

June 26, 2002

Mr. Kurt M. Haas  
General Manager  
Big Rock Point Nuclear Plant  
Consumers Energy Company  
10269 US 31 North  
Charlevoix, MI 49720

SUBJECT: BIG ROCK POINT INSPECTION REPORT 05000155/2002-003(DNMS)

Dear Mr. Haas:

On June 5, 2002, the NRC completed an inspection at the Big Rock Point Nuclear Plant Restoration Project. The focus of the inspection was on facilities management and control, decommissioning support activities, spent fuel safety and radiological safety. The enclosed report presents the results of the inspection.

Observed security operations were very effective except for some limited activities observed during observation of protected area ingress on May 30, 2002. The observed activities were minimally effective. Your staff initiated immediate corrective actions and entered the issue into your corrective action program.

Additionally, a Non-Cited Violation was identified during inspection of the security program. Some contingency response equipment required by the Security Training and Qualification (ST&Q) plan was not immediately available to the armed officers. Additionally, documentation of some training did not meet all requirements of the ST&Q plan. The security staff initiated immediate corrective actions and entered both issues into the corrective action program.

This Non-Cited Violation (NCV) is described in Section 2.1 of the inspection report. If you contest this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-001, with copies to the Regional Administrator, Region III, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-001.

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K. Haas

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

Sincerely,

*/RA/*

Christopher G. Miller  
Decommissioning Branch

Docket No. 05000155  
License No. DPR-6

Enclosure: Inspection Report 05000155/2002-003(DNMS)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 05000155  
License No. DPR-06

Report No. 05000155/2002-003(DNMS)

Licensee: Consumers Energy Company

Facility: Big Rock Point Nuclear Plant

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

Dates: May 7 - June 5, 2002

Inspectors: William Snell, Health Physics Manager  
Ross Landsman, Project Engineer  
G. Pirtle, Physical Security Inspector  
A. Lapene, NRC Contractor  
W. Collins, NRC Contractor  
D. Trahan, NRC Contractor

Approved by: Christopher G. Miller, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

## EXECUTIVE SUMMARY

### Big Rock Point Restoration Project NRC Inspection Report 05000155/2002-003(DNMS)

This routine decommissioning inspection covered facilities management and control, decommissioning support activities, spent fuel safety and radiological safety. Overall, the decommissioning activities inspected were properly monitored and controlled. Observed security operations were very effective except for some limited activities observed during observation of protected area ingress. A Non-Cited Violation was identified during inspection of the security program.

#### Facilities Management and Control

- The licensee adequately demonstrated the implementation of their Defueled Emergency Plan. (Section 1.1)

#### Decommissioning Support Activities

- Security activities were being implemented in accordance with the requirements of the security plans and site security procedures. (Section 2.1)
- The Independent Spent Fuel Storage Installation intrusion detection and alarm assessment system were effective and functioned as designed. (Section 2.2)
- The licensee complied with the provisions of the December 14, 2001, security-related Confirmatory Action Letter. (Section 2.3)

#### Spent Fuel Safety

- The licensee conducted a thorough root cause evaluation in response to damage that occurred to the Vertical Canister Lift Fixture when it toppled off a fork lift while being transported. The accident contributed to a delay in fuel loading. (Section 3.1)
- The licensee has satisfactorily verified their capability to provide makeup water to the Spent Fuel Pool as required by the Defueled Technical Specifications. (Section 3.2)

#### Radiological Safety

- No concerns were identified regarding the information provided in the "Big Rock Point Annual Radiological Environmental Operating Report, January through December 2001" and the "Big Rock Point Annual Radioactive Effluent Release Report, January 1, 2001 to December 31, 2001". (Section 4.1)

## Report Details<sup>1</sup>

### **1.0 Facilities Management and Control**

#### 1.1 Emergency Preparedness (36801)

##### a. Inspection Scope

The inspectors evaluated the licensee's performance during an emergency preparedness exercise. The exercise was performed on May 8, 2002, to demonstrate the licensee's ability to effectively implement the Big Rock Point Defueled Emergency Plan.

