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June 8, 1984 84 JUN 14 A10:07

Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Re: RII:PKV/PHS/AI
50-413/84-33
50-414/84-19

Dear Mr. O'Reilly:

Please find attached a response to Violation No. 413/84-33-01, 414/84-19-01; Violation No. 413/84-33-03; and Violation No. 413/84-33-06 as identified in the above referenced inspection report. Also attached is a discussion of Unresolved Item No. 413/84-33-02 which is related to Violation No. 413/84-33-01, and Significant Deficiency Report No. SD 413-414/84-14. Duke Power Company does not consider any information contained in this inspection report to be proprietary.

Very truly yours,

H.B. Tucker /BH

Hal B. Tucker

LTP/php

Attachment

cc: NRC Resident Inspector
Catawba Nuclear Station

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Catawba Nuclear Station
Violations 413/84-33-01 and
414/84-19-01

1. Admission or denial of the alleged violation:

   Duke Power Company admits the violation as stated. Non-qualified manual valves were installed in the control air tubing between the Nuclear Safety Related solenoid valve and the Nuclear Safety Related valve actuator for valves 1KC82B and 1RN291A (component cooling water flow from residual heat removal heat exchanger B and nuclear service water flow from component cooling water heat exchanger A, respectively). Although all active component Nuclear Safety Related pneumatic valves are designed to move to the safe position (in these cases open) on loss of control air or receipt of the appropriate actuation signal, the failure or mispositioning of these non-qualified manual valves could result in blockage of the venting of control air through the solenoid valve and prevention of the process valve from moving to the safe position. For the valves in question this failure in conjunction with a single active failure on the redundant train per IEEE 379 could result in loss of cooling water to the component cooling and residual heat removal heat exchangers. Although approximately twenty minutes would be available after initiation to detect and correct these problems, this is outside applicable NRC guidelines concerning operator actions and, therefore, no credit can be taken for operator action from a licensing standpoint.

2. Reasons for the violation:

   After further investigation it is our determination that the addition of the non-qualified manual valves in these applications was implemented by Construction in order to facilitate operation of the valves prior to completion of construction work on required design changes to the control scheme for the valves. Implementation of this change without review and approval by Design Engineering resulted from a misinterpretation of Design installation standard ICS-A-20 by Construction and inadequate qualitative inspection requirements in the standard to preclude such misinterpretation.

3. Corrective steps and results:

   Non-conforming Item Report 18,345 was generated as a result of this problem. Resolution of this NCI requires inspection of all Nuclear Safety Related active pneumatic valves where this situation could result in accordance with the revised requirements of ICS-A-20 as stated below (see corrective steps). Based on Construction's inspection of these installations it has been determined that this is not a generic problem as manual valves were added only on the two valves discussed above. The non-qualified manual valves have been removed and the installations re-tubed.

4. Corrective steps to avoid further violations:

   ICS-A-20 will be revised to state that the control air tubing between Nuclear Safety Related solenoid valves and valve actuators for active Nuclear Safety

Related pneumatic valves is Nuclear Safety Related and that the addition of components not shown on the installation detail is prohibited. The control air tubing shall be inspected for compliance to this criteria and to assure that no physical damage has occurred to the tubing and components between the solenoid valve and actuator.

5. Date when full compliance will be achieved: All action required to resolve this item will be completed by June 8, 1984.

Catawba
Unresolved Item 413/84-33-02

Unresolved Item 413/84-33-02 questions the adequacy of the copper tubing between the Nuclear Safety Related solenoid valve and valve actuator for Nuclear Safety Related pneumatic valves. All such valves are designed to fail in the safe position upon loss of control air. Active Nuclear Safety Related pneumatic valves are also designed to move to the safe position by the venting of control air from the actuator through the 1E qualified solenoid valve upon receipt of the appropriate safety actuation signal (e.g. Containment Isolation signal, etc.). The tubing between the solenoid valve and actuator is installed to non-Safety Related requirements as failure of the tubing will result in the valve moving to or failing in the safe position. In response to violations 413/84-33-01 and 414/84-19-01 the control air tubing will be relcassified as Nuclear Safety Related in order to assure that no components which are not shown on the installation detail (in the case of the subject violations non-qualified manual valves were added) are added and that the tubing is inspected for physical damage. Supports and materials will still be considered non-Safety Related.

The possibility that the tubing between the solenoid valve and actuator could be completely crimped shut thus preventing the valve from moving to its safe position is not considered to be a credible event under normal operating or design basis accident conditions. Even if it were postulated that complete crimping of the control air tubing were credible this would not result in unacceptable consequences. The complete crimping of the tubing on any valve could be duplicated by assuming a single failure for which the plant has been analyzed.

