Entergy

Entergy Operations, Inc.
1448 S.R. 333
Russellville, AR 72801
Tel 501 858-5000

10 CFR Part 50, Appendix E.IV.F.2.g

November 9, 1998

0CAN119804

U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station OP1-17
Washington, DC 20555

Subject: Arkansas Nuclear One – Units 1 and 2
Dockets Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6
Response To Inspection Report 50-313/98-15; 50-368/98-15

Gentlemen:

Entergy Operations has reviewed your correspondence dated September 2, 1998 (0CNA099801) and October 9, 1998 (OCNA109810) regarding the inspection of activities associated with the Arkansas Nuclear One (ANO) emergency preparedness program. The correspondence dated October 9, 1998 documented the change in characterization of one issue and established a new response date of October 23, 1998. However, the October 9, 1998 correspondence was not received by ANO until October 26, 1998, and on that day, a new due date of November 9, 1998 was verbally established by Ms. Gail Good of the Region IV staff.

Attached is our analysis of the weakness identified concerning the failure to implement proper radiological protection practices.

Should you have any questions or comments, please contact me at (501) 858-4601.

Very truly yours,

Jimmy D. Vandergrift
Director, Nuclear Safety

JDV/SLP

Attachment

IE01

cc: Mr. Ellis W. Merschoff
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

NRC Senior Resident Inspector
Arkansas Nuclear One
P. O. Box 310
London, AR 72847

Mr. Nick Hilton
NRR Project Manager Region IV/ANO-1
U. S. Nuclear Regulatory Commission
NRR Mail Stop 13-H-3
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Mr. Chris Nolan
NRR Project Manager Region IV/ANO-2
U. S. Nuclear Regulatory Commission
NRR Mail Stop 13-H-3
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Weakness:

The failure to implement proper radiological protection practices was identified as an exercise weakness (50-313; 50-368/98015-02).

Description of Conditions and Corrective Actions:

The examples of improper radiological protection practices that were identified, along with ANO's evaluations, are as follows:

- *The health physics supervisor did not enter estimated work area dose rates, estimated work area derived air concentrations, and/or estimated work area contamination levels on 16 of 24 OSC Team Briefing Forms (1903.033B).*

  The OSC Team Briefing form is used to document briefings conducted prior to re-entering the plant. The form is a tool used by the radiation protection (RP) supervisors to ensure all areas of radiological control are addressed in the briefings. Deficiencies currently exist in the format of the form with respect to the estimated work area dose rate, the estimate work area derived air concentrations (DACs), and the estimated work area contamination level sections. These format deficiencies coincide with the majority of the errors made regarding incomplete briefing forms. Additionally, other key information required to be included in briefings was not included on the form.

  Radiological surveys were used during team briefings to discuss radiological conditions; however, these surveys were not attached to the briefing forms.

  This weakness concerning incomplete OSC Team Briefing Forms was reviewed with the involved RP supervisors. This weakness was also reviewed with emergency response organization (ERO) teams during drills conducted in the OSC on October 6, October 27, and November 3, 1998. Revisions to this form by March 31, 1999, are planned to address items such as format consistency, radiological release information, separation requirements, administrative dose rate call back information, and ALARA.

- *Although the majority of observed radiological briefings provided repair teams with proper radiological information and controls needed to complete assigned tasks in a radiologically safe manner, some briefings were not thorough. For example, Team 23 (assigned to check the electromatic relief valve switch on Panel C47 in the auxiliary building) was not informed of the expected radiation, airborne, and contamination levels in the assigned work area.*

  The form format deficiencies referenced above contributed to the briefing deficiencies.

This example of incomplete OSC Team Briefing Forms was also reviewed with the involved RP supervisors and with ERO teams during OSC drills. The revisions planned for the OSC Team Briefing Form discussed above will also address this weakness.

- *The radiation protection technician assigned to Team 9 allowed the team to become separated. Two mechanical maintenance workers were allowed to travel between the maintenance shop area and the job site without radiation protection personnel, even though a release was in progress. A post-exercise interview revealed that the radiation protection technician was not aware that a release was in progress. Although the health physics supervisor briefed the team on expected radiation and contamination levels in the work area, the team was not informed that a release was in progress.*

  Procedure 1903.033, *Protective Action Guidelines for Rescue/Repair and Damage Control Teams,* section 6.2.3.C states, "Rescue/repair and damage control teams shall be accompanied by a member of the Emergency Radiation Team during initial entry and subsequent re-entries into the plant areas until radiation areas have been marked." The team should not have separated prior to returning to the OSC.

