriate limiting conditions for operations established as part of the environmental technical specifications.

5.5.1 ENVIRONMENTAL PROGRAM DESCRIPTION DOCUMENT

Based on these procedures, the licensee shall prepare and follow an environmental program description document describing the programs that are required by the ETS. These program descriptions shall be approved by the NRC prior to the final approval of these ETS, and subsequent modifications to these programs shall be made by the licensee in conformance with Subsections 5.5.4 and 5.5.5.

The approved program description document shall focus on the procedures for the environmental monitoring and special programs described in Sections 3.1 and 4 that are being followed by personnel responsible for the particular monitoring program. This document shall include descriptions of sampling equipment, locations, frequency and replication; sample analyses, treatment and storage; data

recording, analysis and storage; instrument calibration; tests and experiments; measurements and analyses; and laboratory and controlled field studies.

5.5.2 QUALITY ASSURANCE OF PROGRAM RESULTS

Procedures shall be established which will assure the quality of ETS program results, including analytical measurements. These procedures shall document the program in policy directives, designate responsible organizations or individuals, describe purchased services (e.g., contractual laboratory or other contract services), and provide for audits of results and procedures by licensee personnel. In addition, these quality assurance procedures shall provide for systems to identify and correct deficiencies in technical monitoring programs or related administrative activities, to investigate anomalous or suspect results, and to review and evaluate program results.

5.5.3 COMPLIANCE WITH PROCEDURES

In addition to the procedures specified in Subsection 5.5, the station standard operating procedures shall include provisions to ensure that each unit and all its systems and components are operated in compliance with the conditions established in these ETS.

5.5.4 CHANGES IN PROCEDURES, STATION DESIGN OR OPERATION

Changes in procedures, station design or operation as described in Technical Specifications sections 2 and 5 may be made subject to conditions described below, provided such changes are independently reviewed and approved by the appropriate management level and groups (as defined in Appendix A Tech Spec Section 6.0) prior to implementation. Changes to monitoring programs and special studies as described in Appendix B Technical Specifications Sections 3 and 4 may be made subject to the conditions described below, and must be reviewed and approved by the Environmental Controls Section prior to implementation.

- A. The licensee may (1) make changes in the station design and operation, (2) make changes in the procedures described in the document developed in accordance with Subsection 5.5.1, and (3) conduct tests and experiments not described in the document developed in accordance with Subsection 5.5.1, without prior Commission approval, unless the proposed change, test or experiment involves a change in the objectives of the ETS, an unreviewed environmental question, or affects the requirements of Subsection 5.5.5.
- B. A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated in the final environmental impact statements as modified by staff's testimony to the Atomic Safety and Licensing Board, supplements thereto, environmental impact appraisals, or in initial or final adjudicatory decisions; or (2) a significant change in effluents or power level as specified in § 51.5(b)(2); or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this section which may have a significant adverse environmental impact.
- C. The licensee shall maintain records of changes in procedures and in facility design or operation made pursuant to this Subsection, to the extent that such changes constitute changes in procedures as described in

the document developed in accordance with Subsection 5.5.1 and initially approved by the NRC. The licensee shall also maintain records of tests and experiments carried out pursuant to paragraph "A" of this Subsection. These records shall include a written evaluation which provides the bases for the determination that the change, test or experiment does not involve an unreviewed environmental question of substantive impact or constitute a change in the objectives of these ETS, or affects the requirements of Subsection 5.5.5 of these ETS. The licensee shall furnish to the Commission, annually or at such shorter intervals as may be specified in the license, a report containing descriptions, analyses, interpretations, and evaluation of such changes, tests and experiments.

- D. Changes in program description document developed in accordance with Subsection 5.5.1 which affect sampling frequency, location, gear, or replication shall be reported to the NRC within 30 days after their implementation, unless otherwise reported in accordance with Subsection 5.7.2. These reports shall describe the changes made, the reasons for making the changes, an evaluation of the environmental impact of these changes, and the statement required under the provisions of Subsection 5.5.5.

