

October 19, 2006

MEMORANDUM TO: William D. Travers, Regional Administrator
Region II

FROM: Martin J. Virgilio */RA/*
Deputy Executive Director for Materials, Research,
State and Compliance Programs
Office of the Executive Director for Operations

SUBJECT: FINAL REPORT FOR THE INTEGRATED MATERIALS
PERFORMANCE EVALUATION PROGRAM (IMPEP) REVIEW
OF THE REGION II FUEL CYCLE INSPECTION PROGRAM

On September 8, 2006, the Management Review Board (MRB) met to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report of the U.S. Nuclear Regulatory Commission's Region II Fuel Cycle Inspection Program. The MRB found the program to be adequate to protect public health and safety.

Section 4.0, page 6, of the enclosed final report summarizes the results of the review. The review team made no recommendations in regard to program performance by the Region.

If you have any questions, please contact Tim Harris at (301) 415-7218.

We appreciate your staff's efforts during the IMPEP review period, especially during the time of the team's visit.

Enclosure:
As stated

cc w/ encl: Douglas Collins, Director
Division of Fuel Facility Inspection

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM
REVIEW OF NRC REGION II FUEL CYCLE INSPECTION PROGRAM

May 23 - 25, 2006

FINAL REPORT

U.S. Nuclear Regulatory Commission

1.0 INTRODUCTION

This report presents the results of the review of the Region II Fuel Cycle Inspection Program. The review was conducted during the period of May 23-25, 2006, by a review team comprised of technical staff members from the U.S. Nuclear Regulatory Commission (NRC). Team members are identified in Appendix A. The review was conducted in accordance with the "Implementation of the Integrated Materials Performance Evaluation Program and Rescission of a Final General Statement of Policy," published in the *Federal Register* on October 16, 1997, and the February 26, 2004, revision to NRC Management Directive (MD) 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)." Preliminary results of the review, which covered the period of March 2002 to May 25, 2006, were discussed with Region II management on the last day of the review.

A draft of this report was issued to NRC's Region II Office for factual comment on June 26, 2006. Thomas Decker, Senior Materials Analyst, Division of Fuel Facility Inspection (the Division) responded by e-mail dated July 18, 2006. The Management Review Board (MRB) met on September 8, 2006, to consider the proposed final report. The MRB found the Region II fuel cycle inspection program to be adequate to protect public health and safety.

The Region II Fuel Cycle Inspection Program is administered by the Director of the Division, who reports directly to the Regional Administrator. The Division organization chart is included as Appendix B.

In preparation for the review, a questionnaire addressing the fuel cycle inspection non-common indicator was sent to Region II on February 16, 2006. Region II provided a response to the questionnaire on April 27, 2006. A copy of the completed questionnaire response can be found on the NRC's Agency-wide Document Access and Management System (ADAMS) using Accession Number ML61660538.

In October 2003, the radioactive materials program in Region II was transferred to Region I as part of a restructuring of Regional roles and responsibilities. At that time, all fuel cycle inspection functions were consolidated at Region II, and materials licensing and inspection functions were transferred from Region II to Region I. Therefore, this review is limited to the fuel cycle inspection program. The review team's general approach for conduct of this review consisted of: (1) examination of Region II's response to the questionnaire; (2) analysis of quantitative information from the inspection, resource utilization, and allegation databases; (3) technical review of selected inspection, incident response, and allegation casework; (4) field accompaniments of three Region II inspectors; and (5) interviews with staff and management to answer questions or clarify issues. The team evaluated the information gathered against the IMPEP performance criteria for the non-common performance indicator, Regional Fuel Cycle Inspection Program, and made a preliminary assessment of Region II's performance.

Section 2 below discusses the current status of recommendations made following the previous review. Results of the current review for the IMPEP non-common performance indicator, Regional Fuel Cycle Inspection Program, are presented in Section 3. Section 4 summarizes the review team's findings.

2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

During the previous routine IMPEP review, two recommendations were made in the final IMPEP report on July 10, 2002. The team's review of the current status of these recommendations is as follows:

1. The review team recommends that The Office of Nuclear Material Safety and Safeguards (NMSS) revise the guidance in IMC 2800 and IMC 2600 to clarify regional responsibility for The Nuclear Materials Events Database (NMED) item updates (Section 3.5 of the 2002 IMPEP Report).

Current Status: NMSS is currently planning to update guidance associated with NRC Inspection Manual Chapter (MC) 2800 and MC 2600 within the next year. Revisions to MC 2800 have been incorporated into the Operating Plan and revisions are expected to be completed by April 2007. The revision will include clarifying guidance on the roles and responsibilities associated with NMED. This recommendation remains open.

