

NO. CV-97-0575567-S

SUPERIOR COURT

ARTHUR J. ROCQUE, JR.,
COMMISSIONER OF
ENVIRONMENTAL PROTECTION

JUDICIAL DISTRICT OF
HARTFORD/NEW BRITAIN

v.

AT HARTFORD

NORTHEAST UTILITIES SERVICE
COMPANY, ET AL.

SEPTEMBER 22, 1998

MOTION FOR STIPULATED JUDGMENT

Whereas the plaintiff is the Commissioner of Environmental Protection of the State of Connecticut ("Commissioner") and is charged pursuant to Conn. Gen. Stat. § 22a-6 with enforcing statutes and regulations administered by him, including Conn. Gen. Stat. Ch. 446K governing water pollution control;

Whereas Defendant Northeast Nuclear Energy Company ("NNECO") is a Connecticut corporation engaged in business within the State of Connecticut;

Whereas Defendant Northeast Utilities Service Company ("NUSCO") is a Connecticut corporation engaged in business within the State of Connecticut;

Whereas NNECO operates facilities in the Town of Waterford, Connecticut, referred to as Units 1, 2, and 3 at the Millstone Nuclear Power Station;

Whereas the Commissioner of Environmental Protection brought suit on or about November 10, 1997 against NNECO and NUSCO (the "Complaint") for alleged violations of the laws and regulations of the State of Connecticut pertaining to the unauthorized treatment and/or discharge of pollutants to the waters of the State of Connecticut;

Whereas the parties agree that it is in the public interest to fully resolve the matters alleged in the Complaint and avoid protracted litigation;

ORAL ARGUMENT IS NOT REQUESTED
TESTIMONY IS NOT REQUIRED

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Now therefore, without any admission of law or fact, the parties stipulate that judgment shall and may enter as follows:

1. NNECO, in full settlement of the allegations set forth in the plaintiff's Complaint, shall pay a civil penalty of \$700,000 and shall fund Supplemental Environmental Projects ("SEPs") in the total amount of \$500,000 in accordance with the descriptions and allocations hereafter set forth.
 - a. Within 30 days of the entry of this Stipulated Judgment, NNECO shall pay a civil penalty of \$700,000 by check payable to "Treasurer, State of Connecticut." Payment shall be sent to the undersigned Assistant Attorney General Richard F. Webb for processing.
 - b. NNECO shall further pay \$240,000 for a SEP, as part of the civil penalty, to be used by the Environmental Research Institute in cooperation with the Connecticut Department of Environmental Protection for the continuation of collecting data at a state wide monitoring network for mercury (gaseous, particulate and wet) deposition and for nitrogen (wet and dry) deposition. Payment of the \$240,000 shall be made at a time and in the manner to be communicated to NNECO by the Commissioner of Environmental Protection.
 - c. NNECO shall further pay \$60,000 for a SEP, as part of the civil penalty, to be used by the Connecticut Department of Environmental Protection to delineate the Long Island Sound/Connecticut Airshed (Airshed/Watershed Modeling) through modeling the transport and transformations of nitrogen air pollutants from sources to Long Island Sound and its watersheds. Payment of the \$60,000 shall be made at a time and in the manner to be indicated to NNECO by the Commissioner of Environmental Protection.
 - d. NNECO shall further pay \$200,000 to the Sea Research Foundation, Inc. for a SEP, as part of the civil penalty, for the Sea Research Foundation, Inc.'s educational and other children's programs. Payment of the \$200,000 shall be made at a time and in the manner to be communicated to NNECO by the Commissioner of Environmental Protection after consultation with the Sea Research Foundation, Inc.
 - e. Neither NNECO nor NUSCO shall claim nor in any way receive a tax benefit for the payments made pursuant to this paragraph. In any advertising or public statements attributing sources of funding for the Supplemental Environmental Projects to NNECO, such

advertising or public statement must explicitly and permanently state that NNECO's contribution was made in partial settlement of a lawsuit for environmental violations brought by the State of Connecticut.

- f. In the event that any part of the allocated \$500,000 remains and funding is no longer required for the SEPs identified in paragraphs 1 (b-d), NNECO may suggest additional SEPs utilizing such funds to the Commissioner for his review and approval. If any remaining funds are not allocated to one or more additional SEP by December 31, 1999, then such remaining funds shall be paid as a civil penalty by check payable to the "Treasurer, State of Connecticut" on or before January 30, 2000.
2. NNECO claims, but the State of Connecticut has not independently verified, the following: The defendant NNECO has implemented and continues to implement changes to its environmental organization at Millstone Station. These changes are reflected in environmental initiatives developed to enhance Millstone Station's environmental management organization, oversight through audit and corrective action programs, environmental program initiatives, and training. The defendant NNECO has also implemented programs designed to provide a process which encourages employees to report environmental and other concerns. A more detailed description of those initiatives already implemented or to be implemented is attached hereto as Exhibit 1.
3. NNECO, in Exhibit 1, has indicated which initiatives have not already been implemented and agrees to implement those programs. From entry of this Stipulated Judgment until all Audits and the Review, as both are defined and required pursuant to Paragraphs 5 through 10 below, have

been conducted, NNECO agrees to notify the Commissioner of Environmental Protection, in writing, at least thirty (30) days prior to making any of the "potentially significant changes" (which are expressly identified and defined in Exhibit 1) to these initiatives, unless another time period is agreed to by the Commissioner. The Commissioner may, at his discretion, provide written comment on the planned changes.

