APPENDIX B

TO FACILITY OPERATING LICENSE NO. DPR-

WATTS BAR NUCLEAR PLANT

UNITS 1 AND 2

TENNESSEE VALLEY AUTHORITY

DOCKET NOS. 50-390 AND 50-391

ENVIRONMENTAL TECHNICAL SPECIFICATIONS

(NON-RADIOLOGICAL)

WATTS BAR NUCLEAR PLANT

UNITS 1 AND 2

ENVIRONMENTAL TECHNICAL SPECIFICATIONS

(NON-RADIOLOGICAL)

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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.

Annually: Annually is once per calendar year at intervals of twelve calendar months ± 30 days.

Biweekly: Once during each two calendar week period at intervals of 14 days ± 4 days.

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.

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.

Monthly: Monthly is once during every calendar month at intervals of 30 days ± 6 days.

Normal Operation: Operation of either unit at the station at greater than 5% of rated thermal power in other than a safety or power emergency situation.

NPDES Permit: NPDES permit is the National Pollutant Discharge Elimination System Permit No. TN 0020168 issued by the U.S. Environmental Protection Agency to the Tennessee Valley Authority (TVA). This permit authorizes TVA to discharge controlled waste water from the Watts Bar Nuclear Plant Units 1 & 2, into the Tennessee River.

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

Site: Onsite includes any area within the property owned by the TVA specifically described in their Watts Bar EIS, Section 1.1. Offsite includes all other areas.

Station: Station refers to Watts Bar Nuclear Plant Units 1 and 2.

Twice Quarterly: Twice during each successive 3-month period of the calendar year, counting from January 1 at intervals of 45 days ± 7 days.

Twice Yearly: Once during each successive six month period of the calendar year, counting from January 1 at intervals of 26 weeks ± 14 days.

USEPA: United States Environmental Protection Agency, an agency of the United States Government.

Weekly: Weekly is once during each calendar week at intervals of 7 days ± 2 days.

2.0 Limiting Conditions for Operation

2.1 Nonradiological Limits

Not Applicable

3.0 Environmental Monitoring

3.1 Nonradiological Monitoring

A. Initiation and Duration of Monitoring Programs

The 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 5.6.1 of these ETS. The environmental monitoring requirements shall become effective as of the date that the operating license is issued. In general, it is anticipated that those programs implemented by in-plant monitoring will continue throughout the operating life of the station. The duration of the programs will depend upon their results and the station operating history. Modifications of the ETS or programs may be proposed at any time with appropriate justification in accordance with 10 CFR 50.90.

B. Missed Samples

Deviations are permitted from the required monitoring programs if samples are accidentally spilled or contaminated or if samples are unobtainable due to hazardous conditions, seasonal unavailability or malfunction of equipment. If the latter condition exists every effort shall be made to complete corrective action prior to the end of the next sampling period. All deviations from the sampling schedule shall be documented in the Annual Environmental Operating Report in accordance with Section 5.5.1.

3.1.1 Abiotic

None at the present time.

3.1.2. Biotic

3.1.2.a Terrestrial

3.1.2.a.1. Aerial Remote Sensing

Enviromental Monitoring Requirement

Vegetation communites of the site and vicinity shall be aerially photographed annually to detect and assess the significance of damage, or lack thereof, as related to cooling tower drift dispersions. Photography shall be done by aerial overflight during late summer or early fall. Timing of aerial photography and determination of ground truth shall be selected to coincide with periods of maximum predicted drift deposition damage.

Monitoring shall be in accordance with the procedures prepared by the licensee per Section 5.4 and shall include a program of low altitude false color aerial photography (either color infrared photography or multispectral or multiband photography). The scale for full coverage shall be adequate to enable identification of vegetative damage over relatively small areas of terrain. Some circumstances may warrant inspection of photographs descerning individual trees. Such scale should be in the interval between 1:1000 and 1:12,000 as appropriate to resolve impacted features.

Photographic interpretations shall correlate data from ground truth from ground inspection surveys with areas of stress and non-stress as seen on the photographs for purposes of verification of results and interpretation. Ground truth surveys shall cover, but not be limited to, the first two years of the aerial photographic monitoring program. This surveillance program shall commence at initial attainment of normal operation of Unit 1 or Unit 2, whichever comes first, and shall be continued for at least

two years. At the end of two years the licensee may request modification or termination of this monitoring requirement per Subsection 5.6.1.

