

FEB 13 1991

Docket Nos. 50-313/90-39  
50-368/90-39  
License Nos. DPR-51  
NPF-6

Entergy Operations, Inc.  
ATTN: Neil S. Carns, Vice President  
Operations, Arkansas Nuclear O...  
Route 3, Box 137G  
Russellville, Arkansas 72801

Gentlemen:

Thank you for your letter of January 25, 1991, in response to our letter and Notice of Violation dated December 26, 1990. We have reviewed your reply and find it responsive to the concerns raised in our Notice of Violation. We will review the implementation of your corrective actions during a future inspection to determine that full compliance has been achieved and will be maintained.

Sincerely,

ORIGINAL SIGNED BY

Samuel J. Collins, Director  
Division of Reactor Projects

cc:  
Entergy Operations, Inc.  
ATTN: Donald C. Hintz, Executive Vice  
President & Chief Operating Officer  
P.O. Box 31995  
Jackson, Mississippi 39286

Entergy Operations, Inc.  
ATTN: Gerald W. Muench, Vice President  
Operations Support  
P.O. Box 31995  
Jackson, Mississippi 39286

Wise, Carter, Child & Caraway  
ATTN: Robert B. McGehee, Esq.  
P.O. Box 651  
Jackson, Mississippi 39205

\*RJV:RPEPS  
REBaer:nh  
/ /91

\*C:RPEPS  
BMurray  
/ /91

\*D:DRSS  
ABBeach  
/ /91

D:DRP  
SJCcollins  
2/12/91

\*Previously Concurred

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FEB 13 1991

Arkansas Nuclear One  
ATTN: Early Ewing, General Manager  
Technical Support and Assessment  
Route 3, Box 137G  
Russellville, Arkansas 72801

Arkansas Nuclear One  
ATTN: Jerry Yelverton, Director  
Nuclear Operations  
Route 3, Box 137G  
Russellville, Arkansas 72801

Arkansas Nuclear One  
ATTN: Mr. Tom W. Nickels  
Route 3, Box 137G  
Russellville, Arkansas 72801

Combustion Engineering, Inc.  
ATTN: Charles B. Brinkman, Manager  
Washington Nuclear Operations  
12300 Twinbrook Parkway, Suite 330  
Rockville, Maryland 20852

Honorable Joe W. Phillips  
County Judge of Pope County  
Pope County Courthouse  
Russellville, Arkansas 72801

Winston & Strawn  
ATTN: Nicholas S. Reynolds, Esq.  
1400 L Street, N.W.  
Washington, D.C. 20005-3502

Arkansas Department of Health  
ATTN: Ms. Greta Dicus, Director  
Division of Environmental Health  
Protection  
4815 West Markam Street  
Little Rock, Arkansas 72201

Babcock & Wilcox  
Nuclear Power Generation Division  
ATTN: Mr. Robert B. Borsum  
1700 Rockville Pike, Suite 525  
Rockville, Maryland 20852

Admiral Kinnaird R. McKee, USN (Ret)  
P.O. Box 41  
Oxford, Maryland 21654

bcc: (see next page)

FEB 13 1991

bcc to DMB (IE06)

bcc with nonsafeguards portion of licensee's letter:

Resident Inspector

RPEPS File

Section Chief, DRP/A

Lisa Shea, RM/ALF

RIV File

DRP

DRS

MIS System

RSTS Operator

R. Baer, RPEPS

Section Chief, NMSIS

A. B. Beach, DRSS

G. F. Sanborn, EO

J. Lieberman, OE

Project Engineer, DRP/A

T. Alexion, NRR Project Manager

C. Poslusny, NRR Project Manager



Entergy  
Operations

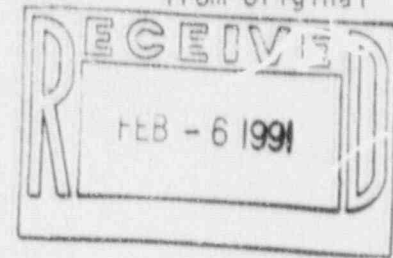
Entergy Operations, Inc.

