June 20, 2001

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 05000155/2001-003(DNMS)

Dear Mr. Haas:

On May 24, 2001, the NRC completed inspection and radiological survey activities at the Big Rock Point Nuclear Plant Restoration Project. The focus of the inspection activities was on facility management and control, decommissioning support activities, and radiological safety. On June 13, 2001, the NRC completed an analysis of environmental samples taken onsite on May 9, 2001. Members of your staff were informed of the results of the analysis on June 14, 2001. The enclosed report presents the results of these inspection and survey activities.

The inspection showed that you continued to have adequate capability to implement your Defueled Emergency Plan. The Security Plan, the Security Training and Qualification Plan, and the Security Contingency Plan for the Independent Spent Fuel Storage Installation (ISFSI) remain to be completed; they must be submitted to NRC for review and approval prior to movement of spent fuel to the ISFSI. Radiological analyses of environmental samples taken at the ISFSI pad location did not identify any significant or unexpected radiological conditions. No nuclear plant-related isotopes were identified in any sample.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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)*. *ADAMS is accessible from* the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

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

Sincerely,
/RA/
Bruce L. Jorgensen, Chief
Decommissioning Branch

Docket No. 05000155
License No. DPR-6

Enclosure: Inspection Report 05000155/2001-003(DNMS)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-155
License No:	DPR-06
Report No:	05000155/2001-003(DNMS)
Licensee:	Consumers Energy Company
Facility:	Big Rock Point Nuclear Plant
Location:	10269 U.S. 31 North Charlevoix, MI 49720
Dates:	May 9, May 21-24, and June 14, 2001
Inspectors:	William Snell, Health Physics Manager Gary Pirtle, Safeguards Inspector Mike LaFranzo, Radiation Specialist
Approved By:	Bruce L. Jorgensen, Chief Decommissioning Branch Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Big Rock Point Restoration Project
NRC Inspection Report 05000155/2001-003(DNMS)

This routine decommissioning inspection covered facility management and control, decommissioning support activities, and radiological safety. Overall, major decommissioning activities were properly monitored and controlled.

Facility Management and Control

- The licensee adequately demonstrated the implementation of their Defueled Emergency Plan. Performance of security responsibilities in support of the emergency preparedness exercise were satisfactory. One Inspector Followup Item was opened concerning the licensee's actions to improve their assessment of radiological doses to workers and their use of respirators during emergency conditions. (Section 1.1)

- Big Rock Point Action Item Record (AIR) Number A-BRP-01-004, *Evaluation of the Effects of Forest Fires on the ISFSI*, resolved a question raised during a previous NRC inspection. (Section 1.2)

Decommissioning Support Activities

- No concerns were identified during the observation of the licensee's performance of Procedure T15-01/CIP-26, *Semi-Monthly Source Check of Radwaste to Canal Process Monitor*, Revision 8. (Section 2.1)

- For the areas reviewed, physical security activities were being implemented in accordance with the requirements of the security plans and site security procedures (Section 2.2)

- The Security Plan, Security Training and Qualification Plan, and the Security Contingency Plan for the Independent Spent Fuel Storage Installation (ISFSI) need to be completed and approved by the NRC prior to movement of spent fuel to the ISFSI. One Inspector Followup Item was opened concerning this issue. (Section 2.3)

Radiological Safety

- The NRC took radiological samples of the ground and fill upon which the ISFSI pad will be placed. Direct radiation surveys and laboratory radioanalysis of soil/aggregate samples were used to assess the radiological conditions of the ground and fill prior to ISFSI pad completion. No significant or unexpected radiological conditions were found, and no nuclear plant-related isotopes were identified in any sample. (Section 3.1)

Report Details

1.0 Facility Management and Control

1.1 Emergency Preparedness (36801)

a. Inspection Scope

The inspectors observed the licensee's biennial emergency preparedness exercise to assess the staff'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. The players were the normal shift crew, with several participating as first time players in their assigned positions. Although several program/performance issues were identified during the exercise, overall, it was a positive learning experience that will serve to improve the licensee's response capability.