Action

Description of the program, results, and interpretive analyses of environmental impacts shall be reported in accordance with Section 5.6.1. Results reported shall contain information encompassisng but not limited to; sampling data; time of day; film types; spectral bands; and one (1) set of resultant color transparencies encompassing an area within approximately a one kilometer (1 km) radius of the Unit 1 and 2 towers to be filed with the Office of Nuclear Reactor Regulation.

Bases

Although adverse effects due to cooling tower drift are not expected at the site, FES Section 5.4.1 indicates that only limited experience is available and that a monitoring program be undertaken.

The environmental monitoring requirements will provide necessary information to assess the effects of cooling tower salt deposition on vegetation.

4.0 Special Studies and Requirements

4.1 Exceptional Occurrences

4.1.1 Unusual or Important Environmental Events

Requirements

The licensee shall record any occurrence of unusal or important events. Unusual or important events are those that potentially could cause environmental impact causally related with station operation. The following are examples: excessive bird impaction events; onsite plant or animal disease outbreaks; unusual mortality of any species protected by the Endangered Species Act of 1973; fish kills near or downstream of the site; unanticipated or emergency discharges of waste water or chemical substances.

This special requirement shall commence with the date of issuance of the operating license and continue until approval for modification or termination is obtained from the NRC in accordance with Subsection 5.6.1.

Action

Should an unusual or important event occur, the licensee shall make a prompt report to the NRC in accordance with the provisions of Subsection 5.5.2.a and 5.5.2.c.

Bases

Prompt reporting to the NRC of unusual or important events as described above is necessary for responsible and orderly regulation of the nation's system of nuclear power reactors. Prompt knowledge and action may serve to alleviate the magnitude of the environmental impact or to place it into a perspective broader than that available to the licensee. The information thus provided may be useful or necessary to others concerned with the same environmental resources. NRC also has an obligation to be responsive to inquiries from the public and the news media concerning potentially significant environment events at nuclear power stations.

4.1.2 Exceeding Limits of other Relevant Permits

Requirements

The licensee shall notify the NRC of occurrences of exceeding the limits specified in relevant permits and certificates issued by other Federal, State and local agencies which are reportable to the agency which issued the permit. This requirement shall apply only to topics of NEPA concern within the NRC area of responsibility as identified in these Environmental Technical Specifications. (Permits and certificates for which these requirements apply are listed in the Environmental Program Description Document prepared by the licensee per Section 5.4.2.)

This requirement shall commence with the date of issuance of the operating license and continue until approval for modification or termination is obtained from the NRC in accordance with Subsection 5.6.1.

Action

The licensee shall make a report to the NRC in accordance with the provisions of Subsection 5.5.2.b and 5.5.2c in the event of a reportable occurence of exceeding a limit specified in a relevant permit or certificate issued by another Federal, State or local agency.

Bases

NRC is required under NEPA to maintain an awareness of environmental impacts causally related with the construction and operation of facilities licensed under its authority. Further, some of the ETS requirements are couched in terms of compliance with relevant permits (such as the NPDES) issued by other licensing authorities. The reports of exceeding limits of relevant permits also alert the Staff to environmental problems that might require mitigative action.

4.2 Transmission Line Right-Of-Way

4.2.1 Herbicide Application

Requirements

The use of herbicides to control undesirable vegetation within the corridor rights-of-way associated with the station shall conform to the approved use of selected herbicides as registered by the Environmental Protection Agency and approved by state authorities and applied as directed by said authorities. Reporting requirements shall apply only during the period of herbicide applications for those corridor rights-of-way associated with the station. Reporting requirements shall be in accordance with the procedures prepared by the licensee per Section 5.4. These procedures shall ensure that areas specifically designated for protection and restriction from herbicide application have not been sprayed and that accidents such as spills have been documented and cleaned up to the extent practicable.

This special requirement shall apply only to transmission corridors associated with the station. This program shall commence upon initiation of any herbicidal application program and continue until approval for modification or termination of this monitoring requirement is obtained from NRC in accordance with Subsection 5.6.1.

Action

The annual report in accordance with Subsection 5.5.1 should include a statement as to whether herbicides were used. If herbicides were used, the licensee shall report results containing information encompassing but

not limited to: types; concentration of active material; rates of application; method and frequency of application; location; and the date of application.

Bases

This program will provide information to the staff concerning herbicide applications and document conformance with current Federal and State regulations (FES-OL, Section 6 3.6.3).

4.3 Sound Level Survey

Requirement

Surveys shall be conducted to quantify the ambient and operational sound levels that exist at various locations around the site.

