

September 29, 2006

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 050-00155/06-001 (DNMS)

Dear Mr. Haas:

On September 14, 2006, the NRC completed inspection activities at the Big Rock Point Restoration Project. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. Specifically, during on-site inspections on May 8 and 9, June 2, June 13 through 15 and July 5, 2006, the inspector evaluated decommissioning and demolition activities, management oversight of decommissioning activities, radioactive waste management, radiological safety, self-assessments, and radiological surveys. In addition, NRC in-process/confirmatory surveys were conducted by an NRC inspector on June 2 and July 5, 2006, and on June 13 through 15, 2006 by personnel from the Oak Ridge Institute of Science and Education (ORISE). Soil samples were also collected for radiological analysis by the NRC on June 2 and July 5, 2006, and by ORISE during each of the confirmatory survey inspections. At the conclusion of on-site inspections on May 9, June 2, June 15 and July 5, 2006, the inspector discussed the inspection findings with you and/or members of your staff. On September 13, 2006, the inspector completed an in-office review of laboratory analysis results for soil samples collected during the May through July inspections. The inspector conducted a telephone exit interview with you on September 14, 2006, to discuss the results of the in-office review of the laboratory results.

This inspection consisted of an examination of decommissioning activities at the Big Rock Point Restoration Project 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

-2-

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

Sincerely,

/Samson S. Lee acting for RA/

Jamnes L. Cameron, Chief
Decommissioning Branch

Docket No. 050-00155
License No. DPR-6

Enclosure:
Inspection Report 050-00155/06-001(DNMS)

cc w/encl: R. A. Fenech, Senior Vice President, Nuclear, Fossil, and Hydro Operations
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: 050-00155

License No.: DPR-6

Report No.: 050-00155/06-001(DNMS)

Licensee: Consumers Energy Company

Facility: Big Rock Point Restoration Project

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

Dates: May 8 and 9, 2006,
June 2, 2006,
June 13 through 15, 2006,
July 5, 2006, and
September 13, 2006 (in-office review).

Inspectors: William G. Snell, Senior Health Physicist
Bruce Watson, CHP, Senior Health Physicist

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

Enclosure

EXECUTIVE SUMMARY

Consumers Energy Company Big Rock Point Restoration Project NRC Inspection Report 050-00155/06-001(DNMS)

These routine decommissioning inspections involved a review of the Consumers Energy Company's and its contractors' performance related to decommissioning activities, management oversight of decommissioning activities, radioactive waste management, final status surveys, and radiological safety. During this inspection period, major activities included building demolition, shipment of radioactive waste for disposal, and final status surveys of excavated areas.

Decommissioning Performance and Status Review

- The inspector determined that the licensee's meetings and pre-job briefs were properly focused and work was performed in a safe manner. The licensee and its contracted workforce conducted work safely and in accordance with good radiological work practices, surveys were performed by qualified personnel, and radiological material was appropriately controlled. (Section 1.0)

Solid Radioactive Waste Management

- The inspector determined that the licensee adequately controlled radiologically contaminated demolition debris. (Section 2.0)

Inspection of Final Surveys

- A review of licensee survey records and independent in-process confirmatory surveys for residual radioactive contamination throughout the Big Rock Point site confirmed that the licensee is performing remediation and final status surveys consistent with the License Termination Plan (LTP). None of 52 soil samples collected identified radiological contamination in excess of the derived concentration guideline levels (DCGLs) for cesium-137 and cobalt-60 as described in the licensee's LTP. Licensee records also demonstrated that tritium levels in the ground water have remained below the EPA drinking water standard since 2000. (Section 3.0)

Self-Assessment, Auditing and Corrective Action

- The inspector reviewed three instances in which the licensee responded to incidents involving the transportation of contaminated waste from Big Rock Point. In all three instances the licensee's response was immediate, appropriate and addressed all concerns. (Section 4.0)

Report Details¹

1.0 Decommissioning Performance and Status Review (71801)

1.1 Inspection Scope

The inspectors attended and observed the conduct of licensee meetings regarding decommissioning activities, including numerous pre-job briefs regarding final status surveys of excavated areas. The inspectors performed plant tours to observe licensee soil remediation, demolition and survey activities to verify that the licensee and its contracted workforce conducted work safely, were qualified to perform their work, and that radioactively contaminated material was controlled.