Command and control capability was well demonstrated during the exercise. Turnover to the Emergency Director (ED) was timely and efficient. It was clear throughout the exercise who was in charge. There were, however, several times where the ED could have benefitted from additional administrative support.

Assembly and accountability were adequately demonstrated, with all personnel accounted for in 31 minutes versus a goal of 60 minutes. The Security Manager coordinated his personnel accountability responsibilities in an effective manner. However, it was noted that the former NRC Resident Inspector's name was still on the role call list in the Emergency Support Center (ESC). This list should be reviewed and revised as necessary.

The licensee correctly declared an Alert six minutes after events were simulated to have occurred which warranted the declaration, which was acceptable. Initial required notifications to the County, State of Michigan, and NRC were completed within the required times. The County was notified in 19 minutes (versus a goal of 30 minutes); the State in 24 minutes (versus a goal of 30 minutes); and the NRC in 56 minutes (versus a goal of 60 minutes).

Procedurally required signatures on various forms were being completed as necessary throughout the exercise. A few of the status boards in the ESC were being used, but none appeared to be used effectively. The licensee should re-evaluate the use of status boards in the ESC.

The licensee was very proactive in trying to respond to the adverse radiological conditions provided by the exercise scenario. Several solutions were proposed to mitigate the cause of the high inplant radiation levels with good discussion exhibited. However, insufficient time was devoted to assessing the overall radiological conditions. For example, there was very little discussion concerning the expected dose to the worker(s) to carry out their proposed tasks. In one case, the inspector calculated the dose to a worker assigned to go up to the Refuel Floor could be around 4 rem. The

licensee had determined that there were no offsite dose consequences to members of the public, so there appeared to be no justification for rushing to "solve the problem" at the cost of giving the worker the high dose. Onsite personnel could have been stationed away from the containment building to reduce exposures while additional time was taken to develop the solution with the lowest possible dose.

This simulated response by the licensee showed that there were insufficient respirators onsite for the response team to use, and it appeared that none of the Radiation Protection Technicians were current in their qualification in the use of a respirator. At no time did the inspector observe any discussion concerning the radiological consequences of using the respirators versus not using the respirators. It appeared that the scenario providing airborne radiation data was sufficiently low that respirators may not have been needed.

During the Exit Meeting, the licensee stated that they were not satisfied with their performance in addressing the radiological issues during the exercise and were planning to conduct additional evaluation and training. The licensee also indicated they were going to examine concerns relating to the use of respirators. The followup evaluation and training related to the assessment of radiological conditions and the use of respirators during emergency conditions will be tracked as an **Inspector Followup Item 50-155/2001003-01**.

Following the exercise, the licensee players and controllers conducted a lengthy self critique. The critique was excellent, weaknesses were recognized and discussed, with many issues raised where performance could be enhanced.

c. Conclusions

The licensee adequately demonstrated the implementation of their Defueled Emergency Plan. Performance of security responsibilities in support of the emergency preparedness exercise were satisfactory. One Inspector Followup Item was opened concerning the licensee's actions to improve their assessment of radiological doses to workers and their use of respirators during emergency conditions.

1.2 Design Change Review (37801)

a. Inspection Scope

Big Rock Point Action Item Record (AIR) Number A-BRP-01-004, *Evaluation of the Effects of Forest Fires on the ISFSI*, with a completion date of May 23, 2001, was reviewed.

b. Observations and Findings

A question was raised in NRC Inspection Report Number 05000155/2001-002(DNMS) regarding whether an evaluation of the fire barrier around the Independent Fuel Storage Installation (ISFSI) had been performed. In response to this question the licensee evaluated the issue and documented their results in Action Item Record (AIR) Number A-BRP-01-004. The inspector reviewed the AIR and found it to be satisfactory. The AIR concluded that a fire surrounding the ISFSI pad would have no adverse consequences on loaded storage casks located on the pad, and recommended that

seedling trees be removed from the berm faces annually to ensure that the forested area does not encroach upon the grass-covered areas.

c. Conclusions

No concerns were identified as a result of the review of Big Rock Point Action Item Record (AIR) Number A-BRP-01-004, *Evaluation of the Effects of Forest Fires on the ISFSI*.