4. From entry of this Stipulated Judgment until the Audits and the Review required pursuant to Paragraphs 5 through 10 below have been conducted, the Commissioner may, at his discretion, recommend changes and/or additions to the environmental initiatives described in Exhibit 1. Within thirty (30) days of receipt by NNECO, or such greater period of time which may be agreed to by the Commissioner, NNECO will respond in writing to the Commissioner's written recommendations. NNECO's response will state the extent to which it will or will not make the Commissioner's recommended change(s) and/or addition(s).
5. In order to monitor the effectiveness of the various programs set forth in Exhibit 1 and confirm that any violations of the type set forth in the plaintiff's complaint have been adequately addressed, NNECO shall implement the NPDES Audit and Review program described in

paragraphs 6 through 10 below. The NPDES Audits required to be conducted shall be performed by NNECO in accordance with Exhibit 2 attached hereto.

6. NNECO, within forty-five (45) days of the entry of this Stipulated Judgment and, in any event, no later than November 30, 1998, shall submit in writing the names of qualified outside consultant candidates (the "Candidates") for the review and approval of the Commissioner. The submittal shall identify any prior or existing relationships between the Candidates and NNECO, its parent, subsidiaries, and/or affiliates. Within thirty (30) days of receipt, the Commissioner shall notify NNECO in writing of DEP's acceptance or rejection of each Candidate. In the event the Commissioner does not approve of more than one Candidate, NNECO, within 45 days of receipt of the Commissioner's notification of his approval or rejection of the Candidates submitted, may, at its option, propose additional Candidates for the Commissioner's review and approval. Within thirty (30) days of receipt of the second list of Candidates, the Commissioner shall notify NNECO in writing of DEP's acceptance or rejection of the second list of Candidates.
7. Within sixty (60) days of the completion of the acceptance procedure set forth in Paragraph 6 above, NNECO shall retain a Candidate ("Consultant").

8. Within thirty (30) days of NNECO's retention of the Consultant, NNECO agrees to have the Nuclear Oversight, Audits and Evaluations Organization identified in Exhibit 1, initiate an audit of Millstone Station's current and ongoing compliance, with the terms and conditions of its NPDES permit, including any state laws and regulations applicable thereto and wastewater discharges from Millstone Station and its operations ("the Audit"). For the sole purpose of observing the conduct of the Audit by the Nuclear Oversight, Audits and Evaluations Organization, the Consultant will be present for the performance of the Audit at Millstone Station. The final Audit report shall be provided to the Commissioner within fifteen (15) days of the report's completion and, in any event, no later than seventy-five (75) days after the initiation of the audit. The Commissioner shall provide to NNECO in writing any comments on the Audit within sixty (60) days of his receipt of the Audit.
9. Within thirty (30) days of receipt of comments from the Commissioner regarding the Department's review of the Audit performed pursuant to paragraphs 5 and 8 above, NNECO shall submit, for the Commissioner's review and approval, a schedule for the Consultant's performance of a review of the written protocols used by the Nuclear Oversight, Audits and Evaluations Organization in the conduct of the Audit ("Review"). The Review will evaluate the adequacy of the written protocols to perform the Audit and also assess the adequacy of NNECO's

Corrective Action Program in addressing compliance issues identified by the Audit.

Additionally, the Review may identify any matter or matters observed by the Consultant during the performance of the Audit which the Consultant, in its discretion, believes contributes to the NNECO audit process. The Consultant shall deliver a final written summary of its Review to the Commissioner and NNECO within thirty (30) days of completion of the Review. The Commissioner shall respond to NNECO in writing with any comments on the Review summary within thirty (30) days of receipt of the Review summary.

10. NNECO further agrees that the Nuclear Oversight, Audits and Evaluations Organization identified in Exhibits 1 and 2 (or an alternate NNECO organization, if approved by the Commissioner) will conduct a second Audit within six (6) months of receipt from the Commissioner of any comments on the Review summary provided pursuant to paragraph 8 above or by November 1, 1999, whichever is later. A final Audit report prepared in conjunction with the second audit shall be submitted to the Commissioner within thirty (30) days of its completion and, in any event, no later than seventy-five (75) days after the initiation of the audit.
11. Should there be circumstances identified during either of the Audits performed by the Nuclear Oversight, Audits and Evaluations Organization pursuant to Paragraphs 8 and 10 above that must

be reported under its current NPDES Permit and then existing statutes and/or regulations dealing with water discharges, spills and releases, NNECO understands that it is obligated to comply fully with those reporting requirements.