##### b. Observations and Findings

The licensee developed and implemented a challenging scenario that effectively exercised licensee personnel and the Defueled Emergency Plan. In anticipation of upcoming dry fuel storage (DFS) activities, the licensee developed a scenario that would demonstrate their ability to respond to a DFS accident occurring outside the Containment Building. The scenario simulated that the prime mover carrying a loaded DFS cask tipped over the edge of the loading dock. This resulted in the lid of the cask coming off, the spent fuel canister sticking out about 16 inches, and diesel fuel leaking from the prime mover that subsequently caught fire.

At the initiation of the exercise, licensee personnel in the Monitoring Station correctly declared an Unusual Event three minutes after being notified of the damaged cask, which was subsequently upgraded to an Alert when the fire was reported. The Emergency Response Organization (ERO) was promptly activated and the Emergency Support Center (ESC) staffed. Initial required notifications to the County, State of Michigan, and NRC were completed within the required times. The County was notified in 14 minutes (versus a goal of 30 minutes); the State in 17 minutes (versus a goal of 30 minutes); and the NRC in 26 minutes (versus a goal of 60 minutes).

The licensee demonstrated appropriate command and control capability during the exercise. It was clear throughout the exercise who was in charge. Communications within the ESC and between the ESC and personnel in the field were clear and effective during the exercise. The Site Emergency Director (SED) made periodic briefings in the ESC to ensure that everyone was up-to-date on events. The licensee periodically verified habitability at the ESC and reminded personnel that no eating, chewing or smoking was allowed. The licensee completed procedurally required signatures on various forms. The licensee effectively used the status boards in the ESC.

Maintenance Building personnel quickly evacuated nearby trailers when high radiation levels occurred from the simulated cask accident. At the declaration of Alert, site assembly and accountability was initiated. Personnel used an alternative assembly location due to high dose rates in the normal assembly area, the Maintenance Building. In spite of this, accountability only took 27 minutes versus a goal of 60 minutes.

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<sup>1</sup>NOTE: A list of acronyms used in the report is included at the end of the Report Details.

The initial response to the fire was prompt, with the ESC calling for local offsite fire support to be on standby. A few minutes later, the licensee requested offsite fire support to respond. The licensee notified security to prepare for their arrival. The licensee made the decision to have the off site fire support use foam to put out the fire. Due to the orientation of the cask, the highest dose consequence was to the West. The licensee took this into consideration when directing fire fighting activities to minimize any dose to the fire fighters.

The licensee did a good job of developing potential methods to get the fuel canister back into the cask while being cognizant of the adverse radiological conditions that existed. Additional key licensee and contractor personnel were brought in to supplement the ESC staff to develop potential plans of actions. Several solutions were proposed with activities being prioritized. The licensee recognized that there was no need to rush any potential corrective action since there was no offsite radiological consequence and little to no threat to onsite personnel as long as they were kept away from the cask.

Following the exercise, the licensee players and controllers conducted a self critique. The critique was very good. The licensee recognized and discussed weaknesses of a number of issues raised where performance could be enhanced.

c. Conclusions

The licensee adequately demonstrated the implementation of their Defueled Emergency Plan.

**2.0 Decommissioning Support Activities**

2.1 Safeguards Program Implementation (81700)

a. Inspection Scope

The inspectors reviewed the Big Rock Point Safeguards Program to determine whether physical security requirements were implemented in accordance with the security plans and site security procedures. Areas reviewed included: security alarm station; access control of personnel, packages, and vehicles; testing and maintenance of security equipment; protected area detection aids; personnel search equipment; vehicle barrier system inspections; security procedures; security event logs; training and certification of newly hired security personnel; audit of the security program; and documentation of security activities.

b. Observations and Findings

A Non-Cited Violation was identified during inspection of the security program. Some contingency equipment required by Section 2.0, Chapter 4 of the Security Training and Qualification (ST&Q) plan were not immediately available to some guards (types and quantity of weapons, and ammunition available and on site is considered safeguards information and exempt from public disclosure). Additionally, documentation of some qualification contingency training did not meet all requirements of Section 2.4, Chapter 2 of the ST&Q plan (NCV 50-155/2002003-01) because the documents did not contain signature of a supervisor or other testing oversight.