The surveys shall be conducted in accordance with the Procedures prepared by the licensee in accordance with Section 5.4, as follows:

a. during the time period when outdoor construction activity has ended, but prior to startup of the facility (pre-operational phase);

b. during the operational phase of the facility, when the cooling towers are in full operation (operational phase).

Data shall be collected at several locations and at varying times during the diurnal cycle at each location such that the energy equivalent sound levels for both the daytime and nighttime periods may be determined for both the pre-operational and operational phases. Analyses shall include the identification of pure tones, if any, emanating from plant equipment during the operational phase.

The selection, calibration, and use of equipment, analysis and reporting of data shall conform to the provisions of the applicable American National Standards Institute Standards.

The conduct of the studies for both phases shall be similar such that the results of the two studies are comparable.

This special study program shall be completed within the first year of plant operation unless approval for modification is obtained from NRC as per Section 5.6.1.

Action

The results of the study conducted under this program shall be summarized, analyzed, interpreted and reported in accordance with Section 5.5.1. The results shall include, for each sampling location during both the preoperational and operational phases surveys, the daytime and nighttime equivalent sound levels, the background and intrusion sound levels (i.e., the L_{90} and L_{10}, the sound levels exceeded 90% and 10% of the time, respectively), and the

range of sound levels recorded. A description of the pure tones found, if any, and their sources shall also be included in the results.

Bases

The results of this special study will provide the operational sound level information which will consider these effects and will form the basis for an impact appraisal.

5.0 Administrative Controls

5.1 Responsibility

A. Plant

The station superintendent has responsibility for operating the plant in compliance with these technical specifications.

B. Corporate

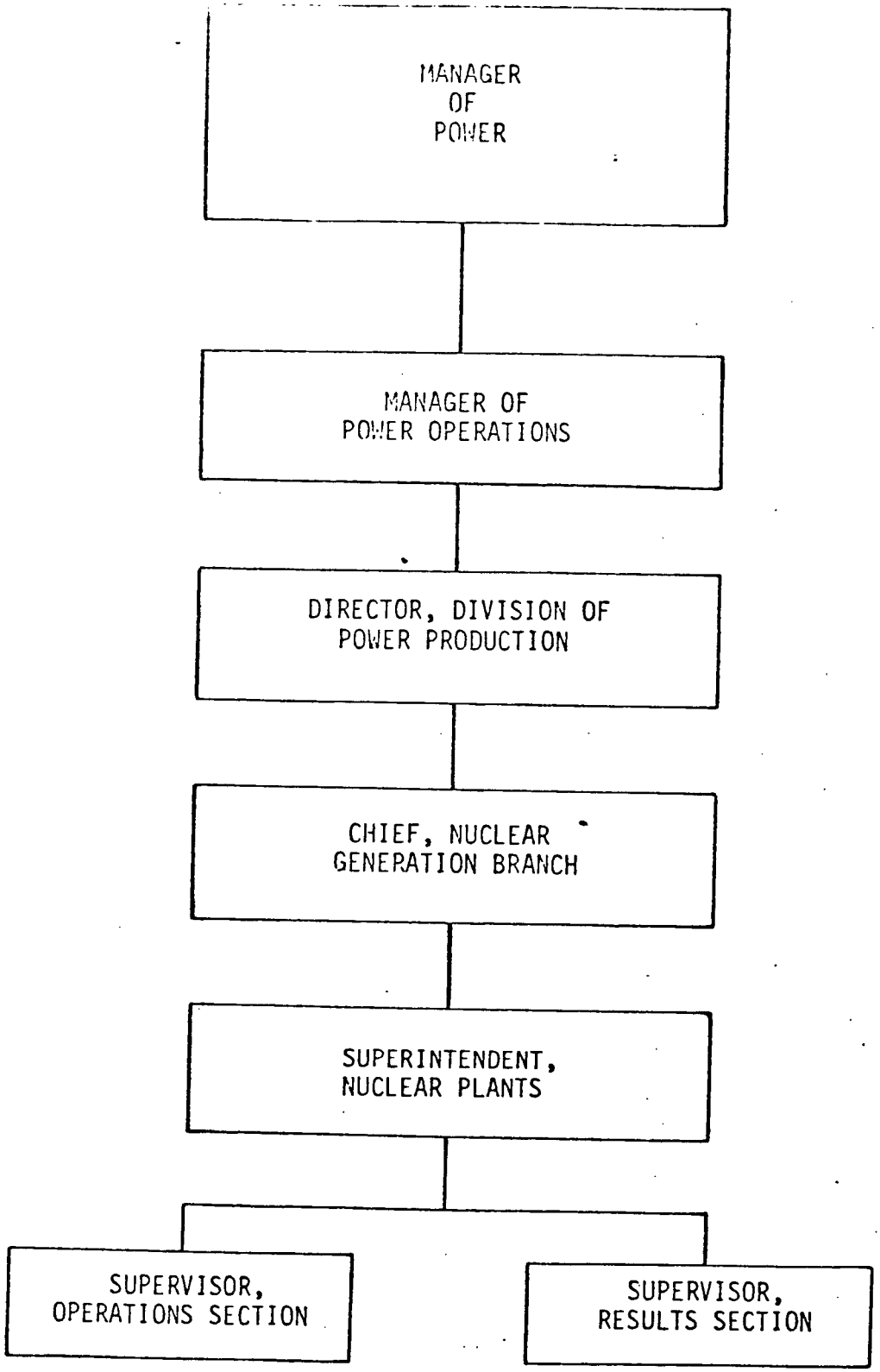
The Director, Environmental Compliance, has responsibility for assuring implementation of the environmental technical specifications and assuring that plant operational procedures provide continued protection of the environment.