12. The Commissioner of Environmental Protection may, at any time, take any and all legal, administrative, equitable or other action as provided by the Connecticut General Statutes, as amended, or the Regulations of Connecticut State Agencies, as amended, or otherwise provided by law, in order to prevent or abate pollution, or should NNECO or NUSCO fail to comply with the provisions of this Stipulated Judgment.

13. In the event NNECO becomes aware of any circumstances arising whereby any compliance date specified herein will not be met, NNECO shall immediately inform the Commissioner and shall take all reasonable steps to ensure that any such delay is avoided, or if unavoidable, minimized. Notification shall not excuse noncompliance with this Stipulated Judgment. If the Commissioner agrees that a failure to satisfy the requirements of this Stipulated Judgment has been or will be caused by circumstances beyond the control of NNECO or any entity controlled by NNECO, including its contractors, consultants, and other agents, and that NNECO could not have foreseen and prevented such delay by the exercise of due diligence, the time for performance of the

particular compliance requirement affected by the delay shall be extended by the Commissioner. The Commissioner shall determine the period of such extension, with such period being in any event no greater than the period of the delay actually caused by such circumstances. An extension of one compliance date based on a particular event will result in an extension of a subsequent compliance date or dates only where such subsequent date or dates would necessarily be affected by the delay caused by such circumstances.

14. Nothing herein shall, and the entry of this Stipulated Judgment shall not, be deemed an admission of liability by either NNECO or NUSCO as to any of the allegations contained in the plaintiff's complaint. Neither this Stipulated Judgment, nor any statements made herein or pursuant to this Stipulated Judgment, shall be used in any proceeding for purposes of establishing, directly or indirectly, NNECO or NUSCO's potential liability.
15. Any document required to be submitted to the Commissioner under this Stipulated Judgment shall, unless otherwise specified in writing by the Commissioner, be directed to:

Michael Harder
Department of Environmental Protection
Water Management Bureau
Permitting, Enforcement & Remediation Division
79 Elm Street
Hartford, Connecticut 06101

16. Unless otherwise specified in writing by the Commissioner, any document or approval submitted to NNECO and NUSCO under this Stipulated Judgment will be directed to:

Paul M. Jacobson
Northeast Nuclear Energy Company
Millstone Nuclear Power Station
Rope Ferry Road
P.O. Box 128
Waterford, Connecticut 06385-0128

Philip M. Small
Northeast Nuclear Energy Company
107 Selden Street
Berlin, CT 06037

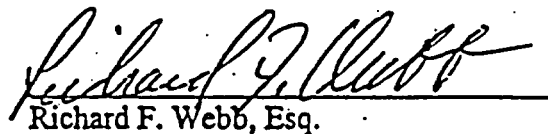
17. Until this Stipulated Judgment is fully complied with, NNECO shall notify the Commissioner in writing no later than thirty (30) days after transferring all or any portion of the operations which are the subject of this Stipulated Judgment, the site or the business, or obtaining a new mailing or location address.

18. This agreement may be modified or amended at any time upon mutual agreement of the parties hereto, provided such modification is in writing and duly executed by the parties.

PLAINTIFF

Arthur J. Rocque, Jr.
COMMISSIONER OF
ENVIRONMENTAL PROTECTION


BY: RICHARD BLUMENTHAL
ATTORNEY GENERAL



Richard F. Webb, Esq.
Assistant Attorney General
Juris No. 085022
P.O. Box 120
Hartford, CT 06141-0120
Tel.: (860) 808-5250

DEFENDANTS

Northeast Nuclear Energy Company and
Northeast Utilities Service Company



Elizabeth C. Barton, Esq.
Harold M. Blinderman, Esq.
Juris No. 65040
Udike, Kelly & Spellacy, P.C.
One State Street
Hartford, CT 06123
Tel: (860) 648-2613

ORDER

The foregoing motion having been heard, it is hereby ORDERED:

GRANTED/DENIED

By the Court,

Berg
Assistant Clerk

(Berger, J.) 11/5/11

BDA
SCLM

CERTIFICATION

I hereby certify that a copy hereof was mailed this 24th day of September, 1998, first class postage prepaid, to all counsel and/or pro se parties of record, in accordance with Connecticut Practice Book § 120.

Attorney Nancy Burton
147 Cross Highway
Redding Ridge, CT 06876

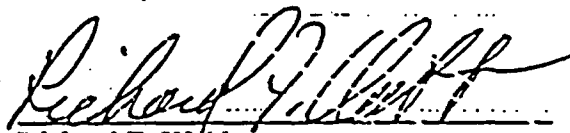

Richard F. Webb
Assistant Attorney General

Exhibit 1

Millstone Station Environmental Initiatives

The following describes environmental initiatives implemented or to be implemented at Millstone Station.

I. INTRODUCTION

NNECO, as discussed more fully below, has:

- enhanced its environmental organization as set forth in Section II below;
- centralized the performance of environmental auditing within its Nuclear Oversight Audits and Evaluations Program as set forth in Section III below;
- integrated the identification and resolution of environmental issues into the Millstone Station's Corrective Action Program and Safety Conscious Work Environment initiative as set forth in Section IV below;

Initiatives planned or currently underway at Millstone Station as set forth in Section V below are:

- development of an enhanced Environmental Management System (EMS);
- development of two additional environmental training programs: Environmental Awareness Training and Environmental Compliance Training;
- preparation of a comprehensive environmental manual specific to Millstone Station and its various compliance requirements.