2. The review team recommends that the HQ FAIC provide refresher training and update Regional and HQ staff on changes made to financial assurance guidance (Section 4.3).

Current Status: Training was provided by NMSS' Division of Waste Management and Environmental Protection staff in 2003. This recommendation is closed.

3.0 NON-COMMON PERFORMANCE INDICATOR - FUEL CYCLE INSPECTION PROGRAM

In conducting this review, four sub-indicators were reviewed to evaluate Region II's performance regarding their Fuel Cycle Inspection Program. These sub-indicators include: (1) Technical Staffing and Training; (2) Status of Fuel Cycle Inspection Program; (3) Technical Quality of Inspections; and (4) Technical Quality of Incident and Allegation Activities.

3.1 Technical Staffing and Training

Issues central to the evaluation of this indicator include the fuel cycle inspection program staffing level, technical qualifications of the staff, training, and staff turnover. To evaluate these issues, the review team examined Region II's questionnaire responses relative to this indicator, interviewed the Division management and staff, and considered any possible workload backlogs.

The Division has seen a large influx of experienced staff as a result of reorganization of the fuel cycle inspection activities. This included the hiring or reassignment of approximately 12 staff. Four staff departed the program during the review period. The Division is divided into two Branches, and each Branch currently has two vacancies. Another vacancy has been proactively posted to backfill for an individual that is planning to retire. These vacancies have not affected the ability to complete inspections in a timely manner. As discussed in the status of inspection section below, the Division very effectively uses the Plant Issues Matrix System (PIMS) to track inspections, utilize its current staff, and adjust staff assignments due to

emergent work. The review team concludes that the Division's staffing level is adequate to properly implement its program.

The Division uses their Training Matrix to coordinate training activities. Five staff members were qualified as Fuel Cycle Safety Inspectors during the review period. One individual is currently working on becoming qualified and another is currently working on becoming fully qualified. The three Senior Resident Inspectors are dual qualified as reactor Resident Inspectors and fuel facility inspectors. An additional Senior Resident Inspector is planned to be hired to support the MOX facility. The Senior Resident Inspectors have completed the Fuel Facility Inspector qualifications. New hires in the Division participate in a mentoring program. In addition to formal training classes, senior branch staff provide instruction to new hires about fuel cycle inspection duties, such as conducting an inspection, completing forms, and writing reports to advise them on completing their qualifications for Fuel Cycle Safety Inspector.

The Fuel Facility Inspector qualifications are set forth in MC 1246, Section 3. All four staff members interviewed believed that the training requirements adequately prepared them to perform their duties. However, it was noted that some of the courses were no longer offered and that some reading materials were out of date. The Division also recognized in its self assessments that additional training in risk significance of violations and in human performance would be beneficial. Management recognized the benefits of updating the Fuel Facility Inspector qualifications and in updating MC 1246 in general to be more consistent with MC 1245. Management was also cognizant of the need for effective knowledge management to maintain and improve staff qualifications and performance.

The Division management appropriately monitors the qualifications of their staff via the Division Training Matrix. The Training Matrix tracks all the courses taken, courses needed, and dates that certain courses are needed for the Division staff. The team did not observe any performance deficiency during the IMPEP review period.

Based on the IMPEP evaluation criteria, the review team recommended and the MRB agreed that Region II's performance with respect to the sub-indicator, Technical Staffing and Training, be found satisfactory.

3.2 Status of Fuel Cycle Inspection Program

The team focused on three factors in reviewing this sub-indicator: inspection frequency, overdue inspections, and timely dispatch of inspection findings to licensees.

Inspections at fuel facilities are coordinated with NMSS through an integrated Fuel Cycle Master Inspection Plan, based on considerations of risks, licensee performance, and recent occurrences. In meeting the general guidelines for frequency of inspections in MC 2600, Region II has prepared detailed written guidance targeting specific plant operations and functional areas for emphasis during inspections. This provides specific guidance based on lessons learned from previous inspections, Licensee Performance Reviews (LPRs), licensing actions, and recent occurrences. Changes to the guidance were well documented and communicated with NMSS and the inspection staff.

Region II uses PIMS to effectively track inspection findings and event information. ADAMS, which provides on-line access to inspection reports, is used to improve the coordination of inspections and track licensee performance between Region II and Headquarters. Region II inspectors use PIMS information to identify areas of emphasis and prepare inspection plans.

