

November 13, 2008

Christopher J. Schwarz  
Site Vice President  
Entergy Nuclear Operations, Inc.  
Palisades Nuclear Plant  
27780 Blue Star Memorial Highway  
Covert, MI 49043

SUBJECT: BIG ROCK POINT INDEPENDENT SPENT FUEL STORAGE INSTALLATION  
INSPECTION REPORT 072-00043/08-01

Dear Mr. Schwarz:

On October 24, 2008, the NRC completed a routine inspection at the Big Rock Point Independent Spent Fuel Storage Installation (ISFSI). The purpose of the inspection was to evaluate whether the facility was operating in accordance with NRC approved License Conditions and Technical Specifications, and to evaluate the biennial exercise of the Emergency Plan (EP). At the conclusion of the onsite inspection on October 24, 2008, the inspectors discussed the inspection findings with members of your staff.

The inspection consisted of review and evaluation of the radiation protection, surveillance and maintenance, environmental protection, fire protection and the observation and evaluation of the ISFSI EP exercise. Areas examined during the inspection consisted of observations of activities in progress, interviews with personnel, and a select review of procedures and representative records.

Based on the results of this inspection, the inspectors did not identify any violations of NRC requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). The NRC's document system is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

C. Schwarz

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We will gladly discuss any questions you may have regarding this inspection.

Sincerely,

***/RA/***

Christine A. Lipa, Chief  
Materials Control, ISFSI, and  
Decommissioning Branch

Docket Nos. 072-00043; 050-00155  
License No. DPR-6

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Inspection Reports 072-00043/08-01(DNMS); 050-00155/08-01(DNMS)

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Letter to Christopher J. Schwarz from Christine A. Lipa dated November 13, 2008

SUBJECT: BIG ROCK POINT INDEPENDENT SPENT FUEL STORAGE INSTALLATION  
INSPECTION REPORT 072-00043/08-01

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION III**

Docket Nos.: 072-00043; 050-00155

License No.: DPR-6

Report Nos.: 072-00043/08-01(DNMS)  
050-00155/08-01(DNMS)

Licensee: Entergy Nuclear Operations, Inc.

Facility: Big Rock Point Plant

Location: 10269 U.S. 31 North  
Charlevoix, MI 49720

Dates: October 22 through 24, 2008

Inspectors: Sarah R. Bakhsh, Reactor Inspector  
William G. Snell, Senior Health Physicist  
Jeremy Tapp, Health Physicist

Approved by: Christine A. Lipa, Chief  
Materials Control, ISFSI, and  
Decommissioning Branch

## EXECUTIVE SUMMARY

### Entergy Nuclear Operations, Inc. Big Rock Point Plant NRC Inspection Report 072-00043/08-01(DNMS)

The inspection consisted of observations and an evaluation of the licensee's programs including radiation protection, surveillance and maintenance, environmental monitoring, fire protection, and observation and evaluation of the Independent Spent Fuel Storage Installation (ISFSI) Emergency Plan exercise.

#### **Emergency Preparedness**

- The licensee adequately demonstrated the effectiveness of its ISFSI Emergency Plan and its ability to implement the Plan in response to an emergency (Section 1.1).

#### **Radiation Protection**

- The licensee implemented its radiation protection program in accordance with applicable regulations, its License, and the Technical Specifications (Section 1.2).

#### **Surveillance and Maintenance**

- The licensee implemented its surveillance and maintenance program in accordance with applicable regulations, its License, and the Technical Specifications. The licensee maintained the physical inventory records in accordance with 10 CFR Part 72.72 and maintained audit and corrective action programs. (Section 1.3).

#### **Environmental Monitoring**

- The licensee established and maintained its environmental monitoring program in accordance with applicable 10 CFR Part 20, 50 and 72 regulations, the License, and Technical Specifications (Section 1.4).

#### **Fire Protection**

- The licensee implemented its fire protection program in accordance with the applicable regulations, 10 CFR Parts 50 and 72, and Technical Specifications (Section 1.5).

## Report Details

### 1.0 Away from Reactor Independent Spent Fuel Storage Installation (ISFSI) (IP 60858)

#### 1.1 Emergency Preparedness

##### a. Inspection Scope

The inspectors observed and evaluated the conduct of the ISFSI biennial radiological emergency preparedness exercise. The inspectors reviewed the Big Rock Point ISFSI Emergency Plan and implementing procedures, and the applicable documents which contained the exercise scenario and the sequence of actions needed to mitigate consequences of the event. The inspectors reviewed the proposed exercise scenario to understand its scope and evaluate its adequacy to ensure the licensee could demonstrate its emergency response capabilities. The inspectors observed the pre-exercise briefing, the exercise, and the licensee's formal post-exercise critique.