5.5.5 CONSISTENCY WITH INITIALLY APPROVED PROGRAMS

Any modifications or changes of the initially approved program descriptions developed in accordance with Subsection 5.5.1 shall be governed by the need to maintain consistency with previously used procedures so that direct comparisons of data are technically valid. Such modifications or changes shall be justified and supported by adequate comparative sampling programs or studies demonstrating the comparability of results or which provide a basis for making adjustments that would permit direct comparisons.

These demonstrations of comparability shall be submitted to the NRC in accordance with the provisions of Subsections 5.5.4 and 5.6.1.

5.5.6 NRC AUTHORITY TO REQUIRE REVISIONS

The NRC may require modifications or revisions in the program description document developed in accordance with Subsection 5.5.1 or require modification or revisions of changes made by the licensee in accordance with Subsection 5.5.4, as a result of NRC reviews of the results of these programs, if such modifications or revisions are judged necessary to maintain consistency with the initially approved programs or with the intent of these ETS. The NRC may also require modifications or revisions of procedures and programs as a result of changes in station operation or changes in environmental conditions or concerns associated with station operation.

5.6 STATION REPORTING REQUIREMENTS

5.6.1 ROUTINE REPORTS

A. (1) ANNUAL ENVIRONMENTAL OPERATING REPORT PART A NONRADIOLOGICAL

A report on the environmental monitoring programs for the previous calendar year shall be submitted to the NRC as a separate document by May 1 of each year. The period of the first report shall begin with the date of initial criticality subsequent to issuance of the

operating license. The report shall include summaries, analyses, interpretations, and statistical evaluation of the results of the environmental monitoring required by the nonradiological environmental monitoring activities (Section 3), and the special studies and requirements (Section 4) for the report period, including a comparison with preoperational studies, operational controls (as appropriate) and previous environmental monitoring reports, and an assessment of the observed impacts of the station operation on the environment. If harmful effects or evidence of irreversible damage are suggested by the monitoring or special programs, the licensee shall provide a more detailed analysis of the data and a proposed course of action to alleviate the problem.

The Annual Report shall also include a summary of:

- 1) All ETS noncompliances and the corrective actions taken to remedy them.
- 2) Changes made to state and federal permits and certification.
- 3) Changes made to the Environmental Program Description Document.
- 4) Changes in station design which could involve an environmental impact or change the findings of the FSFES.
- 5) All nonroutine reports submitted per ETS Section 4.6.
- 6) Changes in ETS.

A.(2) ANNUAL ENVIRONMENTAL OPERATING REPORT PART B RADIOLOGICAL*

Routine Radiological Environmental Operating Reports covering the operation of the unit during the previous calendar year shall be submitted to the Commission prior to May 1 of each year.

The Annual Radiological Environmental Operating Reports shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies, with operational controls as appropriate, and with previous environmental surveillance reports, and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of land use censuses required by Specification 3.2.2.

The Annual Radiological Environmental Operating Reports shall include the summarized tabulated results of analysis of all radiological environmental samples and environmental radiation measurements required by Table 3.2-1 taken during the period pursuant to the locations specified in the Table and Figures in the ODCM in a format similar to the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual

*A single submittal may be made for a multiple unit station.

results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

The reports shall also include the following: a summary description of the radiological environmental monitoring program; a map(s) of all sampling locations keyed to a table giving distances and directions from a point that is midway between the Reactor Buildings of TMI-1 and TMI-2; the results of licensee participation in the Interlaboratory Comparison Program, required by Specification 3.2.3; discussion of all deviations from the sampling schedule of Table 3.2-1; discussion of all the required analyses in which the LLD required by Table 3.2-2 was not achievable.

B. DATA REPORTING FORMATS

Results of analysis of all nonradiological environmental data collected in accordance with Section 3.2 shall be summarized and tabulated on an annual basis. In the event that some results are not available by May 1, the report shall be submitted noting and explaining the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

C. QUARTERLY RADIOLOGICAL RELEASES AND ESTIMATED DOSE REPORT

The following information shall be submitted to the Regional Administrator. This information shall be submitted on a calendar quarter basis (January-March, April-June, July-September, and October-December) and shall be submitted no later than 60 days following the end of each calendar quarter.