Region II has improved inspection resource management from the last IMPEP reporting period. Region II had no overdue inspections for the last two fiscal years, even though the number of inspections increased from prior fiscal years in the IMPEP reporting period. Region II had only six overdue inspections for FY 2002 to FY 2004. In addition, of the 10 inspection reports

selected for review by the IMPEP review team, all inspection findings were issued to licensees within 30 days.

Based on the IMPEP evaluation criteria, the review team recommended and the MRB agreed that Region II's performance with respect to the sub-indicator, Status of Fuel Cycle Inspection Program, be found satisfactory.

3.3 Technical Quality of Inspections

The team evaluated the inspection reports and enforcement documentation for inspections at seven fuel cycle facilities, two gaseous diffusion plants and one conversion facility. In general, inspection findings were well founded, well documented, and in accordance with MC 610, "Inspection Reports." These reports received proper peer and management review. The review team discussed the benefit of listing the inspection report paragraph reference in the "list of items opened, closed and discussed" section of the inspection report and of listing these items in the order that they appear. The review team also discussed the benefit of not including inspection follow-up items and unresolved items in the executive summary of the inspection report. Appendix C lists the inspection casework files reviewed for completeness and adequacy.

Region II is currently conducting a pilot program to use NRC Form 591 to document the results of certain inspections at fuel cycle facilities as specified in Temporary Instruction 0610/001, "Guidance for Certain Fuel Cycle Inspection Reports to Pilot Use of NRC Form 591." It is anticipated that use of Form 591 will allow inspectors to reduce the time spent documenting inspection areas where there have been no significant safety or safeguards findings so that resources can be applied to inspection preparation and conduct of inspections. The review team discussed the benefit of adding more detail to Form 591 for inspections with violations, because this detail could be important in later enforcement activity. The Division committed to taking the review team's suggestion into consideration during the revision of applicable fuel cycle inspection guidance.

In general, the inspection program focused on the high-risk functional areas. Based on interviews with inspectors, they have a good understanding of risk-informed performance-based inspection philosophy and try to apply it during inspections and in documentation. Region II uses PIMS to track past issues at each facility, which include past inspection findings, events, and routine activities at each site. This information is kept current by project inspectors and is used by the inspectors in the planning phase of the inspection to focus on areas that may need more attention. The inspection effort addresses past inspection findings and event follow-up.

During the review period, supervisors performed accompaniments of all inspectors annually. In some cases, some inspectors were accompanied more than once per year. During the review period, the Division hired three new inspectors and acquired six inspectors external to the Division. Region II management has performed appropriate inspection observations and accompaniments, focusing on these new inspectors.

One inspector, who was soon to be qualified, was accompanied during an inspection by a review team member on March 20-24, 2006. Another inspector, new to the Division, was accompanied on April 17-21, 2006. A qualified resident inspector was accompanied on June 6-8, 2006. These accompaniments are identified in Appendix C. All inspectors performed in-depth examinations of the licensees' facilities; interacted with licensee personnel; observed licensees' activities; and reviewed pertinent records. During these accompaniments, the inspectors demonstrated a performance-based inspection approach with appropriate technical skills and professional inspection techniques. The inspectors' performance was adequate to assess the radiological health and safety of the licensee's program.

Based on the IMPEP evaluation criteria, the review team recommended and the MRB agreed that Region II's performance with respect to the sub-indicator, Technical Quality of Inspections, be found satisfactory.

3.4 Technical Quality of Incident and Allegation Activities

In evaluating the effectiveness of Region II's actions in responding to fuel cycle incidents, the team examined Region II's response to the questionnaire, evaluated selected incidents reported for Region II in the Nuclear Material Events Database (NMED), and evaluated the casework and supporting documentation for ten fuel cycle incidents. A list of the incident casework examined with case-specific comments is included in Appendix D. The review team also evaluated Region II's response to ten allegations involving fuel cycle facilities.

In regard to event response, Region II has an event evaluation procedure in place that describes the process to be used by staff in the evaluation of events for appropriate response. Responses to events in the incident casework reviewed appeared to be appropriate in all cases. In accordance with the procedure, the inspectors receive and evaluate the event information, coordinate with NMSS, and determine the appropriate action based on the safety significance of the event. The procedure clearly defines which events warrant communication to other potentially affected facilities, which events should be considered for special inspections, and which events warrant follow-up at the next routine inspection. All events are communicated to the resident inspectors in case immediate follow-up on issues is necessary.

