

August 3, 2005

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

SUBJECT: BIG ROCK POINT INSPECTION REPORT 050-00155/05-002(DNMS) &  
INSPECTION REPORT 072-00043/05-001(DNMS)

Dear Mr. Haas:

On July 14, 2005, the NRC completed inspection activities at the Big Rock Point Nuclear Plant. The purpose of the inspection was to determine whether decommissioning and spent fuel storage activities were conducted safely and in accordance with NRC requirements. Specifically, during onsite inspections on May 16 through 19, and July 11 through 14, 2005, the inspector evaluated decommissioning and demolition activities, management oversight of decommissioning activities, radioactive waste management, radiological safety, and operation of the Independent Spent Fuel Storage Installation (ISFSI). At the conclusion of on-site inspections on May 19 and July 14, 2005, the inspector discussed the inspection findings with you and members of your staff.

This inspection consisted of an examination of decommissioning and ISFSI activities at the Big Rock Point Nuclear Plant as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities in progress, and interviews with personnel.

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically 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>.

K. Haas

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

Sincerely,

**/RA/**

Jamnes L. Cameron, Chief  
Decommissioning Branch

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

Enclosure: Inspection Report 050-00155/05-002(DNMS) &  
Inspection Report 072-00043/05-001(DNMS)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos.: 050-00155; 072-00043

License Nos.: DPR-6

Report Nos.: 050-00155/05-002(DNMS) &  
072-00043/05-001(DNMS)

Licensee: Consumers Energy Company

Facility: Big Rock Point Restoration Project

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

Dates: May 16 through 19, 2005, and  
July 11 through 14, 2005

Inspector: William G. Snell, Senior Health Physicist

Approved by: Jamnes L. Cameron, Chief  
Decommissioning Branch,  
Division of Nuclear Materials Safety

## EXECUTIVE SUMMARY

### Consumers Energy Company Big Rock Point Restoration Project NRC Inspection Report 050-00155/05-002(DNMS) & Inspection Report 072-00043/05-001(DNMS)

This routine decommissioning inspection involved a review of the Consumers Energy Company's and its contractors' performance related to decommissioning and demolition activities, management oversight of decommissioning activities, radioactive waste management, radiological safety, and operation of the Independent Spent Fuel Storage Installation. During this inspection period, major activities included demolition, decontamination, and surveys of the turbine building foundation and radwaste vaults, and scabbling of concrete surfaces inside containment.

#### **Organization, Management and Cost Controls**

- The inspector determined that the licensee adequately implemented its chain-of-custody record keeping requirements for the collection of soil samples as required by Section 5.5 of the License Termination Plan. (Section 1.0)

#### **Safety Reviews, Design Changes, and Modifications**

- The inspector determined that the licensee's 10 CFR 50.59 safety evaluation titled, "Retention Basin Release System Operation," was reviewed, approved and documented in accordance with licensee procedures. Draft Procedure O-RBR-XX, "Retention Basin Release System Operation," was adequate to ensure that effluents from the retention basin were within acceptable levels. (Section 2.0)

#### **Decommissioning Performance and Status Review**

- The inspector determined that the licensee's daily management meetings and the Restoration Safety Review Committee meeting were effective in ensuring that decommissioning activities were properly focused and effective, and work was performed in a safe manner. The Citizens Advisory Board provided an opportunity for the licensee to keep the local community informed and involved in decommissioning activities at Big Rock Point. The licensee and its contracted workforce conducted work safely and in accordance with license requirements, and radioactively contaminated material was adequately controlled. (Section 3.0)

#### **Maintenance and Surveillance (62801)**

- The inspector concluded that the licensee adequately maintained the equipment used for decommissioning, kept the work areas well organized, and adequately maintained site housekeeping. (Section 4.0)

#### **Occupational Radiation Exposure**

- The inspector concluded that the radiological work practices of the licensee and contractor staff were adequate, and that personal survey and monitoring activities were performed as required. (Section 5.0)

### **Final Status Survey**

- The inspector determined that the licensee's documentation of final status surveys of building and material surfaces were complete and consistent with procedural requirements and release criteria. (Section 6.0)

### **Radioactive Waste Treatment, and Effluent and Environmental Monitoring**

- The inspector determined that the licensee adequately controlled the radiological effluent releases from the site. Furthermore, the licensee adequately maintained equipment used to measure the radioactive contents of materials released from the retention pond. (Section 7.0)