1000 1st Street, N.W.

Washington, D.C. 20004

Telephone: 202-462-1000

RE-ISSUE. Page 1 omitted  
from original



January 25, 1991

@CAN019108

U. S. Nuclear Regulatory Commission  
Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

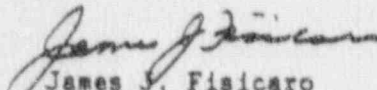
Subject: Arkansas Nuclear One - Units 1 and 2  
Docket Nos. 50-313/50-368  
License Nos. DPR-51 and NPF-6  
Response to Inspection Report  
50-313/90-39; 50-368/90-39

Gentlemen:

Pursuant to the provis. 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  
Manager, Licensing

JJF/DWB/nag  
Attachment

91-327

~~9102070044~~

cc: Mr. Robert Martin  
U. S. Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive, Suite 1000  
Arlington, TX 76011

Thomas W. Alexion  
NRR Project Manager, Region IV/ANO-1  
U. S. Nuclear Regulatory Commission  
NRR Mail Stop 11-B-19  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852

NRC Senior Resident Inspector  
Arkansas Nuclear One - ANO-1 & 2  
Number 1, Nuclear Plant Road  
Russellville, AR 72801

Ms. Sheri Peterson  
NRR Project Manager, Region IV/ANO-2  
U. S. Nuclear Regulatory Commission  
NRR Mail Stop 11-B-19  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852

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).

January 25, 1991

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 on 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.

DEC 26 1990

Docket Nos. 50-313/90-39  
50-368/90-39  
License Nos. DPR-51  
NPF-6

Entergy Operations, Inc.  
ATTN: Neil S. Carns, Vice President  
Operations, Arkansas Nuclear One  
Route 3, Box 137G  
Russellville, Arkansas 72801

Gentlemen:

SUBJECT: NOTICE OF VIOLATION (NRC INSPECTION REPORT 50-313/90-39;  
50-368/90-39)

This refers to the inspection conducted by Mr. R. E. Baer of this office on October 29 through November 2, 1990. The inspection included a review of activities authorized for your Arkansas Nuclear One, Units 1 and 2 facility. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress.

Based on the results of this inspection, certain of your activities appeared to be in violation of NRC requirements, as specified in the enclosed Notice of Violation (Notice). We are concerned about the violations because of the inappropriate health physics practices that were demonstrated and the potential for overexposure to an individual.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

\*RIV:RPEPS      \*C:RPEPS  
REBaer:lm      BMurray  
/ /90      / /90  
\*Previously concurred

\*D:DRSS/  
ABBeach  
12/21/90

D:DRP  
SJCcollins  
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APPENDIX A  
NOTICE OF VIOLATION

Entergy Operations, Inc.  
Arkansas Nuclear One

Docket Nos. 50-313; 50-368  
License Nos. DPR-51; NPF-6

During an NRC inspection conducted on October 29 through November 2, 1990, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1990), the violations are listed below:

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).

Pursuant to the provisions of 10 CFR 2.201, Entergy Operations, Inc., is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region IV, and if applicable, a copy to the NRC Resident Inspector, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an

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The inspector reviewed the licensee's radiological survey program involving work areas, storage areas, change rooms, lunch and meeting rooms, contractor service facilities, and radiological control points for the surveying and release of materials and personnel. The inspector noted the licensee performed surveys of the new lunch room facility in the maintenance building on a weekly schedule. The inspector discussed with licensee representatives the desirability to perform surveys at least on a daily schedule. The licensee acknowledged the inspector's observation and stated that they would review the current survey frequency.

