Temporary Instruction 2515/139

INSPECTION OF LICENSEE'S IMPLEMENTATION OF GENERIC LETTER 96-01 TESTING OF SAFETY RELATED LOGIC CIRCUITS

SALP FUNCTIONAL AREA: ENGINEERING (ENG)

APPLICABILITY: This TI is to be implemented at six to eight sites with at least one site from each Region. At the completion of these inspections an assessment will be made to determine if additional sites need to be inspected.

2515/139-01 OBJECTIVES

To verify through inspections, the adequacy of licensee programs, procedures, training, and supporting documentation that licensee Technical Specification required surveillance testing of safety-related logic circuits is being performed.

2515/139-02 BACKGROUND

The NRC staff issued Generic Letter (GL) 96-01, "Testing of Safety-Related Logic Circuits" on January 10, 1996. This GL requested that licensees review electrical schematic drawings and logic diagrams for the reactor protection system, EDG load shedding and sequencing, and actuation logic for the engineered safety features systems against plant surveillance test procedures to ensure that technical specification required surveillances are being properly performed. For the selected system this inspection will independently confirm that all portions of the logic circuitry, including parallel logic, interlocks, bypasses and inhibit circuits, are adequately covered in the surveillance procedures. The licensee actions were requested to be completed prior to startup from the first refueling outage commencing one year after the issuance of GL 96-01. To date, more than 50% of the plants have reported completion of the requested actions. The responses from licensees to GL 96-01 have varied from plant to plant with some licensees identifying a significant number of deficiencies in their surveillance procedures while others have identified no deficiencies. Based on these responses, the staff decided to perform inspections at selected plants and based on the result of these inspections to determine whether additional plants should be inspected.

2515/139-03 INSPECTION REQUIREMENTS

03.01 Preliminary Review. Before the site visit, the inspector will select a system for inspection either at random or based on the Licensee Event Reports (LERs) submitted by licensees.

03.02 Onsite Review. The inspector will verify that the licensee will have the following documentation readily available for onsite review:

a. Electrical schematic diagrams and logic diagrams for the selected system.

b. Surveillance procedures for the selected system.

c. Procedures (if any) used to perform the review required by GL 96-01. This will include on the first day of inspection a presentation by the licensee about their review process.

d. Procedures used for correction of identified deficiencies and plant modifications.

e. Program for review of deficiencies identified by other licensees.

03.03 Specific Requirements

a. Verify that any procedure used by the licensee to perform the review required by GL 96-01 meets the intent of the GL.

b. Verify that licensee programs adequately address sample deficiencies identified by other licensees.

c. Verify that licensees have procedures to assure that each deficiency and modification is properly integrated into the required surveillances.

d. Verify that the licensees review of the selected system was performed in such a way that a high degree of confidence exists that deficiencies with surveillance procedures have been properly identified and the surveillance procedures have been adequately revised.

2515/139-04 GUIDANCE

A number of NRC regulations document the requirements to test safety-related instrumentation and control systems to ensure that they will function as designed when called upon. For example, Title 10 of the Code of Federal Regulation (10 CFR), Section 50.36, “Technical Specifications,” paragraph (c)(3) states that, “surveillance requirements are requirements relating to test, calibration or inspection to assure that the necessary quality of systems and components is maintained, that facility operation

will be within the safety limits, and that the limiting conditions of operation will be met." Surveillance requirements to assure continued operability of safety-related logic circuits have been included in the plant-specific technical specifications for all operating nuclear power plants.

The following documents provide additional guidance:

- 10 CFR 50.55a, "Codes and Standards, "paragraph (h) which includes reference to Institute of Electrical and Electronic Engineers (IEEE) Standard 279, "Criteria for Protection Systems for Nuclear Power Generation Stations"

- Appendix A to 10 CFR 50, General Design Criterion (GDC) 21, "Protection System for Reliability and Testability"

- Appendix A to 10 CFR 50, General Design Criterion (GDC) 18, "Inspection and Testing of Electrical Power Systems"

- Appendix B to 10 CFR 50, Criterion XI, "Test Control"

- Regulatory Guide (RG) 1.118, "Periodic Testing of Electric Power and Protection Systems"

- RG 1.32, "Criteria for Safety-Related Electric Power Systems for Nuclear Power Plants"

In addition to these documents, NRC has issued a number of information notices (IN 88-83, IN 91-13, IN 93-15, IN 93-38, and IN 95-15) documenting problems with surveillance testing of safety-related logic circuits. A letter from Bruce A. Boger (NRC) to Alexander Marion (NEI) provides additional guidance for inspection. This letter includes the slides used by the NRR staff for presentation at NEI Workshop and responses to questions from the licensees on this subject.

2515/139-05 REPORTING REQUIREMENTS

The results of this inspection will be included in a special inspection report issued by the regional staff. The Instrumentation and Controls Branch (HICB), NRR staff will assist the resident inspector on an as needed basis in the resolution of the findings of the inspection and/or any subsequent enforcement action.

2515/139-06 COMPLETION SCHEDULE

The inspection requirements identified in this TI should be completed by October 31, 1999.

2515/139-07 EXPIRATION

This TI will expire on December 31, 1999.

2515/139-08 CONTACT

Questions regarding this TI should be addressed to Hukam Garg, NRR, HICB (301) 415-2929.

2515/139-09 STATISTICAL DATA REPORTING

Direct inspection effort expended in fulfilling the requirements of this TI is to be charged to 2515/139 under IPE (Inspection Program Element) Code SI (Safety Issues Program).

2515/139-10 ORIGINATING ORGANIZATION INFORMATION

10.01 Organizational Responsibility This TI was initiated by HICB/DRCH/NRR.

10.02 Resource Estimates. This inspection will be performed by the regional personnel. HICB will assist the region as appropriate based on the availability of the resources at the time of the inspection and if requested by the region. The estimated FTE resources (hours) necessary to complete each site inspection per this TI are listed below:

	ONSITE	OTHER
1. Inspection Preparation		20
2. Inspection at site	60	
3.0 Report Preparation		60
4. Travel		20
Total	60	100

FTE = 160/1640 = 0.10

10.03 Other. There are no parallel inspection procedures or specific inspection requirements satisfied by this TI. Therefore, no credit time is given toward any other specific inspection requirements.

10.04 Training
No special training requirements have been identified for this TI.

END