### **Solid Radioactive Waste Management and Transportation**

- The inspector determined that the licensee adequately controlled and stored solid and liquid radioactive waste. (Section 8.0)

### **Operation of an Independent Spent Fuel Storage Installation**

- The licensee conducted the required daily surveillances to verify cask vent screens were clear and to record cask temperatures as specified in the Dry Fuel Storage Technical Specifications for the casks stored at the Independent Spent Fuel Storage Installation. (Section 9.0)

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

### **1.0 Organization, Management and Cost Controls (36801)**

#### **1.1 Inspection Scope**

The inspector reviewed selected portions of the BRP License Termination Plan (LTP) to verify that commitments were being implemented as required. Specifically, the inspector evaluated whether the licensee implemented chain-of-custody record keeping requirements for the collection of soil samples as specified in Section 5.5 of the LTP, and further delineated in Procedure RM-72, Sample Chain-of-Custody, Rev. No. 0. The inspector reviewed Form RM-72-1, Chain-of-Custody Record, for two final status surveys: 11C<sub>1</sub>, Solid Radwaste Vault Excavation Area, Survey Unit 11, dated March 25, 2003, and, 09C<sub>x4</sub>, Excavated Soil from Screenhouse Area, Survey Unit 09, dated October 1, 2004.

#### **1.2 Observations and Findings**

The licensee had adequately filled out the chain-of-custody form for the soil samples collected for the final status surveys reviewed. The Chain-of-Custody form (RM-72-1) for each survey area contained signatures, dates, times, and the sample condition at each point when the sample was passed to another individual, from the collection of the sample through the analysis for radioactivity and storage.

#### **1.3 Conclusion**

The inspector determined that the licensee adequately implemented its chain-of-custody record keeping requirements for the collection of soil samples as required by Section 5.5 of the LTP.

### **2.0 Safety Reviews, Design Changes, and Modifications (37801)**

#### **2.1 Inspection Scope**

The inspector reviewed a safety evaluation written for the conduct of decommissioning that resulted in a change to the facility, to verify that the licensee had reviewed, approved, and documented the evaluation in accordance with licensee procedures. The inspector reviewed the 10 CFR 50.59 evaluation titled, "Retention Basin Release System Operation," and draft Procedure O-RBR-XX, "Retention Basin Release System Operation." The inspector also reviewed the licensee's April 13, 2005, submittal to the NRC, "Dockets 50-155 and 72-043 - License DPR-6 - Big Rock Point Plant - 10 CFR 50.59 Report of Changes, Tests and Experiments."

#### **2.2 Observations and Findings**

The licensee performed a safety evaluation for the Retention Basin Release System, which was installed to provide a means to monitor, store, and release as effluent, the

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

groundwater pumped from excavations in the former plant industrial area. The documentation comprising the 10 CFR 50.59 review titled, "Retention Basin Release System Operation," contained Form BRP021, "Quality Review Form," which identified the required reviews and reviewer sign-offs; Form BRP124, "10 CFR 50.59 and 10 CFR 50.82 (PSDAR) Evaluation," which provided the safety evaluation; draft Procedure O-RBR-XX, "Retention Basin System Operation;" and a proposed mark-up of the Updated Final Hazards Summary Report (UFHSR). The licensee's review was sufficient in scope and depth to address safety issues, determine that NRC approval for the change was not required, and conclude that a revision to the Big Rock Point UFHSR was required. Revision 13 to the UFHSR, which was attached to the licensee's April 13, 2005, submittal of "Dockets 50-155 and 72-043 - License DPR-6 - Big Rock Point Plant - 10 CFR 50.59 Report of Changes, Tests and Experiments," contained the recommended changes to the UFHSR. The draft procedure for the operation of the retention basin ensured the proper valve line-ups, ensured that the liquid process monitor was operable prior to the start of a release of effluent, and listed immediate and subsequent actions if off normal conditions occurred.

### 2.3 Conclusions

The inspector determined that the licensee's 10 CFR 50.59 safety evaluation titled, "Retention Basin Release System Operation," was reviewed, approved and documented in accordance with licensee procedures. Draft Procedure O-RBR-XX, "Retention Basin Release System Operation," was adequate to ensure that effluents from the retention basin were within acceptable levels.