On October 31, 1990, at approximately 11 p.m., a contract worker entered the reactor building with a contract HP technician and a quality control (QC) inspector to perform maintenance work on Check Valve CF-1B which is part of the core flood tank system. A second crew also entered at this time to work on another valve in close proximity to CF-1B. The HP technician was to provide continuous coverage for both work crews. RWP 900594 was written to support work activities relating to the repair of valve actuators, indicators, and supports, and listed Valve CF-1B dose rates as 60 millirem per hour (mR/hr) and contamination levels of 48,000 disintegrations per minute (dpm). Additionally, the RWP required HP to survey for hot particles during work involving a breach of the system.

The HP technician stayed with the second work crew while the QC inspector and the worker went to Valve CF-1B. The QC inspector explained to the worker what needed to be done before his inspection. The QC inspector noted a blackish deposit inside the valve and said that would also have to be removed before he would inspect the valve. This valve had been worked on at approximately 7 p.m. and the system breached at that time. The contract worker took a piece of lint-free cloth and folded it up, four layers thick, to remove the blackish deposit. He carefully wiped the deposit and placed the cloth aside. After contacting the HP technician to survey the material removed from the valve on the cloth, he held the cloth in his hand, the black area at his finger tips, while the HP technician surveyed. The initial measurement was approximately 25,000 mR/hr. The cloth was set down and the HP technician directed all personnel to leave the area.

Later surveys performed on November 1, 1990, measured 20,000 mR/hr and indicated four distinct hot particles on the cloth. A gamma spectrometer analysis of an additional hot particle found by Valve CF-1B indicated that the particles contained both activation and fission products.

A radiation survey was also located that was performed on October 31, 1990, at 7:20 p.m. on Valve CF-1B. This survey indicated that a radiation level of 900 mR/hr existed on contact with the flapper. There was no record of any contamination, alpha or beta radiation survey taken inside the valve, or the required hot particle survey directed by the RWP. 10 CFR Part 20.201(b) states, in part, that a licensee shall make radiation surveys that are reasonable under the circumstances to evaluate

the extent of radiation hazards that may be present. The failure to perform a proper survey when the system was breached is considered an apparent violation of 10 CFR Part 20.201(b) (313/9039-01; 368/9039-01).

10 CFR Part 19.12, "Instruction to Workers," states, in part, that all individuals working in or frequenting any portion of a restricted area shall be kept informed of the radiation in such portions of the restricted area and precautions or procedures to minimize exposure. The individual worker who wiped the inside of the valve with a cloth had not been informed of the radiation levels inside the valve along with proper procedures for handling contaminated material. The failure to provide proper instructions is considered an apparent violation of 10 CFR Part 19.12 (313/9039-02; 368/9039-02).

The licensee stopped the valve work until after an assessment of the radiological conditions were determined. Personnel involved with valve CF-1B were later debriefed and time and motion studies were made of the cleaning process. The licensee performed an initial assessment on what they believed to be several hot particles on the cleaning cloth. The licensee projects a dose to the persons extremities of approximately 3.0 rem. The cloth containing these particles was sent to a vendor for further analysis from which a final dose assignment will be made.

No deviations were identified.

8. Maintaining Occupational Exposures ALARA (83750)

The inspector reviewed the licensee's ALARA program to determine agreement with the recommendations of Regulatory Guide 8.8 and 8.10 and adherence to ANO procedures.

The licensee had established radiation exposure (490 person-rem), personnel contamination incidents, and radioactive waste generation goals for the IR9 outage. The licensee had established a 1990 annual goal of 614 person-rem for both units. The inspector noted that the goals for both the outage and 1990 total would likely be exceeded by the end of the outage. Changes in the scope of work to be performed had added to the cumulative personnel exposure. The licensee expects the personnel exposure for the outage to be approximately 560 person-rem.

The licensee's radiation exposures for 1988-1990 are depicted below:

	<u>EXPOSURE HISTORY (PERSON-REM)</u>		
	<u>1988</u>	<u>1989</u>	(Projected) <u>1990</u>
ANO Units 1 & 2 (Total)	1388	717	700
Average Per Unit	694	358	350
PWR Average	336	292	~300