Responsibility for initial response and assignment of follow-up actions to fuel cycle allegations rests with the Regional Allegations Coordinators. Fuel cycle allegations are referred to the Division for action, as appropriate. The review team's evaluation of casework, associated documents, and interviews with staff revealed that Region II has an effective and efficient program for managing fuel cycle facility allegations. The resolution of allegations was typically within 180 days except in cases with Office of Investigations involvement, as prescribed by MD 8.8, "Management of Allegations." The casework reviews demonstrated that the Division routinely referred cases involving potential wrongdoing to the Office of Investigations for resolution. Acknowledgment letters responding to alлегers, were issued within the performance goal of 30 days. In cases where the alлегer's identity was known, results of the findings were properly communicated to the alлегer.

The review team evaluated the scope of Region II's training for accepting and handling allegations. The review found that Region II staff were well-trained and knowledgeable in the accepting and handling of allegations. In evaluating the training, the review team noted that in addition to the Agency-mandated web-based training, new hires to Region II are also required to attend a PowerPoint presentation regarding allegation management as well as listen to sound clips of actual allegations. While listening to the sound clips, new hires fill out forms to document the "allegations." Once all of the training modules are completed successfully, the individuals are certified to accept allegations. The review team found this additional training particularly beneficial to inspectors, who have direct interface with potential alлегers. The review team discussed with Regional management the benefits of sharing their practice of additional training with other NRC Regions and Offices. The review team recommended and the MRB agreed that the Region's practice of performing additional allegation training above and beyond the Agency-mandated training was a good practice.

Based on the IMPEP evaluation criteria, the review team recommended and the MRB agreed that Region II's performance with respect to the sub-indicator, Technical Quality of Incident and Allegation Activities, be found satisfactory.

4.0 SUMMARY

As noted in Section 3 above, the review team found Region II's performance with respect to each of the sub-indicators to be satisfactory. The review team made no recommendations with

regard to program performance by the Region. Based on the IMPEP evaluation criteria, the review team recommended and the MRB agreed that Region II's performance with respect to the indicator, Regional Fuel Cycle Inspection Program, was satisfactory. Accordingly, the review team recommended and the MRB agreed that Region II's overall performance for the fuel cycle inspection program was adequate to protect public health and safety.

LIST OF APPENDICES AND ATTACHMENT

Appendix A	IMPEP Review Team Members
Appendix B	Region II Organization Charts
Appendix C	Inspection Casework Reviews
Appendix D	Incident Casework Reviews
Attachment	July 18, 2006, E-mail from Thomas Decker Region II's Response to Draft IMPEP Report

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Area of Responsibility
Timothy Harris, NMSS/IMNS	Team Leader Technical Staffing and Training Technical Quality of Incident and Allegation Activities
Craig Hrabal, NMSS/FCSS	Status of Materials Inspection Program Technical Quality of Inspections
Aaron McCraw, STP	Technical Quality of Incident and Allegation Activities

APPENDIX B

REGION II

DIVISION OF FUEL FACILITY INSPECTION

ORGANIZATION CHART

ADAMS: ML61660538

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APPENDIX C

INSPECTION CASEWORK REVIEWS

NOTE: ALL INSPECTIONS LISTED WITHOUT COMMENT ARE INCLUDED FOR COMPLETENESS ONLY; NO SIGNIFICANT COMMENTS WERE IDENTIFIED BY THE REVIEW TEAM.

File No.: 1

Licensee: Nuclear Fuel Services
Inspection Type: Routine
Inspection Dates: 8/21-10/1/05

License No.: SNM-0124
Priority: 1
Inspectors: DR, SB, DH, MC, OL, JJ

File No.: 2

Licensee: Honeywell
Inspection Type: Routine
Inspection Dates: 12/5 – 9/05

License No.: SUB-526
Priority: 1
Inspectors: MC, OL, JP, SS

File No.: 3

Licensee: Portsmouth GDP
Inspection Type: Routine
Inspection Dates: 3/20-24/06

Certificate No.: GDP-2
Priority: 1
Inspector: RG

File No.: 4

Licensee: Paducah GDP
Inspection Type: Routine
Inspection Dates: 12/18/05-2/22/06

Certificate No.: GDP-1
Priority: 1
Inspector: MT

File No.: 5

Licensee: Paducah GDP
Inspection Type: Routine
Inspection Dates: 8/8/05-10/22/05

Certificate No.: GDP-1
Priority: 1
Inspectors: BB, MT

File No.: 6

Licensee: Global Nuclear Fuel – Americas, LLC
Inspection Type: Routine
Inspection Date: 6/27/05-7/1/05

