



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

MEMORANDUM FOR: R. D. Martin, Leader, Operational Team

FROM: D. R. Hunter, Inspection Specialist, PAB, RCI
TMI-2 Investigation Team Member

SUBJECT: CRITERION OF APPENDIX B TO 10 CFR 50 -
INDEPENDENT INSPECTION EFFORT

1. The recent management appraisal inspection trips with the Performance Appraisal Branch (PAB) and the more recent investigation effort at the Three Mile Island Plant (TMI-2) reveals an apparent serious IE inspection program and licensee quality assurance program weakness which requires immediate NRC review to provide:
 - a. clear independent inspection program requirements
 - b. adequate inspection guidance
 - c. inspector training
2. Criterion X of Appendix B to 10 CFR 50 specifies that safety related activities (no exceptions) shall be inspected to assure quality by other than those who performed the activity being inspected; and additionally, that both inspection and process monitoring shall be provided when control is inadequate without both.

4.21 b, 10.7-1976, Administrative Controls and Quality Assurance for Operational Phase of Nuclear Power Plants, Section 5.2.17, provides additional guidance in the area of inspection activities and requirements.
3. During the review of the operations, maintenance, modification, and surveillance testing activities at the plant sites and corporate offices, it was revealed that a specific program for inspection of safety related activities, especially in-process inspections, was not adequately addressed by the licensees nor by the IE inspection program.
4. The independent inspection effort, as applied to certain specific types of safety related activities, appears to be partially, if not totally, inadequate. These safety related inspections include:
 - a) The independent inspection of the performance of routine safety related activities to assure quality and approach zero defects

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including operational, mechanical, technical, and general activities.

These activities include many routine safety related jobs which are performed within the skills of the worker and require no specific procedure. These activities are performed within the "training" and "certification" of the worker.

The licensee inspection program does not normally include these activities and the IE inspection program does not appear to adequately address the independent inspection program as related to routine worker activities. Examples include:

(1) Operational activities

- (a) Equipment operation
- (b) Log keeping
- (c) Equipment rotation
- (d) Equipment monitoring and inspection
- (e) Shift relief and turnover
- (f) Shift training, on-the-job training
- (g) Equipment lubrication

(2) Mechanical activities

- (a) Equipment monitoring and inspection
- (b) On-the-job training

(3) Technical activities

- (a) Primary and secondary chemistry
- (b) Routine radiation surveys and smears
- (c) Equipment checks and inspections
- (d) On-the-job training

(4) General activities

- (a) Drill performance
- (b) Management/POPC meetings

b. The independent inspection of non-routine safety related activities to assure quality. Examples include:

- (1) Verification of the performance of the non-routine activities in accordance with specific and/or general procedures, as appropriate;

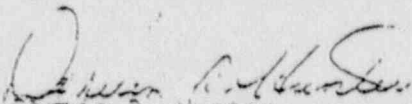
- (2) Verification of specific non-routine activities in accordance with job qualifications and craftsman skills (soldering, lugging, grinding, meter reading, etc.). For example, the independent inspection of an activity concerning a Class I item, such as soldering or lugging to a specific acceptance criteria, is necessary to assure the component or equipment has been repaired to the same level of quality as the original component or equipment. This type of inspection program is not well defined.

5. These inspection programs and inspection activities should be adequate to assure that the safety related item, component, equipment, or system was adequately maintained and returned to service in the fully "operable" status in a condition equal to or greater than when removed from service. The licensees routinely utilize a "performance-surveillance" test to prove operability, which does not test the equipment to the OBE requirements.

In summation, the IE program appears to need upgrading to provide confirmation of licensee inspection activities. Due to the importance of the licensee inspection program to meet the requirements to Criterion X of Appendix B to 10 CFR 50 it is recommended that the requirements be: (1) reviewed by management; (2) the IE inspection program be upgraded with guidance provided; and (3) a specific inspector training program be implemented to upgrade the IE organization concerning independent inspection requirements.

Furthermore, it is recommended that additional inspection effort be provided nationwide to immediately upgrade the licensee programs. The need for additional inspection effort can be easily demonstrated and justified by specifically reviewing the number of degraded safety systems, reported to the NRC annually, as a direct result of personnel error and/or craftsman skills.

The specific recommendation by the inspector is: (1) the development of a plan; (2) the issuance of an IE Bulletin requiring the licensee inspection programs review and internal audits as necessary to upgrade and implement the program requirements; (3) the development and implementation of an IE inspector training program which will upgrade the IE inspectors in the area of the inspection requirements; (4) the issuance of a Temporary Instruction (2500 series) to require special, indepth inspection of the area of inspection program requirements and implementation; and (5) the development and upgrading of the IE inspection program to assure future adequate implementation.


Dorwin R. Hunter
Inspection Specialist

cc: K. Whitt, IE:HQ

PROPOSED IE BULLETIN

U.S.N.R.C.

June 12, 1979

IEB No. 79-

Inspection Requirements, Criterion X of Appendix B to 10 CFR 50

Background

It was revealed during certain IE inspections that the independent inspection requirements apparently were not adequately implemented, resulting in the possibility of equipment being returned to service after operation, maintenance, and testing in other than the fully "OPERABLE" condition. A review of the Appendix B requirement, the IE program requirements, and the implementation of the inspection program by certain licensees indicates a general industry-wide concern.

Actions to be Taken by Licensees

For all reactor facilities with an operating license or a construction permit.