- (1) Estimates of the amounts and types of radioactivity that were released to the environment during the quarter and during the calendar year. This shall include estimates of the total activity of each nuclide and time rate of release of each nuclide.
- (2) Estimates of population and maximum individual doses which occurred during the calendar quarters and during the calendar year shall be provided. The estimates shall be based on actual hydrological and meteorological conditions which occurred during the releases. Calculational methods shall be those of U.S. NRC Regulatory Guides 1.109 (Revision 1, October 1977), 1.111 (Revision 1, July 1977), 1.112 (Revision 0-R, April 1976) and 1.113 (Revision 1, April 1977). These calculations shall be based on estimates of actual population distributions during the releases and shall take into consideration factors such as boating or fishing recreation.

5.6.2 NONROUTINE REPORTS

A report shall be submitted in the event that a "Limiting Condition for Operation" (Section 2), if applicable, is exceeded or if an "Exceptional Occurrence" as specified in Section 4.6 occurs. Report shall be submitted under one of the report schedules described below.

5.6.2.a PROMPT REPORT

Those events specified as prompt report occurrences shall be reported within 24 hours by telephone, telegraph, or facsimile transmission to the NRC followed by a written report to the NRC within 30 days.

5.6.2.b THIRTY DAY EVENT

Nonroutine events not requiring a prompt report as described in Subsection 5.6.2.a, shall be reported to the NRC either within 30 days of their occurrence or within the time limit specified by the reporting requirement of the corresponding certification or permit issued pursuant to Sections 401 or 402 of PL 92-500, whichever time duration following the nonroutine event shall result in the earlier submittal.

5.6.2.c CONTENT OF NONROUTINE REPORTS

Written 30-day reports and, to the extent possible, the preliminary telephone, telegraph, or facsimile reports shall (a) describe, analyze, and evaluate the occurrence, including extent and magnitude of the impact, (b) describe the cause of the occurrence, and (c) indicate the corrective action (including any significant changes made in procedures) taken to preclude repetition of the occurrence and to prevent similar occurrences involving similar components or systems.

5.7 CHANGES IN ENVIRONMENTAL TECHNICAL SPECIFICATIONS AND PERMITS

5.7.1 CHANGE IN ENVIRONMENTAL TECHNICAL SPECIFICATIONS

Request for changes in environmental technical specifications shall be submitted to the NRC for review and authorization per 10 CFR 50.90. The request shall include an evaluation of the environmental impact of the proposed change and a supporting justification. Implementation of such requested changes in ETS shall not commence prior to incorporation by the NRC of the new specifications in the license.

5.7.2 CHANGES IN PERMITS AND CERTIFICATIONS

Changes or addition to required Federal, State, local, and regional authority permits and certificates for the protection of the environment that pertain to the requirements of these ETS shall be reported to the NRC within 30 days. In the event that the licensee initiates or becomes aware of a request for changes to any of the water quality requirements, limits or values stipulated in any certification or permit issued pursuant to Sections 401 and 402 of PL-92-500 which is also the subject of an ETS reporting requirement, NRC shall be notified concurrently with the authorizing agency. The notification to the NRC shall include an evaluation of the environmental impact of the revised requirement, limit or value being sought.

If, during NRC's review of the proposed change, it is determined that a potentially severe environmental impact could result from the change, the NRC will consult with the authorizing agency to determine the appropriate action to be taken.

5.8 RECORDS RETENTION

Records and logs relative to the following areas shall be made and retained throughout the term of the operating license. These records and logs shall be made available to NRC on request.

- a. Records and drawing changes detailing station and unit design changes made to systems and equipment which could potentially affect the environment.
- b. Records of all data from environmental monitoring, surveillance and study activities required by these environmental technical specifications.