License No.: SNM-1097
Priority: 1
Inspectors: DH, SS

File No.: 7

Licensee: Westinghouse
Inspection Type: Routine
Inspection Dates: 9/12-16/05

License No.: SNM-1107
Priority: 1
Inspector: RG

File No.: 8

Licensee: AREVA-Richland
Inspection Type: Routine
Inspection Dates: 1/23-26/06

License No.: SNM-1227
Priority: 1
Inspector: AG

File No.: 9

Licensee: AREVA-Lynchburg
Inspection Type: Routine
Inspection Dates: 9/19-22/05

License No.: SNM-1168
Priority: 1
Inspector: CT

File No.: 10

Licensee: BWX Technologies, Inc.
Inspection Type: Routine
Inspection Dates: 3/5/05-4/15/05

License No.: SNM-0042
Priority: 1
Inspectors: GW, OL, CT

INSPECTOR ACCOMPANIMENTS

Accompaniment No.: 1

Licensee: Global Nuclear Fuel - Americas, LLC

Inspection Type: Routine

Inspection Date: 3/17-21/06

License No.: SNM-1097

Priority: 1

Inspectors: OL, SS

Accompaniment No.: 2

Licensee: Westinghouse

Inspection Type: Routine

Inspection Dates: 4/20-24/06

License No.: SNM-1107

Priority: 1

Inspectors: MC, SS, JP

Accompaniment No.: 3

Licensee: BWXT

Inspection Type: Routine

Inspection Dates: 6/6-8/06

License No.: SNM-42

Priority: 1

Inspector: GW

APPENDIX D

INCIDENT CASEWORK REVIEWS

NOTE: ALL INCIDENTS LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS ONLY.

File No.: 1

Licensee: Global Nuclear Fuel - Americas, LLC

Date of Incident: 9/27/02

Investigation Date: 10/24/02

License No.: SNM-1097

NMED No: 020907

Type of Incident: Equipment Failure
Type of Investigation: Licensee Letter

File No.: 2

Licensee: Westinghouse Electric Corp.

Date of Incident: 9/12/03

Investigation Date: 1/31-2/4/05

License No.: SNM-1107

NMED No: 030733

Type of Incident: Fuel Cycle
Type of Investigation: Inspection

File No.: 3

Licensee: U.S. Enrichment Corp.

Date of Incident: 1/30/04

Investigation Date: 3/12/04

License No.: USEC-K

NMED No: 040074

Type of Incident: Equipment, Fuel Cycle
Type of Investigation: Licensee Letter

File No.: 4

Licensee: Westinghouse Electric Corp.

Date of Incident: 3/5/04

Investigation Date: 4/12-16/04

License No.: SNM-1107

NMED No: 030733

Type of Incident: Fuel Cycle (Abnormal Occurrence)
Type of Investigation: Inspection

File No.: 5

Licensee: U.S. Enrichment Corp.

Date of Incident: 4/21/05

Investigation Date: TBD

License No.: USEC-O

NMED No: 050285

Type of Incident: Fuel Cycle
Type of Investigation: Next Routine Inspection

File No.: 6

Licensee: Honeywell International, Inc.

Date of Incident: 7/25/05

Investigation Date: 7/25-29/05

License No.: SUB-0526

NMED No: 050499

Type of Incident: Equipment, RAM Release

Type of Investigation: Inspection

File No.: 7

Licensee: Framatome ANP, Inc.

Date of Incident: 9/17/05

Investigation Date: 9/19/05

License No.: SNM-1227

NMED No: 050618

Type of Incident: Fuel Cycle, RAM Release

Type of Investigation: Telephone

File No.: 8

Licensee: Nuclear Fuel Services, Inc.

Date of Incident: 12/22/05

Investigation Date: N/A

License No.: SNM-0124

NMED No: 060110

Type of Incident: Equipment, Fuel Cycle

Type of Investigation: N/A

File No.: 9

Licensee: Framatome ANP, Inc.

Date of Incident: 9/26/05

Investigation Date: 11/28-12/2/05

License No.: SNM-1227

NMED No: 050631

Type of Incident: Transportation

Type of Investigation: Inspection

File No.: 10

Licensee: U.S. Enrichment Corp.

Date of Incident: 11/22/05

Investigation Date: 10/23-12/27/05

License No.: SNM-1107

NMED No: 020285

Type of Incident: Fuel Cycle

Type of Investigation: Inspection

ATTACHMENT

July 18, 2006, E-mail from Thomas Decker
Region II's Response to Draft IMPEP Report

ADAMS: ML062070589