The security staff initiated immediate corrective actions and entered both issues into the corrective action program (Condition Report Nos. C-BRP-02-0208). Additional appropriate contingency equipment was issued to the on-duty security officers prior to the completion of the inspection. Sufficient equipment was available and on site. The letter format form used to document contingency weapon qualification was being revised to include the elements that make up an Individual Qualification Record.

Observed security operations were very effective, except some limited activities performed during observation of protected area ingress on May 30, 2002. The observed activities were completed within 15 seconds and were minimally effective. The deficiency noted is considered sensitive security information. Immediate corrective actions were initiated by the licensee and the issue was entered into the corrective action program (Condition Report No. C-BRP-02-0209).

The alarm station operations observed were effective; the control of protected area (PA) ingress of packages and vehicles were effective and search equipment functioned as designed. A well documented security equipment testing program was evident. The PA detection system functioned as designed during testing of the system. Vehicle barrier system (VBS) inspections were completed at the required intervals and no deficiencies were noted during walk down of the VBS. Security procedures reviewed were well written and were consistent with security plan requirements. Security events were appropriately evaluated and logged within required time limits. The training records for newly hired security officers were accurate and complete. Records of security activities were complete and accurately documented in daily activity logs and alarm record logs.

Security officers observed or interviewed while on post were knowledgeable of their responsibilities. No deficiencies were noted during walk down inspections of the protected area perimeter and the vehicle barrier system.

The annual audit of the security program completed in April 2002 was adequate. No significant adverse findings were identified.

c. Conclusions

Security activities were being implemented in accordance with the requirements of the security plans and site security procedures.

2.2 Independent Spent Fuel Storage Installation (81001)

a. Inspection Scope

The inspector and three NRC contractors toured the site for the Independent Spent Fuel Storage Installation (ISFSI). The ISFSI perimeter intrusion detection system and closed circuit television (CCTV) system assessment capabilities were tested and evaluated. The inspector and contractor personnel attempted undetected penetration of the ISFSI intrusion detection system and CCTV assessment system by various penetration techniques to include running, crawling, jumping, and concealment.

b. Observations and Findings

The test results confirmed that the intrusion detection and alarm assessment equipment detected all attempts to penetrate the ISFSI boundary. Immediate and effective assessment capability was also available for all alarms generated. The protected area boundary was well constructed and the isolation zones were free of objects that could offer concealment.

c. Conclusions

The ISFSI intrusion detection and alarm assessment system were effective and functioned as designed.

2.3 Follow-up of Confirmatory Action Letters

a. Inspection Scope (92703)

The inspector reviewed the licensee's actions to confirm that the measures identified in a security-related Confirmatory Action Letter (CAL), dated December 14, 2001, were implemented. Inspection activities included interviews with security managers and review of appropriate security documents and records. The specific requirements of the CAL are safeguards information and exempt from public disclosure.

b. Observation and Findings

Reviews of weapon qualification training records for all security officers, interviews with security managers and security officers, and review of randomly selected duty rosters for a four month period confirmed that security officers were armed with the appropriate weapons while on post (See Section 2.2 for related information).

c. Conclusions

The licensee complied with the provisions of the December 14, 2001, security-related CAL.

**3.0 Spent Fuel Safety**

3.1 Vertical Canister Lift Fixture Damage (60853)

a. Inspection Scope

The inspectors evaluated the licensee's actions in response to damage that occurred to the Vertical Canister Lift Fixture.

b. Observation and Findings

On May 16, 2002, the Vertical Canister Lift Fixture (VCLF) was damaged when it toppled off the fork lift as it was transported up the dry fuel storage ramp and into the Containment Building. The VCLF is classified as safety-related and is used to vertically transfer a loaded canister from the transfer cask to a storage cask.