##### b. Observations and Findings

Section 5.8 of the Big Rock Point ISFSI Emergency Plan requires the licensee to perform a biennial exercise to demonstrate emergency response capabilities and effectiveness of the licensee's Emergency Plan. The scenario for the October 23, 2008, exercise involved a simulated fire within the ISFSI protected area and adjacent to the dry cask storage pad. The Charlevoix Township Fire Department provided offsite fire fighting support in real time in response to the simulated emergency.

In response to the event, the licensee implemented appropriate, timely, and necessary actions to address the simulated fire. The licensee correctly classified the event, made timely notifications, augmented personnel as needed, conducted appropriate radiological monitoring, and ensured the safety of personnel. Licensee personnel maintained control throughout the scenario, starting with a prompt recognition of the initiating event and through recovery discussions. Throughout the exercise, the licensee's staff communicated well with all involved parties and demonstrated knowledge of the Emergency Plan. During the post-exercise critique, the licensee adequately evaluated its emergency response and management capability by identifying strengths and weaknesses, and a number of improvements that could be made. Examples of items the licensee identified for improvement included the need to ensure local law enforcement would be requested to provide traffic control at the entry road to the site during an event, and additional personnel should be trained as qualified radiation technicians.

##### c. Conclusion

The licensee adequately demonstrated the effectiveness of its ISFSI Emergency Plan and its ability to implement the Plan in response to an emergency.

## 1.2 Radiation Protection

### a. Inspection Scope

The inspectors reviewed select portions of the radiation protection program to verify compliance with the applicable regulations, the License, and the Technical Specifications. The inspectors evaluated personnel monitoring records, the licensee's follow up actions to a contaminated transfer cask, and ensured that the additional exempt sources found during the previous inspection were properly transferred.

### b. Observations and Findings

The licensee performed an Engineering Analysis to assess the need to continue occupational dose monitoring of site personnel. The analysis determined that site personnel receive less than 10 percent of the annual occupational dose limits, meaning there is no longer a regulatory requirement to continue to assess the occupational dose to workers. However, the licensee decided to continue to monitor occupational dose of personnel through the use of thermoluminescent dosimetry (TLD). The inspectors evaluated the 2007 Report of Occupational Exposure - Big Rock Point in accordance with 10 CFR 20.2206(c) and the Defueled Technical Specifications and determined that site personnel received less than 10 percent of the annual regulatory limit during operation of the ISFSI.

Per the inspectors' request during the previous NRC inspection in June of 2007, the licensee performed a physical inventory of their sealed sources and identified additional exempt sources onsite which was more than the three originally identified. None of the identifiable sources exceeded the Technical Specifications surveillance requirements to be leak tested since the isotopes and quantities met the exempt source definition in 10 CFR Part 30. The sources were not in use and the licensee planned to transfer them. In February 2008 the licensee transferred the sources to Palisades in a 30 gallon drum as an excepted package with limited quantity of material.

### c. Conclusion

The licensee implemented its radiation protection program in accordance with applicable regulations, its License, and the Technical Specifications.

## 1.3 Surveillance and Maintenance

### a. Inspection Scope

The inspectors reviewed the licensee's surveillance and maintenance program associated with dry fuel storage to verify compliance with the applicable regulations, the License, and Technical Specifications. The inspectors walked down the ISFSI pad, observed daily surveillance activities, reviewed the licensee's contingency plans, interviewed personnel, and reviewed select documents. The inspectors also reviewed the licensee's most recent Quality Assurance Audit Report and a selection of condition reports.

b. Observations and Findings

The inspectors conducted a walk down of the ISFSI pad and observed authorized and trained licensee staff perform daily surveillances of the casks including temperature monitoring, verifying the readings were well below Technical Specification limits, and inlet and outlet vent screen checks to ensure they were free of significant blockage or damage. The individual also evaluated the general condition of the pad, the transfer casks, lift unit, horizontal transfer system and the J-skid. The inspectors reviewed temperature logs for several months which indicated that the casks operated as designed with no abnormalities.