## 3.0 **Decommissioning Performance and Status Review (71801)**

### 3.1 Inspection Scope

The inspector attended and observed the conduct of licensee meetings regarding decommissioning activities, including daily management team meetings, a July 12 through 13, 2005 Restoration Safety Review Committee (RSRC) meeting, and a July 13, 2005 Citizens Advisory Board (CAB) meeting. The inspector performed plant tours to assess field conditions and decommissioning activities, and to verify that the licensee and its contracted workforce conducted work safely and in accordance with license requirements, and that radioactively contaminated material was controlled.

### 3.2 Observations and Findings

During the daily management team meetings, the licensee focused on progress and performance regarding plant decommissioning activities and ensured that expectations were communicated to the work force. The inspector observed that licensee management addressed pertinent decommissioning activities, project scheduling, radiological issues, and industrial safety concerns.

Licensee management and staff and members of the Independent Safety Review Committee (ISRC) attended the July 13, 2005 RSRC meeting. The structure and purpose of the ISRC was defined in Appendix C of Big Rock Point Plant Manual CPC-2A, "Quality Program Description for Nuclear Power Plants," and Procedure No. Volume 34A-05, "Safety Review and Independent Safety Review Committee." The ISRC was comprised of three industry experts who provided an independent review of:

10 CFR 50.59 evaluations, violations, audit reports, activities requiring prior NRC approval, and proposed changes to the Defueled Technical Specifications. The ISRC members reported to the Consumers Power Senior Vice President of Nuclear, Fossil and Hydro Operations. The RSRC meeting, which was previously conducted in June 2004, provided the licensee an opportunity for independent review and comment from individuals not otherwise actively engaged in the Big Rock Point restoration project. The RSRC meeting, which included separate breakout sessions, addressed all areas of plant decommissioning, including demolition activities, radiation protection, final status surveys, industrial safety, schedule, budget, audits, and contractor performance. The inspector observed the meeting to be open and candid in the discussion of areas in which performance was good, as well as program activities that could be improved.

The Big Rock Point Citizens Advisory Board (CAB) was comprised of a dozen public officials and citizens from the surrounding communities, and had existed since the plant was shut down in 1997. The purpose of the CAB was to provide a formal channel of communication with the local community. The licensee provided the Board members a site tour prior to the start of the meeting. During the meeting, the inspector providing a briefing on NRC inspection activities at Big Rock Point and answered questions from members of the Board. The General Manager of Big Rock Point gave a presentation on the progress of the restoration project and expectations for completing the work.

During site tours, the inspector observed licensee staff conducting decontamination of structural surfaces, demolition activities, and radiological surveys. The inspector noted that good work practices were adhered to and the material condition of facilities and equipment were commensurate with current decommissioning activities. The licensee and contractor personnel interviewed were knowledgeable of their work assignments and were attentive to their individual tasks. The inspector's check of numerous radiological instruments used throughout the site determined that all had current calibration stickers and had received daily instrument checks. The inspector noted for the licensee that, due to exposure to sunlight, some of the calibration stickers were faded to the extent that they were difficult to read. Because of the large outdoor work area comprising the turbine building foundation and radwaste vaults, an extensive area was roped off to control worker access and control the spread of potentially contaminated soil and other materials. Portable survey instruments were provided at the entry/exit points to this area and workers were observed conducting personal surveys as required before exiting the area.

### 3.3 Conclusion

The inspector determined that the licensee's daily management meetings and the Restoration Safety Review Committee meeting were effective in ensuring that decommissioning activities were properly focused and effective, and work was performed in a safe manner. The Citizens Advisory Board provided an opportunity for the licensee to keep the local community informed and involved in decommissioning activities at Big Rock Point. The licensee and its contracted workforce conducted work safely and in accordance with license requirements, and radioactively contaminated material was adequately controlled.

## **4.0 Maintenance and Surveillance (62801)**

### **4.1 Inspection Scope**

The inspector walked down areas of the plant to assess the material condition of the facility and equipment, and housekeeping.

