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U. S. Nuclear Regulatory Commission
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Subject: Arkansas Nuclear One - Units 1 and 2
Docket Nos. 50-313/50-368
License Nos. DPR-51 and NPF-6
Response to Inspection Report
50-313/90-39; 50-368/90-39

Gentlemen:

Pursuant to the provisions of 10CFR2.201, attached is the response to the violation identified during the inspection of activities related to inadequate health physics practices associated with maintenance work on Core Flood System check valve CF-1B.

Should you have any questions, please call me at 501-964-8601.

Very truly yours,

James J. Fisicaro
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JJF/DWB/mmg
Attachment



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Notice of Violation

A. Surveys

10 CFR Part 20.201(b) requires that each licensee shall make or cause to be made such surveys as may be necessary to evaluate the extent of radiation hazards that may be present.

Contrary to the above, on October 31, 1990, the licensee did not perform an adequate survey to evaluate the extent of the radiation hazard inside of Valve CF-1B.

This is a Severity Level IV violation (Supplement IV) (313/9039-01; 368/9039-01).

B. Instructions to Workers

10 CFR Part 19.12 requires that individuals working in the restricted area shall be kept informed of radiation in the restricted area and precautions or procedures to minimize exposure.

Contrary to the above, on October 31, 1990, an individual working on Valve CF-1B was not kept informed of the radiation levels inside the valve or proper procedures to minimize exposure.

This is a Severity Level IV violation (Supplement IV) (313/9039-02; 368/3039-02).

Response to Violation

ANO has evaluated both of the stated violations and has combined the response. The following response addresses violations 313-368/9039-01 and 313-368/9039-02.

(1) Reason for the violation

A post incident investigation determined the root cause of the violations to be failure of personnel to follow approved radiation protection procedures.

Upon disassembly of CF-1B on the evening of October 31, 1990, the health physics technician assigned continuous coverage for the job failed to adequately determine the radiological conditions of the newly exposed internals of the valve body. This was required by the governing Radiological Work Permit (RWP) and station administrative procedures 1000.031, "Radiation Protection Manual," section 6.2.8 (revision 13) and health physics implementing procedure 1622.007, "Job Coverage," section 8.3 (revision 8).

The second entry was conducted late on the evening of October 31, 1990. No review of the radiological conditions of the work area, as required by 1000.031, "Radiation Protection Manual," Attachment I section III.A.3 (revision 13), was conducted by either the workers or the second health physics technician assigned to provide continuous coverage. The second health physics technician failed to verify or establish the radiological conditions at the work site prior to work commencing.

No survey for hot particles was conducted on either entry as specified on the RWP.

The investigation also identified several contributing factors:

A. The pre-job briefing for the work on CF-1B was inadequate. Communications between the work group and health physics personnel concerning the exact nature of the work to be performed on the second entry was not fully understood by either the health physics supervisor assigning coverage, or the health physics technician assigned to the coverage.

B. The RWP written to control the work on CF-1B was also inadequate in several respects: 1) it did not contain current job specific radiological survey information, nor specific radiological guidance for work on CF-1B, 2) the RWP was written to include work on systems of varied radiological hazards. Service Water System, Core Flood System, and Decay Heat System valves and hangers were all addressed by the one RWP, 3) the RWP was written to allow the most relaxed controls rather than the conservative approach of stipulating the most stringent controls. This had the effect of placing an over-reliance on the health physics technician's ability to determine and implement the proper controls, and 4) the RWP was written based on out-dated general area surveys versus up-to-date component specific surveys.

C. One health physics technician was assigned continuous coverage on two valve work sites simultaneously. Therefore, sufficient attention was not provided to both work sites even though the two work sites were located in the same immediate vicinity.

D. There was poor communication between the health physics technician, the mechanic, and the QC inspector (all contract employees) during the job. The mechanic failed to notify the health physics technician of the need to clean the internals of the valve body and the health physics technician failed to instruct the mechanic and the QC inspector to delay the start of work pending survey performance.

(2) Corrective steps taken and results achieved:

Work on CF-1B was immediately stopped by the second health physics technician upon discovery of the 25 R/hr rag used to clean the valve body internals. Additionally, all primary system component maintenance was temporarily suspended pending investigation.

Radiological conditions of CF-1B and the work area were established.

An incident debriefing which included management personnel and the individuals involved was conducted the night of the incident. The purpose of the debriefing was to discuss the causes and consequences of the incident and to formulate actions to prevent this, or similar incidents, from recurring in the future.

The practice of allowing work on one RWP for maintenance on multiple valves was temporarily suspended. Component specific RWPs were generated.

The general practice of allowing one technician to routinely provide continuous coverage for more than one job location simultaneously has been discontinued. The permission of upper level radiation protection management must be obtained to permit the use of one technician on two jobs for continuous coverage. This information has been conveyed to the health physics operations staff during periodic staff meetings.

Mechanical maintenance personnel were briefed the importance of clearly communicating the exact nature of work to be performed to health physics personnel, the importance of knowing radiological conditions of their work area before beginning work, and the potential for high radiation levels from objects or debris removed from primary systems.

The two health physics technicians directly involved in this incident received counseling regarding the failure to perform surveys required by the procedure and the RWP.

Health physics supervisors were counseled on the inadequate job performance associated with valve CF-1B. Specifically, the following areas were addressed: 1) the need to obtain specific surveys on components and work areas prior to release for work; 2) writing RWPs with specific survey data and instructions on components to be worked; 3) communicating adequately with the workers to ensure that all personnel understand the specific activities to be performed; and 4) ensuring adequate continuous coverage is provided when the RWP specifies continuous health physics coverage.

The RWP process has been evaluated and guidelines issued which address the following: 1) the use of component specific up-to-date survey information for preparing job specific RWPs; 2) restricting job specific RWPs to components and areas with like radiological characteristics, area conditions, and job scope; 3) stipulation of worse case radiological protection requirements based on the nature and scope of the job to be performed; 4) stipulation of job coverage requirements on the RWP to reduce reliance on the job coverage technician for determining the applicable requirements; 5) the requirement to attach a copy of the job specific survey used to write or revise the RWP to the posted copy of the RWP to allow workers access to information concerning the radiological conditions of their work site; and 6) specific guidance on the conduct of pre-job briefings.

A memorandum which included radiological work practice guidelines for radiation workers was distributed plant wide to convey "lessons learned" as a result of this, as well as other, events which occurred during refueling outage 1R9.

(3) Corrective steps that will be taken to prevent recurrence:

A copy of the incident investigation will be incorporated into general employee training (GET) and health physics technician "lessons learned" lesson plans for training to be provided during calendar years 1991 and 1992. The lesson plan revisions will be completed by June 1, 1991.

(4) Date of full compliance:

Interim compliance was achieved on November 2, 1990, following the establishment of radiological conditions of CF-1B and the work area, the distribution of additional guidance for the preparation of RWPs, and the counseling of the health physics technicians and supervisors.

Full compliance was achieved by January 24, 1991, following the completion of briefings to Units 1 and 2 mechanical maintenance personnel and the issuance of formal additional guidance for the preparation of RWPs.

The corrective steps outlined in section 3, above, will provide further assurance that the lessons learned from this incident are communicated plant wide.