

Proposed TMI-2

Appendix B ETS

3.0 Environmental Monitoring
3.1 Nonradiological Monitoring

A. Initiation and Duration of Monitoring Programs

The aquatic environmental monitoring programs described in this Section shall commence as specified under each program and continue until modified or terminated as provided for in Subsection 5.7.1 of the ETS. The environmental monitoring requirements shall become effective as of January 1, 1983. In general, it is anticipated that the biological and field water quality programs will continue until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is complete. Modifications of the ETS or programs may be proposed at any time with appropriate justification in accordance with 10 CFR 50.90.

B. Delays in Sample Collection

If offsite sample collection cannot be undertaken on the scheduled date (plus or minus the number of days allowed by the appropriate sampling frequency definitions) due to adverse weather conditions or for other justifiable reasons, the factual basis shall be recorded and collections shall commence on the first practical date following the scheduled date.

- 3.1.1 Abiotic
- 3.1.1.a Aquatic
- 3.1.1.a.(1) Thermal Characteristics of Cooling Water Discharge

Environmental Monitoring Requirement

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3.1.1.a.(2) pH

Environmental Monitoring Requirement

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3.1.1.a.(3) Biocide

Environmental Monitoring Requirement

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3.1.1.a.(4) Water Quality Analysis

Environmental Monitoring Requirement

Information on the physical and chemical characteristics of the Susquehanna River at the times and sampling locations of the Aquatic Biotic Monitoring Program of ETS Subsection 3.1.2.a. shall be collected in the vicinity of the Three Mile Island Nuclear Station.

The following physical and chemical characteristics of the Susquehanna River shall be measured at the times and sampling locations of the Benthic Macroinvertebrates survey of these ETS Subsection 3.1.2.a(1)(a).

Temperature
pH
Dissolved Oxygen
Total Dissolved Solids

The following physical and chemical characteristics of the Susquehanna River shall be measured at the times and sampling locations of the General Ecological Survey of these ETS Subsection 3.1.2.a(1): temperature, pH, dissolved oxygen.

All samples shall be collected and all analyses shall be performed in accordance with the procedures prepared by the licensee in accordance with Section 5.5.

The collection of samples shall coincide to the extent practicable with biological sampling at the same location. This monitoring program shall commence January 1, 1983 and shall continue until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is complete.

Action

The results of the monitoring conducted under this program shall be summarized, analyzed, interpreted and reported in accordance with Subsection 5.6.1. The licensee shall indicate for each parameter the date of sampling, the sampling location, the concentration measured, depth of sample, and method of analysis used.

Bases

Examination of the water quality, at the times and locations used for the aquatic biological investigations will yield data required for the evaluation of trends and unusual occurrences that may be suggested by the biological observations.

3.1.1.a.(5) Chemical Release Inventory

Environmental Monitoring Requirement

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- 3.1.2 Biotic
- 3.1.2.a Aquatic
- 3.1.2.a.(1) General Ecological Survey
- 3.1.2.a.(1)(a) Benthic Macroinvertebrates

Environmental Monitoring Requirement

The benthic macroinvertebrates shall be sampled to detect and assess the significance of changes in species composition, distribution, and abundance as related to Three Mile Island Nuclear Station (TMINS). This program shall be used as a baseline, a consolidation of the data relating to macroinvertebrates gathered by the Licensee's consultants through December 30, 1982.

All samples shall be collected and all analyses shall be performed in accordance with the Procedures prepared by the licensee as per Section 5.5.

This monitoring program shall commence January 1, 1983 and continue until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is complete. Approval for modification or termination of this monitoring requirement may be obtained from NRC in accordance with Subsection 5.7.1

Action

Description of the program, results, and interpretative analyses of environmental impacts shall be reported per the routine report schedule of Subsection 5.6.1. Results reported shall contain information encompassing but not be limited to: sample date; station number; depth of the sample in meters; gear type used; substrate type (expressed in general terms); sample size (area size sampled in m²); species or taxon; the estimated or actual number of each taxon in the sample; the relative abundance of each taxon.

Bases

The environmental assessment made in the FES-OL of 1972 (Section V.C.2) and the Supplement to the FES-OL of 1976 (Section 5.5.2.3) determined that impacts to the benthos of Lake Frederic area (York Haven Reservoir) of the Susquehanna River may result from the operation of Three Mile Island Nuclear Station. The Atomic Safety and Licensing Board determined in its Initial Decision, dated December 20, 1977, (page 80 ff.) that the program to monitor the benthic macroinvertebrates should continue for at least three years following the onset of Unit 2 operation. This requirement

has been completed without evidence of significant, adverse impacts to the benthos from the operation of Unit 1, the combined operations of Unit 1 and Unit 2, the accident at Unit 2, or the post accident shut-down modes of Unit 1 and Unit 2. However, the sampling of benthos in the vicinity of TMINS should continue until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is complete.