2.0 Decommissioning Support Activities

2.1 Maintenance and Surveillance at Permanently Shut Down Reactors (62801)

The inspectors evaluated maintenance and surveillance on Systems, Structures, and Components potentially affecting the safe storage of spent fuel and reliable operation of radiation monitoring and effluent control equipment.

The inspectors reviewed and observed the licensee perform Procedure T15-01/CIP-26, *Semi-Monthly Source Check of Radwaste to Canal Process Monitor*, Revision 8. No problems or issues were identified during the observed implementation of the procedure.

2.2 Safeguards Program Implementation (IP 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

The alarm station operations observed were effective; the control of protected area (PA) ingress of personnel, packages, and vehicles were effective and search equipment functioned as designed. An aggressive and well documented security equipment testing program was evident. The PA detection system functioned as designed during testing of the system. Vehicle barrier system inspections were completed at the required quarterly and annual intervals. Security procedures were reviewed and determined to be well written and 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 while on post were knowledgeable of their responsibilities. No deficiencies were noted during post visits, walk down of the protected area perimeter, and observation of protected area ingress functions for personnel, packages, and vehicles.

The annual audit of the security program completed in March 2001 was adequate in scope, thorough, and well documented. 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.

2.3 Independent Spent Fuel Storage Installation (IP 81001)

a. Inspection Scope

The inspector toured the construction site for the Independent Spent Fuel Storage Installation (ISFSI) and reviewed drawings depicting the proposed locations for security equipment. Security plan requirements for the ISFSI were discussed with the Security Manager.

b. Observations and Findings

The Security Plan, Security Training and Qualification Plan, and Security Contingency Plan for the ISFSI need to be completed, sent to NRC for review, and the plans approved by the NRC before spent fuel is moved to the ISFSI. The licensee had originally planned to address security measures for the ISFSI within the existing reactor security plan under the criteria of 10 CFR 50.54(p). Discussions with security representatives at NRC Headquarters during the inspection verified that the ISFSI security plans must be submitted as separate plans, rather than as a revision to the reactor security plan. The Security Manager planned to submit the necessary plans to NRC by the end of June 2001. This issue will be monitored as an **Inspection Followup Item (50-155/2001003-02)**

c. Conclusions

The ISFSI security, training and qualification, and contingency plans need to be submitted to NRC for review and approval.

3.0 Radiological Safety

3.1 Radiological Environmental Monitoring (84750)

a. Inspection Scope

The NRC performed a 100 percent radiological walk-over scan of the ISFSI pad area. In 30 locations, selected at random, one minute gamma counts were performed. Soil samples (five random, 1 bias) and aggregate samples were collected and analyzed in the NRC Region III laboratory to validate survey results and search for nuclear plant-related isotopes. The NRC also reviewed the licensee's soil sampling techniques and procedures.

b. Observations and Findings

The inspection included a 100 percent scan of the ISFSI site pad area using a NaI 2"x2" probe. The area scanned was approximately 100 feet by 75 feet and was carved from a small hill to a depth of approximately 30 feet. The background radiation levels at the pad site were expected to be less than in the general area, because worldwide radiological fallout would not be expected to penetrate through the 30 feet of hill side prior to excavation of the site. The scan did not disclose any noteworthy radiological conditions.

The inspector performed 30 random gamma counts using a 2"x2" NaI probe. Each random sample location was counted for one minute. Raw count data ranged from 3292 cpm to 4043 cpm. No significant radiological variations between the samples were identified using statistical analysis.

