



**Entergy  
Operations**

**Entergy Operations, Inc.**  
Route 3, Box 137G  
Russellville, AR 72801  
Tel 501-964-3100

July 31, 1990

0CAN079024

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  
Revised Response to Inspection Report  
50-313/90-04; 50-368/90-04

Gentlemen:

Pursuant to the provisions of 10CFR2.201, and conversations between the NRC Region IV staff and members of my staff, attached is the revised response to Notice of Violation 313/9004-01; 368/9004-01 concerning the decontamination of a Unit 1 operator. This submittal supercedes the previous response. Revisions to the original response are indicated by side bars in the left margin.

Very truly yours,

E. C. Ewing  
General Manager,  
Assessment

ECE/JDJ/sqw  
Attachment

cc: Regional Administrator  
Region IV  
U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

101

9008060133 900731  
PDR ADOCK 05000313  
Q PDC

IE01  
41

Notice of Violation

- A. Technical Specification 6.1.8.a for Units 1 and 2 requires that written procedures shall be established, implemented, and maintained covering activities recommended in Appendix A of Regulatory Guide 1.33. Section 7.3 addresses contamination control.

Paragraph 6.4.2 of the licensee's Procedure 1622.010 requires the initiation of decontamination procedures for contamination of individuals utilizing the guidelines provided in Appendix II, and that any contaminated hair that cannot be decontaminated must be removed.

Contrary to the above, on January 31, 1990, the inspectors determined that hair of an individual which was contaminated with 30 nanocuries of cobalt 58 on December 20, 1989, could not be decontaminated and the hair was not removed.

This is a Severity Level IV violation. (Supplement VI) (313/9004-01; 368/9004-01)

Response to Violation 313/9004-01; 368/9004-01

1. Reason for the violation:

The violation occurred as stated in that a sufficient amount of hair was not removed to conservatively place the individual below established release limits. This event occurred because management expectations in this area had not been adequately communicated to the HP staff.

To facilitate understanding of this incident, the following sequence of events is given.

On December 18, 1989, an ANO-1 Waste Control Operator (WCO) was contaminated as a result of a relief valve opening. The WCO was sprayed with water from the primary system. His hands, face and the back of his head were contaminated. He was decontaminated to less than 100 net counts per minute in accordance with Personnel Decontamination procedure 1622.010 and cleared a PCM-1B contamination monitor prior to his release. A whole body count the following day indicated a total of 1.4% MPBB (1.2% of which was  $^{58}\text{Co}$ ), which indicated external contamination generalized on the surface of the upper body. No significant internal contamination was indicated.

On December 22, 1989, the WCO alarmed a PCM-1B upon his exit from the controlled access area at the Unit 1 exit location (CA-1). The Health Physics (HP) technician at CA-1 notified the HP Supervisor on duty and stated that the WCO had some detectable activity in his hair. The

supervisor directed the technician to take the WCO to CA-2 (controlled access entry location) where he could be frisked in a low background area to determine the extent of contamination. The overall contamination levels in the hair located on the back of the WCO's head were approximately 60 ccpm. On a certain section of his hair, when the hair was clumped together, approximately 100 ccpm was detected. This clump of hair was removed. The remaining hair was refrisked. The highest reading located was approximately 60 ccpm, even when the hair was clumped together. Procedure 1622.010 stated that personnel causing a PCM-1B to alarm and exhibiting greater than or equal to 100 cpm above background are subject to decontamination. As the highest reading was approximately 60 cpm above background, no further decontamination efforts were required by procedure. Appendix II of 1622.010 contains guidelines which are to be followed for readings greater than or equal to 100 ccpm.

At about 1130 hours on January 18, 1990, the Lead Supervisor, Health Physics Operations of Louisiana Power and Light Company's Waterford-3 Station (W-3) contacted ANO regarding the WCO who was visiting W-3 for training. When the ANO WCO exited the W-3 RCA, he alarmed a PCM-1B. The alarms were for the head, zone 1, and zone 5. He had previously informed the W-3 staff of causing similar PCM-1B alarms at ANO. The W-3 Lead Supervisor called to advise us of the W-3 alarm and to ask details of the administrative actions taken at ANO. According to the W-3 Lead Supervisor, the WCO had stated that he could not consistently clear PCM-1Bs but that subsequent frisker checks failed to locate any contamination. The W-3 Lead Supervisor was advised to prohibit RCA entry by the WCO until the matter could be fully understood. The WCO's W-3 TLD was pulled and he was restricted to areas outside the RCA for the remainder of his W-3 training.