C. Coordination

The Manager, Nuclear Regulation and Safety, has the responsibility for ensuring the coordination of environmental technical specifications with the safety technical specifications.

5.2 Organization

A. The organization of the TVA management which directly relates to operation of the plant is shown in Figure 5.2-1.



Watts Bar Nuclear Plant

TVA Office of Power
Organization for Operation
of Nuclear Plants

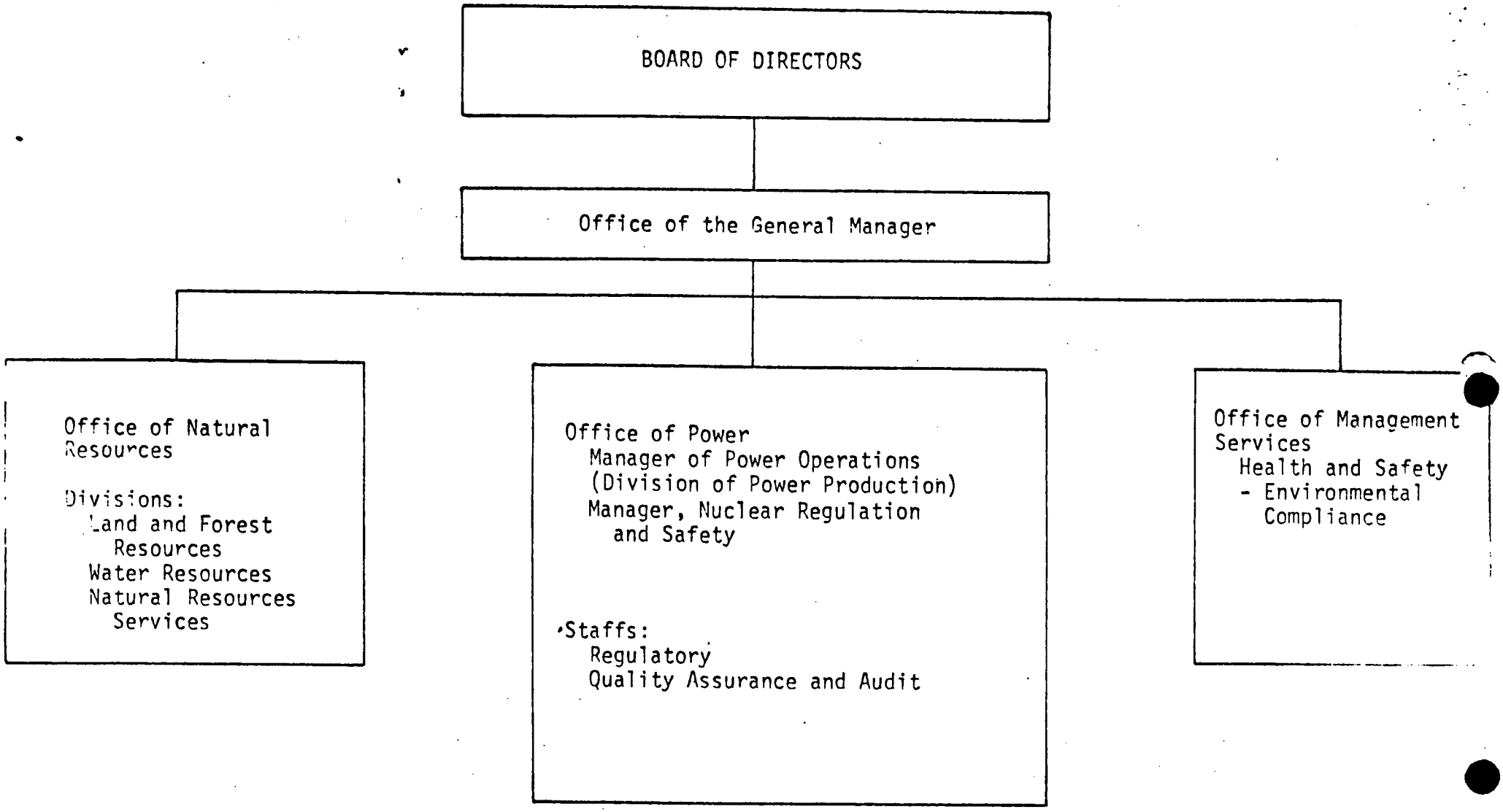
Figure 5.2-1

B. The principal organizations within TVA which are concerned with environmental matters related to nuclear power plant operations are the Office of Power, Office of Natural Resources, and the Office of Management Services. The Office of Power is directly responsible for operating the plant in accordance with specified requirements and conducting onsite monitoring. The Office of Natural Resources is responsible for providing technical guidance, assistance, monitoring, and other services as needed for environmental compliance. The Office of Management Services is responsible for independent review and audit of procedures for meeting environmental specifications and limits. The organization above report to the General Manager as shown in Figure 5.2.2.

C. Changes in organization depicted in Figures 5.2-1, and 5.2-2 may be implemented prior to NRC approval. Such changes shall be reported to NRC within 30 days of their occurrence in accordance with Subsection 5.5.2.b.

5.3 Review or Audit

The Office of Management Services is responsible for independent review and audit of procedures for meeting environmental specifications and limits. The Office of Power Quality Assurance and Audit Staff shall conduct an annual audit of the environmental monitoring program. Procedures for reviews and audits shall be in accordance with those described by the licensee per Section 5.4.



Watts Bar Nuclear Plant

Offices Directly or Indirectly Involved with Monitoring, Surveillance, or Report Aspects of Environmental Technical Specifications

Figure 5.2-2

The above mentioned reviews and audits shall encompass the following:

A. Coordination of Environmental Technical Specifications development with the Safety Technical Specifications to avoid conflicts and maintain consistency.

B. Proposed changes to the Environmental Technical Specifications and evaluated impact of the change.