The licensee had contingency procedures in place to unload a canister from the storage cask and into the transfer cask in the unlikely occurrence of increased radiation levels or abnormal concrete temperatures over a specified period of time. The licensee also has a prescribed time frame per Technical Specifications to investigate and correct the problem.

The inspectors followed up on an issue identified by the licensee during June 2008 involving contamination on the transfer cask. The licensee identified smearable contamination during the annual radiological surveys of the transfer cask which is stored on the ISFSI pad. The licensee indicated that the contamination was most likely from fixed contamination leaching out due to environmental exposure. The licensee notified the Palisades Radiation Protection Manager and provided a courtesy call to the NRC. The lower north area of the transfer cask was decontaminated and resurveyed and there was no contamination found after cleaning. The licensee changed the frequency of the surveys to a monthly basis temporarily and the follow-up surveys indicated no detectable activity. After the month of September 2008, the licensee planned to perform the surveys quarterly. The licensee also plans to purchase a tarp to cover the transfer cask.

The licensee performed cask surface dose rate and contamination surveys on a quarterly basis. Quarterly inspections consisted of surveying the ISFSI and storage locations. For the ISFSI the licensee evaluated smears from the inlet vents and the concrete pad in front of the vents, smears from the transfer cask and from the general pad area, dose rate surveys of the ISFSI pad and the restricted area boundary fence, a line-of-sight verification (no temporary residences), and a detailed survey of transfer cask and transfer cask storage area. The quarterly inspections also included collecting smears and conducting dose rate surveys of source storage locations. The annual cask surface dose rate and contamination surveys included all the surveys performed quarterly in addition to smears and radiation surveys of the ISFSI security building, pole building, individual security shack at pad, and the ISFSI road. The inspectors reviewed the Radiological Survey and Status Sheets which indicated that the dose rates and contamination levels were well below regulatory limits and Technical Specification values.

The inspectors also reviewed the licensee's five year inspection of the first ISFSI cask loaded. Inspection of the cask was performed using a video probe and found minimal blockage or debris. The inspection was performed by an authorized remote imaging company and results were documented in a DVD and a written report.

The licensee performed a physical inventory of the fuel by annual verification of the integrity of the tampering seals on the storage casks and ensuring the seals were intact. The inspectors reviewed the Nuclear/Source Material Balance Sheet.

The most recent Quality Assurance Audit Report available was from November 2007. The review of the audit results determined the audit was thorough and identified a number of pertinent issues which generated condition reports. A review of condition reports written during 2008 indicated that the licensee was effectively identifying and following up on pertinent facility issues. A review of five condition reports determined that issues were being effectively addressed and closed out, but documentation of the root cause of the issue and follow-up corrective actions was minimal. Discussions with the licensee indicated that investigations and actions were taken that were not detailed in the updates to the condition reports. The licensee indicated that they would improve the level of documentation in the condition reports.

c. Conclusion

The licensee implemented its surveillance and maintenance program in accordance with applicable regulations, the License, and Technical Specifications. The licensee maintained the physical inventory records in accordance with 10 CFR Part 72.72 and maintained audit and corrective action programs.

**1.4 Environmental Monitoring**

a. Inspection Scope

The inspectors reviewed the 2007 Annual Radioactive Effluent Release and Waste Disposal Report per 10 CFR 50.36(a), the 2007 Annual Radioactive Effluent Release Report - Big Rock Point per 10 CFR 72.44(d)(3), and the 2007 Radiological Environmental Operating Report per 10 CFR 50, Appendix I and Technical Specifications 6.6.3.

b. Observations and Findings

The licensee's radiological and environmental monitoring reports indicated that there were no operational activities during 2007 that generated any solid radioactive waste. Liquid and gaseous effluent monitoring are no longer required and therefore not conducted. The only radiological environmental monitoring required for the ISFSI is gamma dose. The licensee maintains TLDs at eleven locations to measure gamma dose: four at the outside perimeter of the ISFSI, four at the ISFSI protected area fence line, and three control TLDs between 10.5 and 50 miles from the site. Environmental gamma doses are measured quarterly and annually by placing two TLD badges at each location. For 2007, the average annual TLD readings were 53 millirem at the outside perimeter, 97 millirem at the protected area fence, and 73 millirem at the control locations. These results reflected only a nominal increase in the TLD results over 2006.

