



Entergy Nuclear Operations, Inc.  
Palisades Nuclear Plant  
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February 23, 2009

EA-08-322

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Palisades Nuclear Plant  
Docket 50-255  
License No. DPR-20

Reply to Notice of Violation EA-08-322

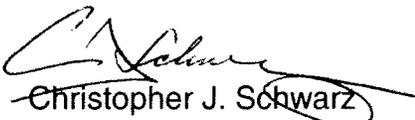
Dear Sir or Madam:

By letter dated January 30, 2009, the Nuclear Regulatory Commission (NRC) issued notice of violation EA-08-322 to Entergy Nuclear Operations, Inc. (ENO). The letter documents a violation of the requirements of 10 CFR 20.1501. The violation discusses a failure to evaluate radiological hazards and assess dose at the Palisades Nuclear Plant for workers on the refueling floor who handled tools used for reconstituting failed fuel in October 2007.

ENO acknowledges the violation and has taken corrective steps to avoid further violations. The violation response is enclosed.

Summary of Commitments

This letter contains no new commitments and no revision to existing commitments.

  
Christopher J. Schwarz  
Site Vice President  
Palisades Nuclear Plant

Enclosure (1)

CC Administrator, Region III, USNRC  
Project Manager, Palisades, USNRC  
Resident Inspector, Palisades, USNRC

## VIOLATION

*Title 10 CFR 20.1501 requires that each licensee make, or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the: (1) magnitude and extent of radiation levels; (2) concentrations or quantities of radioactive materials; and (3) potential radiological hazards.*

*Title 10 CFR 20.1003 defines "survey" as an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.*

*Title 10 CFR 20.1201 states that the occupational annual dose limits for the skin of the extremities for adults is 50 rems and the total effective dose equivalent is 5 rems.*

*Contrary to the above, as of January 18, 2008, the licensee failed to evaluate the radiological hazards and assess dose to workers that handled tools used for reconstituting failed fuel during work on the refueling floor in October 2007, as required by 10 CFR 20.1501 to demonstrate compliance with the dose limits of 20.1201.*

## REASON FOR THE VIOLATION

There was a narrow focus in the planning for the reconstitution of damaged fuel during the refueling outage.

When the AREVA contract workers received unexpected dose rate alarms, the focus of the immediate response was on the identification of the unposted high radiation area (HRA). The dose rate alarms did not prompt radiation protection (RP) supervision to appropriately evaluate the cause and the potential doses received by the workers. The subsequent apparent cause evaluation (ACE) was narrowly focused on the unposted high radiation area as well. This narrow focus was perpetuated through corrective action review board review and approval of the ACE.

Entergy Nuclear Operations, Inc. (ENO) underestimated the extent of radiological hazards during demobilization following fuel reconstitution activities. ENO determined that there was a lack of RP management and supervisory oversight, which led to low standards, and complacency associated with the reconstitution of severely damaged fuel.

There were insufficient RP supervisory resources available to provide needed supervision, due to multiple changes and high turnover. In addition, the number of qualified senior RP technicians was below the ENO standard staffing level.

Additionally, the resolution of multiple radiological challenges and events earlier in the refueling outage impacted the available radiological staff resources and focus.

Inadequate communications between the RP technician and the AREVA workers led the AREVA workers to believe that they could disassemble temporary storage baskets without the RP technician present. Potential contamination and exposure problems associated with severely damaged fuel were not adequately communicated to the site.

### CORRECTIVE STEPS THAT HAVE BEEN TAKEN

Since this event occurred, ENO has:

- Implemented ENO standard radiological procedures at Palisades Nuclear Plant (PNP).
- Modified the Radiation Work Permits (RWPs) for work in the spent fuel pool (SFP) and reactor cavity when flooded, to require:
  - Use of extremity monitoring for activities involving the removal of items from the water that may have been irradiated or may have come in contact with irradiated fuel or components. Any deviations from this requirement must be documented in writing by the RP Manager.
  - Continuous RP coverage for removal of items from the SFP or flooded reactor cavity.
- Increased RP staffing to meet the ENO staffing levels for qualified technicians and supervisors.
- Completed detailed surveys of the spacer pins. The survey results and extremity dose estimate were provided to the NRC.

### CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Due to the specific nature of the events that resulted in this violation, which occurred during the last refueling outage in Fall 2007, several of the corrective actions to prevent recurrence are still in progress. These actions will be implemented prior to the beginning of the next refueling outage, which is scheduled for March 2009. Those actions are discussed below.

This event will be included as operating experience in pre-job briefs and in pre-outage training for applicable personnel.

A RP work instruction will be implemented for SFP and reactor cavity activities, which will include the following requirements:

- Infrequently performed test or evolution (IPTE) briefing to discuss radiological hazards for specific activities
- Designated RP technician coverage
- A stand alone RWP
- Site-wide communications regarding the potential hazards with demobilization from fuel reconstitution involving damaged fuel
- Designated supervisory oversight

The work order for the performance of fuel inspection and reconstitution will be modified such that it contains a task to be used for the reconstitution of damaged fuel containing the following requirements:

- An IPTE briefing to discuss radiological hazards
- Designated RP technician coverage
- A stand alone RWP
- The use of a work instruction for SFP and reactor cavity activities
- Site-wide communications regarding the potential hazards with demobilization from fuel reconstitution involving damaged fuel
- Designated supervisory oversight

Procedure HP 2.8, "Response to Radiological Occurrences," will be revised to require a standard RP department response for radiological issues to include dose alarms, unanticipated dose rate alarms, and personnel contamination events. The procedure revision will specify survey and documentation requirements for these events.

#### DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance will be achieved when the actions to prevent recurrence are fully implemented. Full implementation will occur by the start of the PNP refueling outage, which is scheduled to start in March 2009.