II. MILLSTONE STATION - ENVIRONMENTAL MANAGEMENT ORGANIZATION

A. Environmental Staffing Enhancements:

1. A newly created Environmental Services Department ("ESD") assists each Millstone Station unit with its environmental compliance responsibilities and provides a formal structure for identifying and responding to environmental concerns at Millstone Station.

2. The ESD is headed by a full-time on-site environmental manager. There is a full-time on-site environmental coordinator for each Millstone Station unit. Also in place are an environmental coordinator responsible for addressing station-wide environmental concerns, an environmental scientist whose primary responsibility is addressing air quality matters at Millstone Station and an environmental

technician, whose primary responsibility is to oversee preparation of the monthly water Discharge Monitoring Reports ("DMRs") for Millstone Station.

3. All ESD staff report to the ESD manager. The ESD manager reports directly to a Millstone Station Vice-President responsible for environmental compliance, currently Millstone Station's Vice-President for Nuclear Work Services. Millstone Station's ESD manager also reports to the Corporate Director of Environmental Services at Northeast Utilities Service Company ("NUSCO"), who in turn, reports to NU's Vice-President for Environmental, Safety & Ethics ("ES&E").

B. Notifications to the Commissioner of Environmental Protection:

Potentially significant changes to this initiative requiring advance notification to the Commissioner of Environmental Protection in compliance with Paragraph 3 of this Stipulated Judgment are:

Changes in the reporting structure whereby:

- (1) the ESD manager no longer reports directly to a NNECO Vice-President responsible for environmental compliance;
- (2) the ESD manager no longer reports to a Corporate Director at NUSCO and/or this Corporate Director no longer reports to NU's Vice-President with responsibility for environmental compliance;
- (3) the ESD is eliminated; and/or
- (4) the ESD manager position is eliminated.

III. MILLSTONE STATION - ENVIRONMENTAL OVERSIGHT

A. Millstone Station Oversight and Corrective Action Program:

1. Millstone Station's Nuclear Oversight, Audits and Evaluations Organization ("Nuclear Oversight") performs environmental compliance audits at Millstone Station. This group provides independent evaluations of (i) compliance with environmental laws and regulations, (ii) organizational effectiveness, and (iii) development and implementation of environmental programs and procedures. The nuclear oversight organization and function are separate from the operational functions of NNECO's Nuclear Organization.

2. The criteria for the nuclear oversight auditing program used at Millstone Station is contained in 10 Code of Federal Regulations ("CFR") Part 50: Appendix B Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants ("Appendix B") and is attached hereto. These criteria form the basis of the current environmental auditing program at Millstone Station.

3. The Millstone Station oversight audit program is tied directly to the Millstone Station Corrective Action Program. Together these programs provide a process whereby concerns or conditions are identified and followed up, where appropriate, with a series of corrective actions. A Condition Report ("CR") is initiated at Millstone Station for any condition needing improvement. The CR is screened by personnel trained to identify circumstances that could require a report to an outside agency. The CR is given a unique tracking number and is reviewed by a Management Review Team ("MRT") for the Millstone Station unit affected by the condition.

B. Notifications to the Commissioner of Environmental Protection:

Potentially significant changes to this initiative requiring advance notification to the Commissioner of Environmental Protection in compliance with Paragraph 3 of this Stipulated Judgment are:

1. Millstone Station's nuclear oversight organization ceases to perform environmental compliance audits at Millstone Station;
2. A determination that 10 CFR 50 Appendix B criteria listed in III. A. above will no longer be the underlying basis for Nuclear Oversight's environmental compliance auditing program;
3. The elimination of the Corrective Action Program and/or the elimination of the Management Review Team's CR review process; and/or;
4. The elimination at Millstone Station of the separation between Nuclear Oversight and the operational functions of NNECO's Nuclear Organization.

IV. MILLSTONE STATION - WORKPLACE ENVIRONMENT

A. Safety Conscious Work Environment Initiative:

The Safety Conscious Work Environment (SCWE) initiative provides a working environment where all employees feel comfortable raising any issue, including environmental issues, important to them, with confidence that the issue will be timely and appropriately addressed.

Employee willingness to raise concerns is an important measure of the effectiveness of the SCWE initiative. Employees are encouraged to raise concerns through any one of several avenues. The avenue is the employee's choice, and selection typically depends on the comfort level of the employee in working through any particular avenue. The choices, in no particular order, include:

- Contacting a Unit Environmental Coordinator;
- Contacting their immediate supervisor;

- Initiating a condition report through the Corrective Action Program;
- Contacting a representative of the Nuclear Regulatory Commission;
- Contacting the Employee Concerns Office;
- Contacting an Employee Concerns Program Peer Representative;
- Contacting another member of management; and/or
- Contacting the media directly.