The WCO's whole body counts from January 20, 1990 (including an exit count on January 16, 1990, in preparation for the trip to W-3 and a count on January 20, 1990, upon his return from W-3), dating back through March 2, 1987, were reviewed. The data confirmed he had not incurred significant internal contamination in this time frame based on the levels of contamination, the isotopes involved, and biological clearance.

The WCO was interviewed by the ANO Unit 1 Assistant Manager Operations and an ANO Health Physics Specialist on January 20, 1990. The WCO stated that he had experienced PCM-1B alarms at ANO approximately fifty percent of the time when he exited the RCA. He stated the repetitive alarms began after the contamination event of December 18, 1989. The alarms were always for the head or upper body. He stated that he had followed procedures each time and had reported to the CA-1 HP technician for frisking or, during backshift when no HP technician was stationed at CA-1, had frisked himself. No contamination was ever located. It is important to note that no specific individual in the HP organization was aware of the repetitive nature of the alarms.

The WCO retained the alarm printouts from the PCM-1Bs each time and compared them to assure himself the reported activity was not increasing. An increase in activity would have indicated that additional radioactive material had been received during an RCA entry. The reported activity was characterized as "barely over the alarm setpoint." Although the activity reported by the PCM-1Bs was gradually decreasing, the WCO showed the alarm printouts to an HP Trainer as a matter of general curiosity. Together, they briefly reviewed the data and the trainer confirmed that only small amounts of activity were involved and that there was no need for concern since the activity was presumably a residual from the December 18, 1989, event and was chemically bound to the hair and skin. They planned to do a detailed investigation later in January to try to locate and remove the activity. Being thus assured of the lack of significance of the alarms, the WCO disposed of the printouts.

The Unit 1 Assistant Manager Operations and Health Physics Specialist accompanied the WCO to the Controlled Access exit location to witness the PCM-1B response first hand. The W-3 and ANO PCM-1Bs are set to alarm at the same activity (5000 DPM/100 cm<sup>2</sup>); therefore, comparing PCM-1B response from the two installations is valid. The WCO caused four alarms out of eight PCM-1B checks. The alarms were always for the head and/or upper body. These were the same areas which alarmed at W-3. Three of the four alarms were generated on a PCM-1B which printed the alarm activity. One of the alarms was from activity less than 1% above the alarm limit (5 cpm above the alarm limit). The highest of the three was from measured activity 9% above the alarm limit (59 cpm greater than the alarm limit). Dispersed external activity of this low magnitude is consistent with the whole body count data and with the PCM-1B repetitive alarms.

2. Corrective steps taken and the results achieved:

An event of this nature is not consistent with ANO current philosophy and policy of conservative operations. Proper conservatism in decontamination practices and procedures that will prevent recurrence of such an incident has been communicated via memorandum to the HP staff.

The following additional actions have been taken:

- The CA-1 exit point has been staffed with an HP technician 24 hours per day. This will eliminate the necessity for personnel alarming the PCM-1B during off hours to perform self-frisking.
- A tracking program has been established to identify repetitive PCM-1B alarms associated with previously contaminated individuals. This process will continue to be evaluated to ensure effective tracking of repetitive alarms.

- Communicating the responsibility of the HP department to the HP staff has been initiated regarding indications of dispersed activity of a low magnitude as it relates to skin contamination and the course of action to be followed. Emphasis is being placed on the shielding/masking effects that can occur if an individual's skin or hair is not completely dried before surveying (a suspected contributing factor to the event cited in this violation), dead zones associated with monitoring equipment, proper survey techniques, procedural compliance, and notification and involvement of the HP supervisors.