C. Proposed written procedures, including the Environmental Program Description Document, as described in Section 5.4, and proposed changes thereto, which affect the environmental effects of the station.

D. Proposed changes or modifications to station or unit equipment, or systems which might have an environmental impact, in order to determine the environmental impact of the change.

E. All routine reports prior to their submittal to NRC (described in Subsection 5.5.1).

F. All nonroutine reports prior to submittal of the written report (described in Subsection 5.5.2).

G. Investigations of all reported instances of noncompliance with Environmental Technical Specifications, associated corrective actions, and measures taken to prevent recurrence.

H. Implementation of the Environmental Technical Specifications by the Office of Power, Office of Natural Resources and Office of Management Services.

5.4 Procedures

5.4.1 Station Standard Operating 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. Procedures relating to water quality shall be consistent with those established pursuant to the NPDES permit.

All "Station Standard Operating Procedures" shall be maintained in a manner and location convenient for review and inspection.

5.4.2 Environmental Program Description Document

Based on these procedures, the licensee shall prepare and follow an environmental program description document (EPDD) describing the programs that are required by the ETS. These program descriptions shall be approved by the NRC prior to final approval of these ETS and subsequent modifications to these programs shall be made by the licensee in conformance with Subsections 5.4.5 and 5.4.6.

The approved EPDD shall focus on the methodology for the environmental monitoring and special programs described in Section 2.1, 3.1, and 4, (as applicable), 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.

5.4.3 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.

5.4.4 Compliance with Procedures

In addition to the procedures specified in Section 5.4.1, 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.

5.4.5 Changes in Procedures, Station Design or Operation

Changes in procedures, station design or operation may be made subject to conditions described below, provided such changes are approved by the Station Superintendent or appropriate manager as specified in the procedures and reviewed by the Office of Management Services.