### **4.2 Observations and Findings**

The licensee's work force performed work throughout the reactor building, on the turbine building foundation and radwaste vaults, and along the former power line corridor [quality verification area (QVA)], and associated with the surveying, loading, and shipping of waste materials. The inspector observed that although work areas were at times small and crowded for the number of workers and the amount of equipment being used, the areas were well organized. The licensee limited tools and equipment in the work areas to those that were needed and operable. Work areas were generally clean. The licensee adequately maintained equipment and controlled dust.

### **4.3 Conclusion**

The inspector concluded that the licensee adequately maintained the equipment used for decommissioning, kept the work areas well organized, and adequately maintained site housekeeping.

## **5.0 Occupational Radiation Exposure (83750)**

### **5.1 Inspection Scope**

The inspector evaluated the radiological work practices of licensee and contractor staff who conducted decommissioning activities, and interviewed licensee and contractor management and staff to verify workers employed proper radiological work practices and that survey and monitoring activities were performed as required.

### **5.2 Observations and Findings**

The inspector observed that workers adhered to the radiological work practices and expectations employed at Big Rock Point. Personnel were cognizant of precautions related to the work they performed and knowledgeable of radiological conditions in their work areas. Licensee and contractor workers communicated effectively, demonstrated appropriate concern for industrial and radiological safety, and employed good work practices. Workers wore the appropriate protective clothing for the work performed, and removed personal protective clothing and equipment in an appropriate manner. Workers leaving contaminated work areas and radiologically controlled areas used the portable and/or fixed radiation monitoring equipment as required.

### **5.3 Conclusion**

The inspector concluded that the radiological work practices of the licensee and contractor staff were adequate, and that personal survey and monitoring activities were performed as required.

## **6.0 Final Status Survey (83801)**

### **6.1 Inspection Scope**

The inspector evaluated final status survey documentation to verify that building and material surfaces had been decontaminated to radiological levels consistent with procedural requirements and release criteria. The inspector reviewed the following Bulk Monitoring Release (BMR) work packages: 2004-0041, entitled, "Pipe Tunnel Connector, Turbine Building Rm. 114;" 2004-0079, entitled, "Stack Base, Building B-1 Chimney, Room 605;" 2005-0013, entitled, "Turbine Building Floor Area Rooms 124/125;" 2005-0027, entitled, "Precast Cement Catch Basin;" and 2005-0031, entitled, "Room 126 - South Foundation."

### **6.2 Observations and Findings**

The reviewed work packages were complete, clearly identified the areas being surveyed, documented survey results as required, and contained appropriate sign-offs.

### **6.3 Conclusion**

The inspector determined that the licensee's documentation of final status surveys of building and material surfaces were complete and consistent with procedural requirements and release criteria.

## **7.0 Radioactive Waste Treatment, and Effluent and Environmental Monitoring (84750)**

### **7.1 Inspection Scope**

The inspector reviewed the "Big Rock Point Radioactive Environmental Report, January 1, 2004 - December 31, 2004," and the "Big Rock Point Annual Radiological Effluent Release Report, January 1, 2004 - December 31, 2004." The review included evaluations of 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. The inspector reviewed the licensee's August 2004 implementation of Procedure No. CIP-52, "Monthly, Quarterly, and Annual Source Checks and Calibration of Retention Pond Process Monitor."

### **7.2 Observations and Findings**

The scope and content of the reviewed reports were consistent with the requirements of Sections 6.6.2 and 6.6.3 of the Big Rock Point Defueled Technical Specifications. The radiological environmental and effluent release information provided in the reports for calendar year 2004 data was consistent with the previous years' results, and no unusual or anomalous data were identified. The information demonstrated that the releases from the site were within the limits of 10 CFR Part 20.

The monthly source check, quarterly alarm check, and annual calibration of the Retention Pond Process Monitor were completed as required. The results of the checks and calibration adequately demonstrated that monitor was in proper working condition.

### 7.3 Conclusions

The inspector determined that the licensee adequately controlled the radiological effluent releases from the site. Furthermore, the licensee adequately maintained equipment used to measure the radioactive contents of materials released from the retention pond.

## **8.0 Solid Radioactive Waste Management and Transportation (86750)**

### 8.1 Inspection Scope

The inspector reviewed the storage and control of solid and liquid radioactive waste throughout the site.