3. Corrective steps that will be taken to prevent recurrence:

Specific communication meetings will be conducted with the HP staff. The purpose of these meetings will be to convey management's expectations regarding ANO's current philosophy and policy of conservative operations regarding decontamination practices and procedures. Additionally, a memorandum summarizing management's expectations for each ANO employee will be distributed to ANO personnel. These actions will be completed by August 31, 1990.

4. Date of full compliance:

Compliance was achieved with the issuance of the memorandum communicating the policy to the HP staff, the posting of a 24-hour HP technician at CA-1, and implementation of the tracking program. Full compliance will be completed by August 31, 1990, pending completion of the specific communication meetings with the HP staff.

**DAVIS-BESSE**  
**HED DISCREPANT COMPONENT LISTING**

PAGE NO: 5

HED NO: 51028

PANEL ID: C5715 (Cont'd)

COMPONENT IDENTIFICATION

SPECIAL STUDY

EI 6210	SU XFMR 02 TO BUS B A-C KILOVOLTS	DISP
EI 6256	A BUS KILOVOLTS	DISP
EI 6257	BUS KILOVOLTS	DISP
EI 6271	DC VOLTS (D1P)	DISP
EI 6272	DC VOLTS (D2N)	DISP
EI 6275	DC VOLTS (D1N)	DISP
EI 6276	DC VOLTS (D2P)	DISP
EI 6277	AC VOLTS (Y1)	DISP
EI 6278	AC VOLTS (Y4)	DISP
EI 6279	AC VOLTS (YAR)	DISP
EI 6280	AC VOLTS (YBR)	DISP
EI 6281	AC VOLTS (Y3)	DISP
EI 6282	AC VOLTS (Y2)	DISP
EI 6297	AC VOLTS (YAU)	DISP
EI 6298	AC VOLTS (YBU)	DISP
II 6200	AUX XFMR 11 TO BUS A A-C AMPERES	DISP
II 6201	SU XFMR TO BUS A A-C AMPERES	DISP
II 6203	SU XFMR 01 TO BUS A A-C AMPERES	DISP
II 6204	BUS A TO XFMR AE4 A-C AMPERES	DISP
II 6205A	BUS A TO XFMR AE3 A-C AMPERES	DISP
II 6205B	BUS A TO XFMR AF3 A-C AMPERES	DISP
II 6206A	BUS A TO XFMR AE2 A-C AMPERES	DISP
II 6206B	BUS A TO XFMR AF2 A-C AMPERES	DISP
II 6208	AUX XFMR 11 TO BUS B A-C AMPERES	DISP
II 6209	SU XFMR 01 TO BUS B A-C AMPERES	DISP
II 6210	SU XFMR 02 TO BUS B A-C AMPERES	DISP
II 6211	BUS B TO XFMR BF4	DISP
II 6212A	BUS B TO XFMR BF2 A-C AMPERES	DISP
II 6212B	BUS B TO XFMR BE2 A-C AMPERES	DISP
II 6213A	BUS B TO XFMR BF3 A-C AMPERES	DISP
II 6213B	BUS A TO XFMR BE3 A-C AMPERES	DISP
II 6260	BUS C2 LOAD A-C AMPERES	DISP
II 6262	BUS C1 LOAD A-C AMPERES	DISP
II 6263	BUS D1 LOAD A-C AMPERES	DISP
II 6289	BATTERY 1P DISCH CHG D-C AMPERES	DISP
II 6290	BATTERY 2N DISCH CHG D-C AMPERES	DISP
II 6291	BATTERY 1N DISCH CHG D-C AMPERES	DISP
II 6292	BATTERY 2P DISCH CHG D-C AMPERES	DISP
II 6894	BUS A TO XFMR AE6 A-C AMPERES	DISP
II 6896	BUS B TO XFMR XF6	DISP
SI 6222	RPM DG-1 SPEED	DISP
SI 6223	RPM DG-2 SPEED	DISP
XI 6221	HERTZ	DISP
XI 6231	HERTZ	DISP

PANEL ID: C5716

COMPONENT IDENTIFICATION

FI 1535 CS PMP 2 DISCH FLOW

DISP