Even though the control air tubing is not specifically reviewed in the interaction analysis the 1E solenoid valve and the valve actuator located on the process valve are analyzed. The close proximity of these components (normally $\leq$ 6 feet) gives a very high degree of assurance that no interactions would affect the tubing. Also, even if interactions did exist it is our position that the tubing would sever rather than crimp shut.

It should be noted that it is extremely difficult to make a water tight (or air tight) seal on copper tubing by bending double and hammering shut the tubing. The tubing must be plugged and soldered to make such a seal. This information is based on discussions with personnel who have hands-on experience in working with copper tubing in other applications (e.g. refrigeration tubing, drinking water, etc.). Also we have no knowledge of any failures of control air tubing on our operating plants which utilize similar designs for control air tubing. In addition it should also be noted that standard vendor designs for Nuclear Safety Related pneumatic valves utilize copper tubing for control air lines.

With respect to accidental damage to the tubing resulting from normal Construction and maintenance work the following description of existing programs is provided:

1. Construction performs final walkdowns prior to system turnover to Nuclear Production for all Nuclear Safety Related portions of systems during which damaged components are repaired or replaced. Reclassification of the control air tubing as Nuclear Safety Related will assure that the tubing is looked at in this program.

2. After turnover there is a dramatic drop in the level of activity in the area and access is restricted.

3. Periodic functional testing will identify any problems which affect the operation of the valves. Any such problems will be corrected.

4. Nuclear Production performs periodic operator walkdowns during which such damage could be detected and corrected.

Based on the above discussion it is Duke Power's position that the design and operation of pneumatic valves utilizing non-safety copper tubing is entirely satisfactory and meets the intent of all applicable regulatory requirements.

Catawba Nuclear Station
NRC Violation
413/84-33-03

Response

1. Duke Power admits the violation.

2. Cause of Violation

The reason for the violation is there was no clearly defined flow for the documentation to follow in Construction Procedure (CP) 616. The L-71J Forms, documenting the cleanliness of the area in the Unit 1 Spent Fuel Pool to be made inaccessible as required by CP-616, cannot be produced.

3. Corrective Action

A. Patch Test Reports done on the Unit 1 Spent Fuel Pool prior to installation of the modules have been located. These records show that the Fuel Pool met cleanliness requirements more stringent than CP-616.

B. Nonconforming Item Report (NCIR) 17910 was generated to document the lost L-71J Forms.

4. Corrective Action to Avoid Further Violations

A. CP-616 has been revised to require that all fuel pool cleanliness documentation be stored as a CP-616A package in the Project QA Vault.

B. The Unit 2 Fuel Pool has been racked and the records, including the L-71J's for areas made inaccessible, have been filed in the QA Vault.

5. Status

Construction Procedure 616 was revised February 22, 1984.

NCI #17910 was cleared March 7, 1984.

Full compliance has been achieved.

Catawba Nuclear Station

Violation No. 413/84-33-06

VIOLATION:

Materials License No. SNM-1920 authorized use of licensed material in accordance with the conditions specified in the licensee's application dated November 22, 1983. The Facilities and Equipment section paragraph A.4, of the license requires, in part, that all operations personnel involved in receipt of new fuel participate in a formal training program which includes operational walkthroughs of procedure OP/O/A/6550/15, Receipt, Inspection and Storage of New Fuel, using a dummy assembly. SNM 1920 in Section C states that operations personnel must pass a written exam covering health physics procedures and a fuel handling test using a dummy fuel assembly.

Contrary to the above, the licensee did not implement all training requirements in SNM-1920, in that five operators who perform receipt and inspection of special nuclear material did not receive training using a dummy fuel assembly. However, review of the personnel records showed that these persons had participated in fuel handling and transfer training at the McGuire and Oconee Nuclear Stations.

RESPONSE:

1. The Violation is correct as stated.

2. The violation occurred because the personnel responsible for the training of operators in fuel handling and transfer were not aware of the requirement for using dummy fuel assemblies for training.

3. The five operators involved in the receipt of the initial shipment of the initial core did not receive fuel handling testing using a dummy fuel assembly. However, the operators did receive training on the fuel handling cranes, basic rigging practices and participated in actual fuel handling at McGuire Nuclear Station in late 1983.

   In addition, they simulated activities covered by OP/O/A/6550/15 (Receipt, Inspection and Storage of New Fuel). Operators, after successfully completing the training described above, are certified to handle fuel assemblies. All five operators were properly certified prior to receipt of new fuel. Because of these reasons and the fact that the Unit One Special Nuclear Materials License will be superseded by the Operating License, no corrective action is needed since the technical intent for the training of operators in fuel handling activities was met.

4. The Unit Two Special Nuclear Materials License Application will be revised to avoid further violations.

5. The Unit Two Special Nuclear Materials License Application will be revised and submitted by July 1, 1984.