Because benthic organisms are sedentary and cannot "avoid" adverse conditions, they are useful indicators of water quality and environmental change. Thus, should the decision be made to discharge the processed water, this program will provide information necessary for the evaluation of the effects of the discharge on the benthic macroinvertebrates of the Susquehanna River.

3.1.2.a.(1)(b) IchthyoplanktonEnvironmental Monitoring Requirement

The ichthyoplankton shall be sampled to detect and assess the significance of changes in species composition, relative abundance, density, and seasonal and spatial distribution as related to TMINS. All samples shall be collected and all analyses shall be performed in accordance with the Procedures prepared by the licensee as per Section 5.5.

This monitoring program shall commence on January 1, 1983 and continue until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is completed. Approval for modification or termination of this monitoring requirement may be obtained from the NRC in accordance with Subsection 5.7.1.

Action

Description of the program, results, and interpretative analysis of environmental impacts shall be reported as per the routine report schedule of Subsection 5.6.1.

Results reported shall contain information encompassing but not limited to: sampling date; station number; depth of the sample in meters; species or taxon; life stage of the specimens; and No/100 m³ (the estimated number of organisms per 100 cubic meters of water filtered or pumped).

Bases

The environmental assessments made in the FES-OL of 1972 (Section V.C.2) and the Supplement of the 1976 (Section 5.5.2.2) determined that impacts to the ichthyoplankton of Lake Frederic may result from the operation of Three Mile Island Nuclear Station. The Atomic Safety and Licensing Board determined in its Initial Decision, dated December 20, 1977, (Page 80 ff.) that the program to monitor the possible impacts to fish should continue for at least three years following the onset of Unit 2 operation. Combined far-field and entrainment studies have been conducted during (1) the operation of TMI-1, (2) the operation of TMI-1 and TMI-2, (3) the accident at TMI-2, and (4) the post-accident shut-down period of TMI-1 and TMI-2. All studies have indicated that no significant, adverse impacts resulted from the activities at the TMINS.

However, the monitoring of larval fish should continue in the vicinity of TMINS until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is complete.

This program will provide a continuance of the data base necessary to evaluate the effects of discharging the processed water into the Susquehanna River, should such a discharge occur.

3.1.2.a.(1)(c) FishEnvironmental Monitoring Requirement

The ichthyofauna shall be sampled to detect and assess the significance of changes in species composition, relative abundance and, seasonal and spatial distribution, as related to TMINS.

All samples shall be collected and all analyses shall be performed in accordance with the Procedures prepared by the licensee per Section 5.5. Data will be collected by methods appropriate for statistical analysis in the form of catch-per-unit-effort. Additionally creel surveys shall be continued.

This monitoring program shall commence on January 1, 1983 and continue until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is complete. Approval for modification or termination of this monitoring requirement may be obtained from NRC in accordance with Subsection 5.7.1.

Action

Description of the program, results, and interpretative analyses of environmental impacts shall be reported per the routine report schedule of Subsection 5.6.1.

Results reported shall contain information encompassing but not limited to: sampling date; station number; depth of the sample in meters; sampling gear type used; duration of sampling (minutes); species or taxon; the actual or estimated number of each taxon collected in the sample; length frequencies (number 5mm intervals); and mean weight (grams) for all specimens in each length interval. If a significant deviation from preoperational conditions is discovered, the reasons for the deviation shall be determined.

The environmental assessments made in the FES-OL of 1972 (Section V.C.2) and the supplement to the FES-OL of 1976 (Section 5.2.2.1) determined that impacts to the fish populations of Lake Frederic may result from the operation of Three Mile Island Nuclear Station because of impingement of adult and juvenile fishes and the entrainment of fish eggs and larvae. The Atomic Safety and Licensing Board determined in its Initial Decision, dated December 20, 1977, (page 80 ff.) that the program to monitor the possible impacts to fish should continue for at least three years following the onset of Unit 2 operation.

Studies of adult and juvenile fish populations have been conducted during (1) the operation of Unit 1, (2) the operation of Unit 1 and Unit 2, (3) the accident of Unit 2, and (4) the post accident shut-down period of Unit 1 and Unit 2. All studies have indicated that no significant adverse impacts resulted from activities at the TMINS. However, monitoring of adult fish in the vicinity of TMINS should continue until the method of disposal of the processed water is decided or, if that decision is to discharge to the Susquehanna River, until such discharge is complete.

This program will provide a continuance of the data base necessary to evaluate the effects of discharging the processed water into the Susquehanna River, should a discharge occur.

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3.1.2.a.(2) Impingement of Organisms

Environmental Monitoring Requirement

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3.1.2.a.(3) Entrainment of Ichthyoplankton

Environmental Monitoring Requirement

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Eases

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- 4.0 Special Studies and Requirements
- 4.1 Residual Chlorine Study Program

Requirement

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4.2 Thermal Plume Mapping

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4.3 Hydraulic Effects

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4.4 Erosion Control Inspection

Requirements

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4.5 Herbicide Applications

Requirements

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Eases

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