B. Notification to the Commissioner of Environmental Protection:

Since the SCWE program is under NRC jurisdiction, NNECO agrees to promptly forward a copy of any required NRC directed or approved change related to environmental activities to the SCWE program to the Commissioner. For purposes of this initiative, submittal of any such documentation shall constitute compliance with Paragraph 3 of the Stipulated Judgment.

V. **MILLSTONE STATION - OTHER ENVIRONMENTAL INITIATIVES**

A. Initiatives:

1. Environmental Management System (EMS):

Millstone Station is proceeding with the development and implementation of an enhanced Environmental Management System (EMS) that is patterned after the new international standards for environmental performance, ISO 14001.

Part of the EMS program is geared to raising awareness about the importance of compliance assurance programs and a system of management controls intended to identify and address the root cause(s) of past environmental compliance issues, thereby providing reasonable assurance of ongoing compliance.

To support the development and implementation of the EMS at Millstone, there is a steering committee whose members are senior Millstone Station management.

2. Environmental Training:

Environmental training initiatives being implemented at Millstone Station are:

a) Environmental Awareness Training:

The environmental component of Millstone Station's annual employee plant access training will be augmented to reinforce Millstone Station's commitment to environmental compliance.

b) Environmental Compliance Training:

Millstone Station is currently developing an enhanced and comprehensive environmental training program for selected Millstone Station employees. This training will further provide Millstone Station employees with a fundamental understanding of specific environmental compliance issues that they face in their jobs. Accordingly, job specific training is being developed to provide instruction for those Millstone employees with identified environmental responsibilities.

3. Miscellaneous

To assist Millstone Station personnel, an integrated environmental manual is under development which will identify environmental program requirements and responsibilities. This effort is intended to enhance definition of communications mechanisms among environmental functions, to include the roles and responsibilities of departments and individuals involved in environmental issues, and to summarize permitting responsibilities, reporting obligations and accountability.

B. Notifications to the Commissioner of Environmental Protection:

Potentially significant changes to these initiatives requiring advance notification to the Commissioner in compliance with Paragraph 3 of this Stipulated Judgment are:

1. Transfer of oversight responsibility for EMS development and implementation from the EMS steering committee;
2. A determination that the EMS program will not be modeled after ISO 14001 Standards; and/or
3. Termination, prior to completion, of the environmental manual project described in IV A.3 above or cessation of any of the training programs described in IV.A.2. above.

EXHIBIT 2 ENVIRONMENTAL AUDITING AT MILLSTONE STATION

Environmental auditing at Millstone Station is performed by Northeast Nuclear Energy Company's (NNECO) Nuclear Oversight, Audits and Evaluations organization (Nuclear Oversight). The criteria for the nuclear oversight auditing program used at Millstone Station is contained in 10 Code of Federal Regulations ("CFR") Part 50: Appendix B - Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants ("Appendix B"), a copy of which is attached hereto. These criteria, as listed below, form the basis of the current environmental auditing program at Millstone:

- There is a comprehensive system of planned and periodic audits to verify compliance with the audited program and to determine the effectiveness of the program;
- Audits are to be performed in accordance with written procedures or checklists by appropriately trained personnel not having direct responsibilities in the areas being audited;
- All audit results are to be documented and reviewed by management having responsibility in the area audited; and
- Follow up actions will be taken where indicated.

Appendix B requires that all audits are independent and performed by properly trained personnel, and involve direct management review and mandatory follow up actions. Appendix B ensures that auditors have sufficient authority and organizational freedom to identify problems, to initiate, recommend or provide solutions, and to verify implementation of such solutions.

To ensure that the appropriate level of expertise is available to adequately assess such areas as environmental compliance, environmental systems and site procedures, Millstone's environmental auditing protocol utilizes a "team" approach, which allows Nuclear Oversight to complement its resources by drawing on outside resources, such as individuals from NU Corporate Environmental Training and Assessment Unit ("ET&A") or environmental consultants. Nuclear oversight auditors receive extensive training in auditing as well as in the technical areas which they are specifically assigned to audit. These qualification requirements are set out in Nuclear Oversight Quality Procedure ("NOQP") - 2.02 "Qualification/Certification of Audit Team Leaders and Orientation of Audit Team Members." Orientation of the audit team members is based on the requirements of American National Standards Institute (ANSI) N 45.2.12.

The Millstone oversight audit program is tied directly to the Millstone Corrective Action Program ("Procedure RP4"). It is a process whereby all concerns or conditions which might be adverse to the operation of Millstone Station are identified and followed up with a series of corrective actions. "Findings" or "Deficiencies" identified during an oversight audit trigger a Condition Report ("CR") and enter into the corrective action process.

A Finding is generally considered by the oversight organization to be a significant condition adverse to quality. The most significant conditions are assigned to Significance Level 1. The definition (from RP4) for a Significance Level 1 Condition Report is as follows:

A significant or important adverse condition for which action to preclude recurrence is appropriate. These types of events have high consequence and high significance, e.g., reactor trips, major equipment damage, most reportable events, NRC violations, or other types of events or conditions requiring root cause evaluations to properly focus corrective actions. Evaluations associated with these events take priority over most other work for the individuals involved in the evaluations.