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 5.4.2, and (3) conduct tests and experiments not described in the document developed in accordance with Subsection 5.4.2, without prior Commission approval, unless the proposed change, test or experiment involves a change in the objectives of the ETS, an unreviewed environmental question of significant impact, or affects the requirements of Subsection 5.4.6.

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 statement 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) of 10 CFR 51; 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 5.4.2 and initially approved by the NRC. The licensee shall also maintain records of tests and experiments carried out pursuant to paragarph "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 5.4.6 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 evaluations of such changes, tests and experiments.

D. Changes in the program description document developed in accordance with Subsection 5.4.2 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 5.5.2. These reports shall describe the changes made, the reasons for making the changes, an evaluation of the effectiveness of the revised

program in assessing environmental impacts, and the demonstration required under the provisions of Subsection 5.4.6.

5.4.6 Consistency with Initially Approved Programs

Any modification or changes of the initially approved program descriptions developed in accordance with Subsection 5.4.2 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 provision of Subsections 5.4.5 and 5.5.1

5.4.7 NRC Authority to Require Revisions

The NRC may require modifications or revisions in the program description document developed in accordance with Subsection 5.4.2 or require modification or revisions of changes made by the licensee in accordance with Subsection 5.4.5, 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.

5.5 Station Reporting Requirements

5.5.1 Routine Reports

Annual Environmental Operating Report

A report on the environmental monitoring programs for the previous year shall be submitted to the NRC as a separate document within 90 days following each anniversary of issuance of the operating license. The period of the first report shall begin with the date of 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 non-radiological environmental monitoring reports, and an assessment of the observed impacts of the station operation on the environment. For those programs concerned with water quality or protection of aquatic biota this requirement shall be satisfied by submitting to the NRC copies of the reports to the USEPA required by the NPDES permit. In the event that some results are not available by the report due date, 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. If harmful effects or evidence of irreversible damage are suggested by the monitoring 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 applicable State and Federal permits and certifications.

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 FES-OL.

5. All nonroutine reports submitted per ETS Section 4.1.

6. Changes in ETS.

5.5.2 Nonroutine Reports

A report shall be submitted in the event that a "Limiting Condition for Operation" (Section 2), if applicable, is exceeded, a report level as specified in Section 3, "Environmental Monitoring," is reached (if applicable), an "Unusual or Important Environmental Event," as specified in Section 4.1

occurs, or if another relevant permit is violated as specified in Section 4.1.2. Reports shall be submitted under one of the report schedules described below.

5.5.2.a Prompt Report

Those events specified as requiring prompt reporting 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.

5.5.2.b Thirty Day Report

Nonroutine events not requiring a prompt report as described in Subsection 5.5.2.a, shall be reported to 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 "The Clean Water Act," whichever time duration following the nonroutine event shall result in the earlier submittal.

5.5.2.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, (c) indicate the action taken to correct the reported occurrence, and (d) indicate the corrective action taken (including any

significant changes made in procedures) to preclude repetition of the occurrence and to prevent similar occurrences involving similar components or systems.

5.6 Changes in Environmental Technical Specifications and Permits

5.6.1 Changes in Environmental Technical Specifications

Requests 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.

5.6.2 Changes in Permits and Certifications

Changes and additions to required Federal (other than NRC), 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 or 402 of the Clean Water Act which is also the subject of an ETS reporting requirement, NRC shall be notified within 30 days. If the proposed change is initiated by the licensee, the notification to the NRC shall include

an evaluation of the environmental impact of the revised requirement, limit or value being sought.

If a permit or certification, in part or in its entirety, is appealed and stayed, and if this causes water quality requirements of Sections 401 or 402 of the Clean Water Act to become nonapplicable, NRC shall be notified as described above. If, as a result of the appeal process, the 401 and 402 requirements are changed, the change shall be dealt with as described in the previous paragraph of this section.

5.7 Records Retention

Records and logs relative to station operation shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to NRC on request.

5.7.1 The following records shall be retained for the life of the station:

(a) Records of changes to the Environmental Program including, when applicable, records of NRC approval of such changes.

(b) Records of modifications to station structures, systems and components determined to potentially affect the continued protection of the environment.

(c) Records of changes to permits and certification required by federal (other than NRC), state, local and regional authorities for the protection of the environment.

(d) Routine reports submitted to the NRC.

5.7.2 The following records shall be retained for a minimum of six years:

(a) Records of review and audit activities.

(b) Events, and the reports thereon, which are the subjects of non-routine reports to the NRC.