### 8.2 Observations and Findings

The licensee controlled contaminated and/or potentially contaminated materials through access controls, barriers, and segregation. Concrete debris that was surveyed and ready for analysis and release via the BMR program areas was identified by spraying with purple paint and segregation from other material. Some concrete blocks in need of additional scabbling were covered and stored in areas controlled by rope barriers and postings until workers had time to conduct the scabbling. Soil removed from around the turbine building foundations, radwaste vaults, and the adjacent portion of the heavy haul road was moved to the QVA where it was spread into one meter layers and surveyed to determine whether it was radiologically contaminated. Inside containment, potentially contaminated dust was controlled through the use of portable HEPA filter units and spraying water. The inspector also observed that water generated from dewatering operations was pumped to the retention basin where it was verified as non-contaminated prior to release.

### 8.3 Conclusion

The inspector determined that the licensee adequately controlled and stored solid and liquid radioactive waste.

## **9.0 Operation of an Independent Spent Fuel Storage Installation (60855.1)**

### 9.1 Inspection Scope

The inspector reviewed the results of surveillances specified in the Dry Fuel Storage Technical Specifications (DFS TS) for the casks stored at the Independent Spent Fuel Storage Installation (ISFSI). Specifically, the inspector reviewed DFS TS 3.3.1, "Storage Cask Air Inlet and Outlet Openings," and DFS TS 3.3.2, "Storage Cask Temperature During Storage," which required daily surveillances to verify cask vent screens were clear and to record cask temperatures.

### 9.2 Observations and Findings

The DFS TS 3.3.1 required an inspection of the four inlet and four outlet vent screens on each loaded storage cask on a 24-hour frequency. DFS TS 3.3.2 required verification that the storage cask temperatures were within the required limits on a

24-hour frequency. The licensee was implementing Procedure No. T1-12, "Dry Fuel Storage Cask Daily Checks" as a means of ensuring the checks were completed. The results of the daily checks to verify the vent screens were clear, and the daily temperature readings, were recorded in Attachment 1 to Procedure T1-12. The inspector examined a recently completed Attachment 1 and verified that the licensee implemented the procedure. The inspector observed that the cask vent screens were clear of debris.

### 9.3 Conclusions

The licensee conducted the required daily surveillances to verify cask vent screens were clear and to record cask temperatures as specified in the Dry Fuel Storage Technical Specifications for the casks stored at the Independent Spent Fuel Storage Installation.

### 10.0 **Exit Meeting Summary**

The inspector presented preliminary inspection findings to members of the licensee management team at the conclusion of onsite inspection activities on May 19 and July 14, 2005. The licensee acknowledged the findings presented. The licensee did not identify any documents or processes reviewed by the inspector as proprietary.

## **PARTIAL LIST OF PERSONS CONTACTED**

### Consumers Energy Company

- \* Kurt Haas, Site General Manager
- \* Ken Pallagi, Radiation Protection & Environmental Services Manager
- \* William Trubilowicz, Cost, Scheduling and Purchase Manager

\* Persons present at the exit meetings.

## **INSPECTION PROCEDURES USED**

IP 36801	Organization, Management & Cost Controls
IP 37801	Safety Reviews, Design Changes, and Modifications
IP 62801	Maintenance and Surveillance
IP 71801	Decommissioning Performance and Status Review
IP 83750	Occupational Radiation Exposure
IP 83801	Inspection of Final Surveys at Permanently Shutdown Reactors
IP 84750	Radioactive Waste Treatment, and Effluent and Environmental Monitoring
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials
IP 60855.1	Operation of an Independent Spent Fuel Storage Installation

## ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>	None
<u>Closed</u>	None
<u>Discussed</u>	None

## PARTIAL LIST OF DOCUMENTS REVIEWED

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

## LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
BRP	Big Rock Point
BMR	Bulk Monitoring Release
CAB	Citizens Advisory Board
CFR	Code of Federal Regulations
DFS	Dry Fuel Storage
ISRC	Independent Safety Review Committee
DNMS	Division of Nuclear Materials Safety
HEPA	High Efficiency Particulate Absorber
ISFSI	Independent Spent Fuel Storage Installation
LTP	License Termination Plan
PSDAR	Post Shutdown Decommissioning Activities Report
QVA	Quality Verification Area
RSRC	Restoration Safety Review Committee
NRC	Nuclear Regulatory Commission
TS	Technical Specifications
UFHSR	Updated Final Hazards Summary Report