A Deficiency resulting from an oversight audit is generally considered to be a condition adverse to quality (Significance Level 2). The RP4 definition for a Significance Level 2 CR is as follows:

An adverse condition which requires increased management attention and interest but does not meet the criteria for a significant adverse condition. Periodic Common Cause Analyses and trending of Level 2 conditions may indicate an adverse trend and the subsequent need for initiation of a Level 1 CR Root Cause Evaluation to evaluate the trend.

Every CR that is initiated is screened by personnel trained to identify issues that might require a report to an outside agency. Each CR is then given a unique tracking number and is reviewed by a Management Review Team (MRT) for the Millstone Station unit affected by the condition.

be used as the automatic isolation valve outside containment; or

(4) One automatic isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment.

Isolation valves outside containment shall be located as close to the containment as practical and upon loss of actuating power, automatic isolation valves shall be designed to take the position that provides greater safety.

Criterion 35—Closed system isolation valves. Each line that penetrates primary reactor containment and is another part of the reactor coolant pressure boundary not connected directly to the containment atmosphere shall have at least one containment isolation valve which shall be either automatic, or locked closed, or capable of remote manual operation. This valve shall be outside containment and located as close to the containment as practical. A simple check valve may not be used as the automatic isolation valve.

VI. Fuel and Radioactivity Control

Criterion 36—Control of release of radioactive materials to the environment. The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Sufficient holding capacity shall be provided for retention of gaseous and liquid effluents containing radioactivity materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.

Criterion 37—Fuel storage and handling and radioactivity control. The fuel storage and handling, radioactive waste, and other systems which may contain radioactivity shall be designed to assure adequate safety under normal and postulated accident conditions. These systems shall be designed (1) with a capability to permit appropriate periodic inspection and testing of components important to safety, (2) with suitable shielding for radiation protection, (3) with appropriate containment, ventilation, and filtering systems, (4) with a residual heat removal capability having reliability and testability that reflects the importance to safety of decay heat and other residual heat removal, and (5) to prevent significant reduction in fuel storage coolant inventory under accident conditions.

Criterion 38—Prevention of criticality in fuel storage and handling. Criticality in the fuel storage and handling system shall be prevented by physical systems or processes,

preferably by use of geometrically safe configurations.

Criterion 39—Monitoring fuel and waste storage. Appropriate systems shall be provided in fuel storage and radioactive waste systems and associated handling areas (1) to detect conditions that may result in loss of residual heat removal capability and excessive radiation levels and (2) to initiate appropriate safety actions.

Criterion 40—Monitoring radioactivity release. Means shall be provided for monitoring the reactor containment atmosphere, spaces containing components for recontamination of loss-of-coolant accident fluids, effluent discharge paths, and the plant envelope for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents.

DE FR 336, Feb. 20, 1971, as amended at 36 FR 12723, July 7, 1971; 41 FR 6252, Feb. 12, 1976; 41 FR 5013, Oct. 27, 1976; 51 FR 12503, Apr. 11, 1986; 51 FR 41274, Oct. 27, 1987]

APPENDIX B TO PART 50—QUALITY ASSURANCE CRITERIA FOR NUCLEAR POWER PLANTS AND FUEL REPROCESSING PLANTS

Introduction. Every applicant for a construction permit is required by the provisions of 10 CFR to include in its preliminary safety analysis report a description of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility. Every applicant for an operating license is required to include, in its final safety analysis report, information pertaining to the managerial and administrative control to be used to assure safe operation. Nuclear power plants and fuel reprocessing plants include structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. This appendix establishes quality assurance requirements for the design, construction, and operation of these structures, systems, and components. The performance requirements of this appendix apply to all activities affecting the safety-related functions of these structures, systems, and components; these activities include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refurbishing, and modifying.

As used in this appendix, "quality assurance" comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service. Quality assurance includes quality

control, which comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system which provide a means to control the quality of the material, structure, component, or system to predetermined requirements.

I. ORGANIZATION

The applicant shall be responsible for the establishment and execution of the quality assurance program. The applicant may delegate to others, such as contractors, agents, or consultants, the work of assembling and executing the quality assurance program, or any part thereof, but shall retain responsibility therefor. The authority and duties of persons and organizations performing activities affecting the safety-related functions of structures, systems, and components shall be clearly established and delineated in writing. These activities include both the performing functions of attaining quality objectives and the quality assurance functions. The quality assurance functions are those of (a) assuring that an appropriate quality assurance program is established and effectively executed and (b) verifying, such as by checking, auditing, and inspection, that activities affecting the safety-related functions have been correctly performed. The persons and organizations performing quality assurance functions shall have sufficient authority and organizational freedom to identify quality problems; to initiate, recommend, or provide solutions; and to verify implementation of solutions. Such persons and organizations performing quality assurance functions shall report to a management level such that this required authority and organizational freedom, including sufficient independence from cost and schedule when opposed to safety considerations, are provided. Because of the many variables involved, such as the number of personnel, the type of activity being performed, and the location or locations where activities are performed, the organizational structure for executing the quality assurance program may take various forms provided that the persons and organizations assigned the quality assurance functions have this required authority and organizational freedom. Irrespective of the organizational structure, the individual(s) assigned the responsibility for assuring effective execution of any portion of the quality assurance pro-

gram at any location where activities subject to this appendix are being performed shall have direct access to each level of management as may be necessary to perform this function.