1.2 Observations and Findings

The licensee's meetings were attended by all personnel participating in the work to be performed, adequately covered issues and concerns, provided safety briefings for each activity, and ensured that expectations were communicated to the work force. Although safety concerns regarding radiological materials at the site had significantly decreased, licensee management continued to stress safe nuclear work practices.

During site tours licensee staff were observed adhering to radiological and safety boundaries, field activities were performed safely and had adequate supervisory oversight, and radioactively contaminated material was appropriately controlled. The licensee implemented required work practices and key activities were effectively coordinated with all on-site work groups. Surveys were performed by qualified radiation protection technicians and survey instrumentation was calibrated and source-checked in accordance with procedures.

1.3 Conclusion

The inspector determined that the licensee's meetings and pre-job briefs were properly focused and work was performed in a safe manner. The licensee and its contracted workforce conducted work safely and in accordance with good radiological work practices, surveys were performed by qualified personnel, and radiological material was appropriately controlled.

2.0 Solid Radioactive Waste Management (86750)

2.1 Inspection Scope

The inspector reviewed the licensee's control and handling of contaminated demolition debris.

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

2.2 Observations and Findings

The inspector observed the loading of intermodal transport containers onto six railcars for shipment to Utah for disposal. Sufficient personnel were present and attentive to the work to ensure the intermodals were safely loaded. A radiation protection technician verified the intermodals were loaded in the correct sequence, and conducted radiation surveys of the shipment.

2.3 Conclusion

The inspector determined that the licensee adequately controlled radiologically contaminated demolition debris.

3.0 **Inspection of Final Surveys (83801)**

3.1 Inspection Scope

Licensee records of previously performed final status surveys were reviewed, as was a licensee document addressing onsite tritium monitoring wells. Independent radiological confirmatory surveys and soil sampling was conducted throughout the site, including the reactor building and turbine building excavation areas. Analyses were performed on radiologically contaminated soil samples provided by the licensee to assess the adequacy of the licensee's radioanalytical capability.

3.2 Observations and Findings

Twenty-nine licensee final status survey records were reviewed, which included nine soil excavation areas and 20 surveys of soil for backfilling into the excavation areas. All 29 of the final status surveys demonstrated that the soil excavated areas and the soils for backfilling were less than the derived concentration guideline levels (DCGLs) for soil of 11.93 picocuries per gram (pCi/g) for cesium-137 (Cs-137) and 3.21 pCi/g for cobalt-60 (Co-60) as described in the licensee's License Termination Plan (LTP). The inspectors also reviewed the licensee's Engineering Analysis Work Sheet, EA-BRP-RAE-0604, Tritium in Non-Committed Monitoring Wells. Based on the sample data provided, the inspectors concurred with the licensee's conclusion that the 5 wells discussed in the analysis were consistently at least 5 percent below the Environmental Protection Agency (EPA) drinking water standard for tritium since January 2002 and could be closed. The remaining wells required by the LTP will remain operable.

The Oak Ridge Institute for Science and Education (ORISE) conducted independent in-process confirmatory surveys for the NRC of selected survey units (SUs) throughout the site. The surveys were performed over 20 to 80 percent of the accessible ground surfaces within the SUs using sodium iodide (NaI) scintillation detectors. Some of the areas scanned included the reactor building and turbine building excavation areas, the

beach and parking areas, and the former transmission line corridor. The soil surface scanning only identified 2 to 3 small areas of radiological contamination in areas where the licensee had not conducted final status surveys, and these areas of contamination were promptly remediated by the licensee.

ORISE also collected 46 surface soil samples from judgmentally selected locations throughout the site. In addition, during inspections on June 2 and July 5, 2006, an NRC Region III inspector conducted independent in-process confirmatory surveys and collected six soil samples in portions of the reactor building, turbine building and service building excavation areas. The soil samples collected by the NRC were analyzed by ORISE for Co-60 and Cs-137, and the soil samples collected by ORISE were analyzed for tritium (hydrogen-3), Co-60, Cs-137, europium-152, europium-154, europium-155 and manganese-54. The analyses of the soil samples collected during the inspections identified no contamination in excess of the licensee's DCGLs for Cs-137 and Co-60.

The licensee also provided ORISE with three previously collected surface soil samples so that ORISE could verify the adequacy of the licensee's radiological counting capability. There was acceptable agreement between the licensee's and ORISE's analytical results for these samples.