Based on interviews with workers involved in the incident, the licensee determined that the forks of the forklift were positioned under the wood pallet on which the VCLF was bolted. The VCLF was centered on the pallet, and the load was recognized by the crew as top-heavy, but stable. The work crew discussed using a different forklift with longer forks, but it was not available at the time. Additionally, the VCLF pallet had been transported on a level surface in this configuration twice previously using the same forklift with no problems. Other loads had also been carried up the ramp by the same forklift.

As the driver moved up the ramp, the VCLF tilted rearwards toward the operator, causing the section of pallet between the VCLF and the forklift mast to break. Reacting instinctively, the operator began to lower the forks, while maintaining forward momentum up the ramp. During the operator's attempt to compensate for the load shift, the pallet slid forward, causing the pallet cross support to slip off the ends of the forks. The tips of the forks then impacted the bottom of the pallet flooring, causing the pallet and VCLF to pitch forward. The VCLF came to rest on its side on the horizontal top section of the ramp.

The licensee evaluated the damage to the VCLF, which included bent structural pieces and damage to the controls and valves, and decided to send it back to the manufacturer in Seattle, Washington. The estimated one month repair time will delay fuel loading since it is a critical path item for fuel loading.

Corrective actions from this incident included having all departments conduct "all hands" meetings to review this event. Lessons-learned discussion included exercising extreme caution when handling unstable loads, especially when there are changes in terrain, and practicing defense in-depth by adding additional assurances (tie-downs) when handling materials with a forklift.

The contributing root causes were: 1) the center-of-gravity of the VCLF was high; 2) the load was bolted to the pallet, not secured (tied-down) to the forklift; 3) the ramp was a greater grade from ramps used previously; and 4) the operator did not stop and level the load once it shifted.

c. Conclusions

The licensee conducted a thorough root cause evaluation in response to damage that occurred to the Vertical Canister Lift Fixture when it toppled off a fork lift while being transported. The accident contributed to a delay in fuel loading.

3.2 Spent Fuel Pool Makeup (60801)

a. Inspection Scope

The inspector verified the licensee was maintaining the capability to supply makeup water the Spent Fuel Pool (SFP).

b. Observations

The Big Rock Point Defueled Technical Specifications require the licensee to provide an onsite pump with the capability of supplying at least 28 gpm of makeup water to the SFP (Section 3.1.2). The Technical Specifications also specify that the pump's

capability is to be verified once per 12 months (Section 4.1.2.b). The inspector verified that the pump's capability was being tested by reviewing the implementation of Procedure T365-31, Flow Test of Spent Fuel Pool (SFP) Alternate Makeup Water Line. Procedure T365-31 was implemented in April 2001 and April 2002, with the flow capacity of the pump determined to be 114 and 49 gpm respectively. No concerns were identified with the procedure or its implementation.

c. Conclusions

The licensee satisfactorily verified the capability to provide 28 gpm of makeup water to the SFP as required by the Defueled Technical Specifications.

#### **4.0 Radiological Safety**

##### **4.1 Review of Annual Radioactive Environmental and Effluent Release Reports (84750)**

a. Inspection Scope

The "Big Rock Point Annual Radiological Environmental Operating Report, January through December 2001" and the "Big Rock Point Annual Radioactive Effluent Release Report, January 1, 2001 to December 31, 2001" were reviewed, including the summaries, interpretations, and statistical evaluations provided within the Environmental Report and the summary of the quantities of radioactive liquid and gaseous effluents and solid waste released provided within the Effluent Release Report.

b. Observations and Findings

The inspectors verified that the scope and content of the above two reports were consistent with the requirements of Sections 6.7.2 and 6.7.3 of the Big Rock Point Defueled Technical Specifications. The licensee determined the 2001 data to be consistent with related data from previous years, and no unusual or anomalous data were identified.

c. Conclusions

No concerns were identified regarding the information provided in the "Big Rock Point Annual Radiological Environmental Operating Report, January through December 2001" and the "Big Rock Point Annual Radioactive Effluent Release Report, January 1, 2001 to December 31, 2001".