II. QUALITY ASSURANCE PROGRAM

The applicant shall establish at the earliest practicable time, consistent with the schedule for accomplishing the activities, a quality assurance program which complies with the requirements of this appendix. This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout plant life in accordance with these policies, procedures, or instructions. The applicant shall identify the structures, systems, and components to be covered by the quality assurance program and the major organizations participating in the program, together with the designated functions of these organizations. The quality assurance program shall provide control over activities affecting the quality of the identified structures, systems, and components, to an extent consistent with their importance to safety. Activities affecting quality shall be accomplished under suitably controlled conditions. Controlled conditions include the use of appropriate equipment; suitable environmental conditions for accomplishing the activity, such as adequate clearance; and assurance that all regulations for the given activity have been satisfied. The program shall take into account the need for special controls, processes, test equipment, tools, and skills to attain the required quality, and the need for verification of quality by inspection and test. The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained. The applicant shall regularly review the status and adequacy of the quality assurance program. Management of other organizations participating in the quality assurance program shall regularly review the status and adequacy of that part of the quality assurance program which they are executing.

III. DESIGN CONTROL

Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.3 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled.

While the term "applicant" is used in these criteria, the requirements are, of course, applicable after such a person has received a license to construct and operate a nuclear powerplant or a fuel reprocessing plant. These criteria will also be used for guidance in evaluating the adequacy of quality assurance programs in use by holders of construction permits and operating licenses.

Measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components.

Measures shall be established for the identification and control of design interfaces and for coordination among participating design organizations. These measures shall include the establishment of procedures among participating design organizations for the review, approval, release, distribution, and revision of documents involving design interfaces.

The design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews by the use of electronic or simplified calculational methods, or by the performance of a suitable testing program. The verifying or checking process shall be performed by individuals or groups other than those who performed the original design, but who may be from the same organization. Where a test program is used to verify the adequacy of a specific design feature in lieu of other verifying or checking measures, it shall include suitable qualifications testing of a prototype unit under the most adverse design conditions. Design control measures shall be applied to items such as the following: reactor physics, stress, thermal, hydraulic, and accident analysis; compatibility of materials; accessibility for inspection, dissection, maintenance, and repair; and delineation of acceptance criteria for inspections and tests. Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization.

IV. PROCUREMENT DOCUMENT CONTROL

Measures shall be established to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the applicant or by its contractors or subcontractors. To the extent necessary, procurement documents shall require contractors or subcontractors to provide a quality assurance program consistent with the pertinent provisions of this appendix.

V. INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

VI. DOCUMENT CONTROL

Measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organization that performed the original review and approval unless the applicant designates another responsible organization.

VII. CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery. Documentary evidence that material and equipment conform to the procurement requirements shall be available at the nuclear powerplant or fuel reprocessing plant site prior to installation or use of such material and equipment. This documentary evidence shall be retained at the nuclear powerplant or fuel reprocessing plant site and shall be sufficient to identify the specific requirements, such as codes, standards, or specifications, met by the purchased material and equipment. The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee at intervals consistent with the importance, complexity, and quantity of the product or services.

VIII. IDENTIFICATION AND CONTROL OF MATERIALS, PARTS, AND COMPONENTS

Measures shall be established for the identification and control of materials, parts, and components, including partially fabricated assemblies. These measures shall assure that identification of the item is maintained by heat number, part number, serial number, or other appropriate means, either on the item or on records traceable to the item, as required throughout fabrication, erection, installation, and use of the item.

These identification and control measures shall be designed to prevent the use of incorrect or defective material, parts, and components.

IX. CONTROL OF SPECIAL PROCESSES

Measures shall be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements.

X. INSPECTION

A program for inspection of activities affecting quality shall be established and executed by or for the organization performing the activity to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. Such inspection shall be performed by individuals other than those who performed the activity being inspected. Examinations, measurements, or tests of material or products processed shall be performed for each work operation where necessary to assure quality. If inspection of processed material or products is impossible or disadvantageous, indirect control by monitoring processing methods, equipment, and personnel shall be provided. Both inspection and process monitoring shall be provided when control is inadequate without both. If mandatory inspection hold points, which require witnessing or inspecting by the applicant's designated representative and beyond which work shall not proceed without the consent of its designated representative are required, the specified hold points shall be indicated in appropriate documents.

XI. TEST CONTROL

A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test program shall include, as appropriate, proof tests prior to installation, preoperational tests, and operational tests during nuclear power plant or fuel reprocessing plant operation, of structures, systems, and components. Test procedures shall include provisions for assuring that all prerequisites for the given test have been met, that adequate test instrumentation is available and used, and that the test is performed under suitable environmental conditions. Test results shall be documented and evaluated to assure that test requirements have been satisfied.