In the 2007 Annual Radioactive Effluent Release Report, the inspectors noted that there was one quarterly TLD value that was greater than the TLD results for the remaining quarters and appeared to be an error. When questioned, the licensee indicated they had reviewed this data value and determined it was a valid measurement. The dose from the ISFSI operations did not exceed the limits as defined in 10 CFR 72.104. The licensee plans to review the contents and requirements for the annual reports and evaluate the need to consolidate the information and combine reports as necessary.

c. Conclusion

The licensee established and maintained its environmental monitoring program in accordance with applicable 10 CFR Part 20, 50 and 72 regulations, the License, and Technical Specifications.

**1.5 Fire Protection**

a. Inspection Scope

The inspectors reviewed the facility's fire protection program to verify compliance with the applicable regulations and Technical Specifications.

b. Observations and Findings

The licensee administratively controlled transient combustibles on the ISFSI pad. The inspectors observed no combustibles on the pad or within the ISFSI fenced area in accordance with the licensee's procedures.

The licensee's contingency plan addressed actions that are required in case of a fire. This plan included a description of fire protection equipment, a description of organizational roles and responsibilities during a fire emergency, and specific steps to be taken by personnel during fire emergencies. The inspectors evaluated various required mitigating equipment and structural design, and interviewed responsible licensee personnel with respect to the planned and contingency actions in case of a fire in various locations.

c. Conclusion

The licensee implemented its fire protection program in accordance with the applicable regulations, 10 CFR Parts 50 and 72, and Technical Specifications.

**2.0 Exit Meeting**

The inspectors presented the inspection results to members of the licensee staff at the conclusion of the onsite inspection activities on October 24, 2008. The licensee did not identify any of the documents reviewed or statements referenced to specific processes in as proprietary in nature.

Attachment: Supplemental Information

## SUPPLEMENTAL INFORMATION

### PARTIAL LIST OF PEOPLE CONTACTED

- \*Norm Brott, Palisades and Big Rock EP
- \*Suzanne Leblang, Big Rock Site General Manager
- \*Steve LaJoice, Big Rock Securities Manager
- \*Larry Potter, Big Rock ISFSI Supervisor

\*Persons present at the exit meeting

### INSPECTION PROCEDURE USED

60858                      Away-From-Reactor ISFSI Inspection Guidance

### ITEMS OPENED, CLOSED, AND DISCUSSED

Opened                      None

Closed                      None

Discussed                      None

### ACRONYMS

CFR	Code of Federal Regulations
IP	Inspection Procedure
ISFSI	Independent Spent Fuel Storage Installation
NRC	Nuclear Regulatory Commission
TLD	Thermoluminescent Dosimetry

### LIST OF DOCUMENTS REVIEWED

#### Emergency Preparedness

Big Rock Point Plant ISFSI Emergency Plan Revision 3 and Emergency Implementing Procedures

#### Radiation Protection

2007 Report of Occupational Exposure – Big Rock Point; dated February 27, 2008

Bill of Lading; 30 Gallon Drum of Material; dated February 13, 2008

Excepted Quantity Radioactive Material Shipment Checklist; dated February 13, 2008

Quality Assurance Audit Report, QA-12-2007-BRP-01

### **Surveillance and Maintenance**

Condition Report, CR-PLP-2008-02741; Smearable Contamination Found on Transfer Cask; dated June 19, 2008.

Nuclear/Source Material Balance Sheet; Accountability Period April 1, 2007-March 31, 2008; dated March 26, 2008

Procedure No. DFS-HTS-1; Horizontal Transfer System-Transfer of a Loaded Canister from a Storage Cask to the Transfer Cask; Revision No. 4; dated February 19, 2007

Procedure No. DFS-HTS-2; Horizontal Transfer System-Transfer of a Loaded Canister from Transfer Cask to a Storage Cask; Revision No. 4; dated February 19, 2007

Radiation Protection Guide RPG-28; dated August 22, 2008

Radiological Survey and Status Sheets, 2007 and 2008

### **Environmental Monitoring**

2007 Radiological Environmental Operating Report; dated April 28, 2008

2007 Annual Radioactive Effluent Release and Waste Disposal Report, dated April 29, 2008

2007 Annual Radioactive Effluent Release Report - Big Rock Point, dated February 27, 2008

T1-12, Rev. 7, Dry Fuel Storage Cask Daily Checks (select months from 2007 and 2008)

### **Fire Protection**

Procedure No. Volume 26; Fire Protection Summary; Revision No. 30; dated August 24, 2006