1. Review the quality assurance program and procedures which implement Criterion X of Appendix B to 10 CFR 50.
2. Verify that those activities which are included and identified as—"safety related activities" include specific inspection requirements to insure quality and are described in the administrative control procedures. Areas and types of independent inspection efforts should include as a minimum random inspection of the following type activities:
 - a. Routine safety related activities performed in accordance with training and job skills within general procedures guidance.
 - (1) Movement of control rods
 - (2) Generation and dilution
 - (3) Starting and stopping of equipment
 - (4) Voltage and resistance readings
 - (5) Sampling activities
 - (6) Radiation smears and surveys
 - (7) Lubrication
 - (8) Trouble-shooting activities
 - (9) Log keeping
 - b. Routine safety related activities performed in accordance with training and job skills within specific procedures or instructions but not requiring detailed checklists, etc.

- (1) Soldering
 - (2) Lugging
 - (3) Equipment torque, positioning, or shimming
 - (4) Batching boric acid
 - (5) Startup and shutdown of systems and plant components
 - (6) Switching and tagging
- c) Specific safety related activities performed in accordance with detailed written procedures, instructions, and checklists by qualified individuals.
- (1) Operating, surveillance, and maintenance activities
 - (2) Return of systems and components to normal service lineups
3. Verify that the implementing and administrative control procedures include the specific requirements for establishing the inspection activities including the necessary guidance and that the plant staff has been trained and are familiar with the requirements.
4. Provide a specific, detailed audit and/or routine audit results of the inspection programs and implementation of the program which verifies compliance with Criterion X of Appendix B to 10 CFR 50 as applied to safety related activities.
- For all reactor facilities with an operating license respond to Items 1, 2, and 3 within 60 days. The response to Item 4 should be made 60 days later.
- For all reactor facilities with a construction permit respond to Items 1, 2, and 3 within 180 days. The response to Item 4 should be made 60 days later.

PROPOSED TEMPORARY INSTRUCTION

TI 2515/

Issue Date June 12, 1979

Inspection of Licensee Actions Taken in Response to IE Bulletin 79-

I. Objective

Verify that the licensee has taken actions required by IE Bulletin 79- as to the quality assurance program and implementing procedures, staff training and familiarization, and licensee audit of the inspection program to assure that all reactor facilities with an operating license or a construction permit have provided and implemented an adequate inspection program.

II. Background Information

IE Bulletin 79- , "Inspection Requirements, Criterion X of Appendix B to 10 CFR 50" was issued on June 12, 1979. A copy is enclosed for reference.

The Bulletin requires the licensees of all reactor facilities with an operating license or a construction permit to review the quality assurance program and procedures which implement the requirements of Criterion X of Appendix B to 10 CFR 50. The licensee review should establish the specific commitment to Criterion X, the identification of "safety related" activities, the identification of certain minimum inspection requirements, the verification of plant staff training and familiarization; and provide a detailed audit and/or recent audit results of the inspection program as applied to "safety related" activities.

III. Inspection Requirements

During a regularly scheduled inspection (within 90 days after receipt of Bulletin Response to Item 4) an IE inspection should be conducted at all reactor facilities to verify adequate implementation of the independent inspection program pursuant to Criterion X of Appendix B to 10 CFR 50. The licensee quality assurance program should include:

1. Commitment to Criterion X within the FSAR and/or Topical Report.
2. Specific quality assurance program procedures and department procedures, as appropriate, to implement the inspection program.
3. Detailed plant administrative procedures to implement the independent inspection process during all safety related activities.

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per clause*

4. Specific identification of "quality related/safety related activities" at the facility.
5. Specific training and familiarization of plant staff in the area of independent inspection requirements (Criterion X of Appendix B to 10 CFR 50) as amplified in the quality assurance program procedures and administrative procedures.
6. Detailed audit by the plant staff confirming the inspection program as applied to "safety related" activities.

Each of the above listed areas should be reviewed in detail, and verification of the program requirements and implementation of the program requirements should be completed by the inspector.

IV. Reporting Requirements

The results of the inspection required in Section III should be included in the normal inspection report and also the special information delineated in the Enclosure to this TI should be forwarded to IE Headquarters upon completion of the inspection.

V. Module Tracking System Input

For module tracking system 756 purposes, record actual inspection effort against Module No. 235XXB.

VI. Expiration

This TI expires after all inspections have been completed and for record purposes on January 1, 1980.

VII. IE Headquarters Contact

Questions regarding this TI should be directed to

MEMORANDUM FOR:

FROM:

SUBJECT: INFORMATION REQUESTS BY T1 2515/

Licensee:

Plant:

License No.:

Socket No.:

Regional Contact:

1. Commitment to Criterion X of Appendix B to 10 CFR 50 FSAR/QA Topical Report reviewed and adequate.
2. Quality Assurance Program procedures (plant and corporate) adequate.
3. Quality Assurance Department Implementing Procedures (plant and corporate) adequate (as appropriate).
4. Detailed plant and corporate administrative procedures adequate.
5. Identification of "quality related/safety related" activities adequate, including systems, instruments, structures, procedures and all activities related to quality.
6. Training program adequate.
7. Commitment to Criterion X of Appendix B to 10 CFR 50 adequate prior to protection.
8. Actions to be taken by the licensee to provide compliance with the independent protection requirements.
9. Date(s) when full compliance is expected.