XII. CONTROL OF MEASURING AND TEST EQUIPMENT

Measures shall be established to assure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits.

XIII. HANDLING, STORAGE AND SHIPPING

Measures shall be established to control the handling, storage, shipping, clearing and preservation of material and equipment in accordance with work and inspection instructions to prevent damage or deterioration, when necessary for particular products, special protective environments, such as inert gas atmospheres, specific moisture content levels, and temperature levels, shall be specified and provided.

XIV. INSPECTION, TEST, AND OPERATING STATUS

Measures shall be established to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of inspection and tests performed upon individual items of the nuclear power plant or fuel reprocessing plant. These measures shall provide for the identification of items which have satisfactorily passed required inspections and tests, where necessary to preclude inadvertent bypassing of such inspections and tests. Measures shall also be established for indicating the operating status of structures, systems, and components of the nuclear power plant or fuel reprocessing plant, such as by tagline valves and switches, to prevent inadvertent operation.

XV. NONCONFORMING MATERIALS, PARTS, OR COMPONENTS

Measures shall be established to control materials, parts, or components which do not conform to requirements in order to prevent their inadvertent use or installation. These measures shall include, as appropriate, procedures for identification, documentation, segregation, disposition, and notification to affected organizations. Nonconforming items shall be reviewed and accepted, rejected, repaired or reworked in accordance with documented procedures.

XVI. CORRECTIVE ACTION

Measures shall be established to assure that conditions adverse to quality, such as failures, malfunction, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition

is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported at appropriate levels of management.

XVII. QUALITY ASSURANCE RECORDS

Sufficient records shall be maintained to furnish evidence of activities affecting quality. The records shall include at least the following: Operating logs and the results of reviews, inspections, tests, audits, monitoring of work performance, and materials analyses. The records shall also include closely-related data such as qualifications of personnel, procedures, and equipment. Inspection and test records shall, as a minimum, identify the inspector or data recorder, the type of observation, the results, the acceptability, and the action taken in connection with any deficiencies noted. Records shall be identifiable and retrievable. Consistent with applicable regulatory requirements, the applicant shall establish requirements concerning record retention, such as duration, location, and assigned responsibility.

XVIII. AUDITS

A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits shall be performed in accordance with the written procedures or check lists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reviewed by management having responsibility in the area audited. Followup action, including removal of deficient areas, shall be taken where indicated.

(25 FR 1459, June 27, 1970, as amended at 36 FR 1801, Sept. 21, 1971; 50 FR 32100, Jan. 20, 1975)

APPENDIX C TO PART 50—A GUIDE FOR THE FINANCIAL DATA AND RELATED INFORMATION REQUIRED TO ESTABLISH FINANCIAL QUALIFICATIONS FOR FACILITY CONSTRUCTION PERMITS

GENERAL INFORMATION

This appendix is intended to advise applicants for licenses to construct production or utilization facilities of the types described in § 50.21(b) or § 50.22, or power facilities, of the several kinds of financial data and other related information that will demonstrate the financial qualifications of the applicant to carry out the activities for which the permit is sought. The kind and depth of information described in this guide is not intended to be a rigid and absolute requirement. In some in-

stances, additional pertinent material may be needed. In any case, the applicant should include information other than that specified, if such information is pertinent to establishing the applicant's financial ability to construct the proposed facility.

It is important to observe also that both § 50.21(c) and this appendix distinguish between applicants which are established organizations and those which are newly-formed entities organized primarily for the purpose of engaging in the activity for which the permit is sought. Those in the former category will normally have a history of operating experience and be able to submit financial statements reflecting the financial results of past operations. With respect, however, to the applicant which is a newly formed company established primarily for the purpose of carrying out the licensed activity, with little or no prior operating history, somewhat more detailed data and supporting documentation will generally be necessary. For this reason, the appendix describes separately the scope of information to be included in applications by each of these two classes of applicant.

In determining an applicant's financial qualification, the Commission will require the minimum amount of information necessary for that purpose. No special forms are prescribed for submitting the information. In many cases, the financial information usually contained in current annual financial reports, including summary data of prior years, will be sufficient for the Commission's needs. The Commission reserves the right, however, to require additional financial information at the construction permit stage, particularly in cases in which the proposed power generating facility will be commonly owned by two or more existing companies or in which financing depends upon long-term arrangements for sharing of the power from the facility by two or more electrical generating companies.

Applicants are encouraged to consult with the Commission with respect to any questions they may have relating to the requirements of the Commission's regulations or the information set forth in this appendix.

1. APPLICANTS WHICH ARE ESTABLISHED ORGANIZATIONS

A. Applicants for construction permits

1. *Estimate of construction costs.* For electric utilities, each applicant's estimate of the total cost of the proposed facility should be broken down as follows and be accompanied by a statement describing the basis from which the estimate is derived:

(a) Total nuclear production plant costs	\$
(b) Transmission, distribution, and general plant costs	\$