Five random soil samples and one bias sample were taken from the ISFSI pad site. Each sample was analyzed for a range of radioisotopes using gamma spectroscopy. The bias sample was taken in the northeast corner of the pad area because some soil had washed into the site as a result of a rain storm earlier in the week. The NRC wished to determine whether this soil altered the radiological composition of the site. In addition, the licensee purchased and was storing on site an aggregate that is to be used for the construction of the ISFSI pad. Two samples were taken from the pile of aggregate. Spilt samples were taken and distributed among the licensee, the State of Michigan representatives and the NRC from all the samples. The NRC samples were analyzed by gamma spectroscopy in the Region III laboratory. No radiological isotopes were identified as having elevated concentrations (more than 0.1 picocuries per gram) in any sample and no isotopes were identified in any sample which could have derived from Big Rock Point nuclear plant operations. Sample analyses performed by the State of Michigan and the licensee reported similar results.

Interviews, observations and a documentation review, established that the licensee's soil sampling procedures and techniques were within industry standards.

c. Conclusions

The NRC's radiological sampling did not identify any significant radiological conditions at the locations where the ISFSI pad will be placed. No isotopes from nuclear plant activities were identified in any sample. In addition, fill on site to be used for the construction of the ISFSI pad did not have any significant radiological component. The licensee's techniques and procedures for radiological soil sampling were within industry standards.

4.0 Exit Meeting

The inspectors presented initial inspection results to members of licensee management at the conclusion of the inspection on May 24, 2001. On June 14, the results of laboratory analyses of soil and aggregate samples were discussed with licensee representatives. 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
R. Baker, Security Manager, Burns International Security Services, Inc. (BASSI)
M. Bourassa, Licensing Supervisor
S. LaJoice, Site Manager, BISSI
R. McCaleb, Nuclear Performance Assessment, Site Lead (NPAD)
K. Pallagi, Radiation Protection and Environmental Services Manager
W. Trubilowicz, Cost, Scheduling & Purchasing Manager
M. VanAlst, Security Supervisor
G. Withrow, Engineering, Operations & Licensing Manager
D. Parish, Environmental Manager

INSPECTION PROCEDURES USED

IP 36801	Organization, Management and Cost Controls
IP 62801	Maintenance and Surveillance
IP 81700	Physical Security Assessment
IP 81001	Independent Spent Fuel Storage Installation
IP 84750	Radwaste Treatment and Effluent and Environmental Monitoring

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-155/2001003-01	IFI	Evaluation of the radiological dose to workers and use of respirators during emergency response conditions. (Section 1.1)
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 (Section 2.3)

Closed

None

Discussed

None

LIST OF ACRONYMS USED

AIR	Action Item Record
ALARA	As-Low-As-Reasonably-Achievable
CAS	Central Alarm Station
ED	Emergency Director
ESC	Emergency Support Center
ISFSI	Independent Spent Fuel Storage Installation
NRC	Nuclear Regulatory Commission
RPT	Radiation Protection Technician
PA	Protected Area

PARTIAL LIST OF LICENSEE DOCUMENTS REVIEWED

Nuclear Performance Assessment Department Audit No. A-01-02, issued March 16, 2001
Vehicle Barrier System Inspection Checklist From April 2000 - March 2001
Training records for three Newly Hired Security Officers
Safeguards Event Logs For April 2000 - May 2001
Alarm Station Daily Activity Logs For March 1 - May 20, 2001
Identification Station Daily Activity Logs For March 1 - May 20, 2001
Volume 7, Plant Manual, “Defueled Security Implementing Procedures”
Security Equipment Maintenance Request Forms For September 1, 2000 - April 30, 2001
Security System Maintenance Log Weekly Testing Forms For January 1, 2001 - May 21, 2001
CAS Daily Alarm Logs For March 1, 2001 - May 20, 2001
Volume 9, Defueled Emergency Plan, Big Rock Point Plant - Chapter 6, Rev 1

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