A report was issued by ORISE dated September 25, 2006, detailing the scope and results of their survey and sampling activities at Big Rock Point (see ADAMS ML062728126). A separate report was issued by ORISE on August 4, 2006, that provided the results of the radiological analyses of the six soil samples collected by the NRC (see ADAMS ML062200299).

3.3 Conclusion

A review of licensee survey records and independent in-process confirmatory surveys for residual radioactive contamination throughout the Big Rock Point site confirmed that the licensee is performing remediation and final status surveys consistent with the LTP. None of 52 soil samples collected identified radiological contamination in excess of the DCGLs for Cs-137 and Co-60 as described in the licensee's LTP. Licensee records also demonstrated that tritium levels in the ground water have remained below the EPA drinking water standard since 2000.

4.0 **Self-Assessment, Auditing and Corrective Action (40801)**

4.1 Inspection Scope

The inspector reviewed the licensee's response to two incidents involving rail shipments of radioactive waste to Utah and one incident involving the transport of radioactive waste to Tennessee by truck.

4.2 Observations and Findings

On June 14 and 15, 2006, the licensee was loading 42 intermodals of contaminated demolition debris onto six rail cars in Petoskey, Michigan, prior to shipping them to Utah for disposal. While the crane was loading the 32nd intermodal, the brakes released on two of the rail cars, which included the car on which the intermodal was being loaded. Due to the grade where the rail cars were parked, the two cars started to slowly rolling. Because the crane was still attached to the intermodal, which had already been set and pinned in place, the crane operator turned the crane and let his line play out until he was appropriately positioned to stop the rail cars. The rail cars rolled about 80 feet before being stopped. The licensee's immediate actions after pulling the rail cars back into place was to set all the hand brakes and block the wheels. As an additional precaution, another crane that was available was attached to the cars to also prevent movement until the remaining intermodals were loaded and the rail cars were shipped. Personnel from the railroad indicated that the air brakes, which had been set, had slowly bled off to the point they could no longer hold the rail cars in place as additional weight was added.

On June 16, 2006, as the 42 intermodals were being shipped, 17 rail cars derailed near Farwell, Michigan, from the same train that was hauling the intermodals from Big Rock Point. Although none of the rail cars carrying the 42 intermodals derailed, the news media implied that they had, and stated that they were carrying water that was used to cool the reactor at Big Rock Point. The licensee responded by immediately sending someone to the scene to verify the condition of the intermodals, including verifying that they were not involved in the derailment. They were also aggressive in contacting the news media and NRC to ensure the correct information was available regarding the waste shipment.

On March 11, 2006, a tractor-trailer hauling contaminated demolition debris from Big Rock Point to Tennessee crashed on Interstate 75 near West Chester, Ohio. The material was being shipped as a DOT exempt quantity so the vehicle was not placarded. The shipping papers indicated a maximum concentration of 3 pCi/g of Cs-137. Although none of the load spilled during the accident, the tractor-trailer disconnected from the wrecker as the wrecker attempted to pull the tractor-trailer back onto the road, falling back and causing part of the debris to be spilled. The licensee responded immediately by dispatching personnel to the scene. The spilled waste was cleaned up and placed into twelve 55-gallon drums. The rest of the waste was transferred to a new truck, and that truck and another truck carrying the 55-gallon drums were both out of Ohio by that night. Followup surveys conducted by personnel from the State of Ohio indicated there was no residual contamination at the accident site in excess of twice background.

4.3 Conclusion

The inspector reviewed three instances in which the licensee responded to incidents involving the transportation of contaminated waste from Big Rock Point. In all three instances the licensee's response was immediate, appropriate and addressed all concerns.

5.0 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 9, June 2, June 15 and July 5, 2006. A telephone exit interview was conducted with the Site General Manager on September 14, 2006, to discuss the results of the in-office review of the laboratory soil sample analysis results. The licensee did not identify any documents or processes reviewed by the inspector as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

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 40801	Self Assessment, Auditing and Corrective Action
IP 71801	Decommissioning Performance and Status Review
IP 83801	Inspection of Final Surveys at Permanently Shutdown Reactors
IP 86750	Solid Radioactive Waste Management and Transportation of Radioactive Materials

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
DCGL	Derived Concentration Guideline Level
DNMS	Division of Nuclear Materials Safety
EPA	Environmental Protection Agency
LTP	License Termination Plan
NRC	Nuclear Regulatory Commission
pCi/g	picocuries per gram