#### **5.0 Exit Meeting**

The inspectors presented initial inspection results to members of licensee management at the conclusion of the inspection on June 5, 2002. The licensee acknowledged the findings presented. The licensee did not identify any documents or processes reviewed by the inspectors as proprietary.

## PARTIAL LIST OF PERSONS CONTACTED

### Licensee

K. Haas, Plant General Manager  
G. Drenth, Training Supervisor  
K. Pallagi, Radiation Protection & Environmental Services Manager  
G. Petitjean, Licensing Supervisor  
W. Trubilowicz, Dry Fuel Storage Manager  
G. Withrow, Engineering, Operations & Licensing Manager  
R. Baker, Security Manager, Burns International Security Services, Inc. (BISSI)  
S. LaJoice, Site Manager, BISSI  
M. VanAlst, Security Supervisor

## INSPECTION PROCEDURES USED

|          |   |
|----------|---|
| IP 36801 | Organization, Management & Cost Controls                    |
| IP 60801 | Spent Fuel Pool Safety                                      |
| IP 60853 | On-Site Fabrication and Construction of an ISFSI            |
| IP 81001 | Independent Spent Fuel Storage Installation                 |
| IP 81700 | Physical Security Assessment                                |
| IP 84750 | Radwaste Treatment, and Effluent & Environmental Monitoring |
| IP 92703 | Follow-up of Confirmatory Action Letters                    |

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

|                   |     |  |
|-------------------|-----|--|
| 50-155/2002003-01 | NCV | Some contingency equipment required by Section 2.0, Chapter 4 of the Security Training and Qualification (ST&Q) plan were not immediately available to some guards, and documentation of some contingency qualification training did not meet all requirements of Section 2.4, Chapter 2 of the ST&Q plan. |
|-------------------|-----|--|

### Closed

|                   |     |  |
|-------------------|-----|--|
| 50-155/2001003-02 | IFI | Completion of Security Plan, Security Training and Qualification Plan, and Security Contingency Plan for the Independent Spent Fuel Storage Facility.  |
| 50-155/2002003-01 | NCV | Some contingency equipment required by Section 2.0, Chapter 4 of the Security Training and Qualification (ST&Q) plan were not immediately available to some guards, and documentation of some contingency qualification training did not meet all requirements of Section 2.4, Chapter 2 of the ST&Q plan. |

### Discussed

None

## LIST OF ACRONYMS USED

|       |   |
|-------|---|
| BRP   | Big Rock Point                                  |
| CARB  | Corrective Action Review Board                  |
| CAS   | Central Alarm Station                           |
| CR    | Condition Report                                |
| HIC   | High Integrity Container                        |
| IPTE  | Infrequently Performed Test or Evolution        |
| ISFSI | Independent Spent Fuel Storage Installation     |
| MRB   | Management Review Board                         |
| NRC   | Nuclear Regulatory Commission                   |
| PA    | Protected Area                                  |
| RPES  | Radiation Protection and Environmental Services |
| SFP   | Spent Fuel Pool                                 |

## LICENSEE DOCUMENTS REVIEWED

Nuclear Performance Assessment Department Audit No. A-02-01, issued April 10, 2002

Vehicle Barrier System Annual Inspections dated June 18, 2001, September 11, 2001, October 30, 2001

Vehicle Barrier System Quarterly Inspections dated September 11, 2001, December 19, 2001, March 30, 2002

Training records for Four Newly Hired Security Officers Since Previous Inspection

Safeguards Event Logs For September 2001 - April 2002

Alarm Station Daily Activity Logs For April 1 - May 27, 2002

Identification Station Daily Activity Logs For April 1 - May 27, 2002

Volume 7, Plant Manual, "Defueled Security Implementing Procedures", Revision 76, February 11, 2002

Security Equipment Maintenance Request Forms For January 1- April 30, 2002

Security System Maintenance Log Weekly Testing Forms For January 7, 2002 - May 27, 2002

CAS Daily Alarm Logs For April 1, 2002 - May 27, 2002

Training Requalification Records for Seven Security Officers

Additional licensee documents reviewed and utilized during the course of this inspection are specifically identified in the "Report Details" above.