  This weakness concerning team separation was reviewed with the RP technician assigned to team 9 during the exercise. Additionally, procedural compliance expectations during emergency response evolutions will be discussed with RP personnel by January 31, 1999.

- *Electronic dosimeter (ED) settings did not accurately reflect expected radiation work area dose rates. All electronic dosimeter alarm settings were 4,000 millirem integrated dose and 50,000 millirem per hour dose rate, regardless of expected general area radiation dose rates and projected time at the job site. The general area radiation dose rates for work performed during this exercise ranged from less than 1 millirem to as high as 200 millirems. The inspectors concluded that setting the electronic dosimeters at levels greatly above the expected area radiation levels were not representative of actual radiation levels.*

  The radiological work permit (RWP) Writer's Guide outlines an alarming dosimeter setpoint process based on area dose rates and time. During an emergency, area dose rates can change rapidly. Emergency re-entry team alarming dosimeters have been set at upper thresholds to reduce team return frequency based on changing dose rates and low ED alarm settings. However, the alarm settings still provide a level of protection. Briefings with team members establish administrative dose rate call back levels without risking worker ED alarms and unnecessary return for alarm setting increases. Valuable time can be lost and extra team dose received as a result of restrictive ED settings and area dose rate changes.

Although setting ED alarms at an upper threshold has been standard practice, an effort to enhance the use of EDs during emergencies will be conducted. A manageable emergency entry ED alarm setpoint process that better represents expected area dose rates will be developed by March 31, 1999.

- *Repair teams were not given radiological level limits to help the radiation protection technician know when to exit the area or contact radiation protection supervision for additional directions/instructions.*

  Repair team members were briefed on radiological conditions and requirements; however, these briefings were not consistent or properly documented. The form format deficiencies referenced above contributed to some of these briefing deficiencies.

  The revisions to the OSC Team Briefing Forms discussed above will address this weakness.

- *Radiological surveys performed were not representative of radiological conditions in the work area. At about 10 a.m., Teams 1 and 2 obtained an air sample at the frisking area of the turbine building train bay, rather than the "bowling alley" area of the turbine building where the leak was located. A representative general work area sample was not taken until about 11:35 a.m., 30 minutes after Team 9 entered the area to investigate and fix the source of the leak.*

  Interviews with the two RP technicians (Teams 1 and 2) involved determined that they were dispatched from the OSC to perform initial surveys of the Unit 1 turbine building (bowling alley) area. While one RP technician performed an air sample in the train bay area the other surveyed the immediate area of the leak (including an air sample).

- *Teams 1 and 2, which consisted of only radiation protection personnel, did not dress properly to enter a potentially contaminated area of the Unit 1 turbine building "bowling alley" (known to have water on the floor). Both radiation protection technicians wore latex gloves and placed a plastic bag on each foot, instead of rubber booties and shoe covers. Coveralls were not donned. The gloves and bags were not checked for holes and tears prior to donning. In addition, one team member removed a glove and transferred a portable survey instrument between the gloved and ungloved hand numerous times before exiting the area. Since significant contamination levels were present (60,000 dpm/100cm^2), the portable survey instrument was potentially contaminated.*

  This is an example of inadequate work practices and unclear management expectations. In some instances, emergency team members believed they had the option to exercise actions outside of normal radiological protection practices to

reduce response time. RP technicians are expected to follow procedure and understand the requirements for entry into potentially contaminated areas.

A site-wide radworker campaign (including anti-c clothing inspections) will be implemented prior to January 31, 1999. Additionally, procedural compliance expectations during emergency response evolutions will be discussed with RP personnel by January 31, 1999.

- *No one on Team 9 (four members, including one radiation protection technician) checked protective clothing prior to dressing. The team was sent to the "bowling alley" area to identify and fix the source of the leak.*

  This is another example of inadequate work practices and unclear management expectations. Inspecting for rips and tears in anti-c clothing is expected of all radworkers. In the haste of preparing for an emergency entry the team did not perform an adequate inspection of their anti-c clothing. The team may have noticed large tears and holes during dressing but smaller flaws could have been overlooked without a meticulous inspection.

  The site-wide radworker campaign and the procedural expectation discussions discussed in the above example will also address this weakness.