



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

June 22, 2016

EA-16-115

Mr. John Merrill
Radiation Safety Officer
Consumers Energy
135 W. Trail Street
Jackson, MI 49201

SUBJECT: NRC ROUTINE INSPECTION REPORT NO. 03004868/2016001(DNMS)
CONSUMERS ENERGY

Dear Mr. Merrill:

On April 5 and 6, 2016, an inspector from the U.S. Nuclear Regulatory Commission (NRC) conducted a routine inspection at your facility in Jackson, Michigan, with continued in-office review through May 20, 2016. The purpose of the inspection was to review activities performed under your NRC license to ensure that activities were being performed in accordance with NRC requirements. The in-office review included a review of the circumstances of the findings observed during the on-site inspection. Mr. Edward Harvey of my staff conducted a final exit meeting by telephone with you on June 2, 2016 to discuss the inspection findings. The enclosed inspection report presents the results of the inspection.

During this inspection, the NRC staff examined activities conducted under your license related to public health and safety. Additionally, the staff examined your compliance with the Commission's rules and regulations as well as the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, one apparent violation of NRC requirements was identified and is being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The apparent violation involved the failure to equip radiographers with a direct reading dosimeter and an alarm ratemeter while performing radiographic operations, as required by Title 10 of the *Code of Federal Regulations* (CFR) Section 34.47(a). Specifically, the licensee used a single device (the Mirion DMC-2000S) to perform the functions of both a direct reading dosimeter and an alarm ratemeter simultaneously. As an immediate corrective action, you committed to providing your radiographers two Mirion DMC-2000S units, each performing a separate function of either a direct reading dosimeter or an alarm ratemeter. The circumstances surrounding this apparent violation, the significance of the issue, and the need for lasting and effective corrective action were discussed with you at the inspection exit meeting on June 2, 2016.

Because your facility has not been the subject of escalated enforcement action within the last two years or two inspections, a civil penalty may not be warranted in accordance with Section 2.3.4 of the Enforcement Policy. In addition, based upon NRC's understanding of the facts and your corrective actions, it may not be necessary to conduct a PEC in order to enable the NRC to make a final enforcement decision. Our final decision will be based on your confirming on the license docket that the corrective actions previously described to the staff have been or are being taken.

Before the NRC makes its enforcement decision, we are providing you an opportunity to either: (1) respond in writing to the apparent violation addressed in this inspection report within 30 days of the date of this letter; or (2) request a Predecisional Enforcement Conference (PEC). **Please contact Aaron T. McCraw at 630 829-9650 within ten days of the date of this letter to notify the NRC of your intended response.**

If you choose to provide a written response, it should be clearly marked as "Response to the Apparent Violation in Inspection Report No. 03004868/2016001(DNMS); EA-16-115," and should include, for the apparent violation: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance was or will be achieved. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violation. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be useful in preparing your response. You can find the information notice on the NRC's website at: <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1996/in96028.html>. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. Your response should be sent to the NRC's Document Control Center, Washington, DC 20555, with a copy mailed to me, John B. Giessner, Director, Division of Nuclear Materials Safety, Region III, 2443 Warrenville Rd, Ste 210, Lisle, IL 60532, within 30 days of the date of this letter. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on the apparent violation and any other information that you believe the NRC should take into consideration before making an enforcement decision. The topics discussed during the conference may include the following: information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned to be taken. If a PEC is held, it will be open for public observation, and the NRC will issue a press release to announce the time and date of the conference.

Please be advised that the number and characterization of the apparent violation described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

J. Merrill

-3-

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made publicly available without redaction.

Please feel free to contact Mr. Harvey of my staff if you have any questions regarding this inspection. Mr. Harvey can be reached at 630-829-9819.

Sincerely,

/RA/

John B. Giessner, Director
Division of Nuclear Materials Safety

Docket No. 030-04868
License No. 21-08606-03

Enclosure:
IR 03004868/2016001(DNMS)

cc w/encl: State of Michigan

J. Merrill

-3-

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Sincerely,

/RA/

John B. Giessner, Director
Division of Nuclear Materials Safety

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Enclosure:
IR 03004868/2016001(DNMS)

cc w/encl: State of Michigan

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DATE	6/22/2016		6/21/2016		6/22/2016		6/22/2016	

OFFICIAL RECORD COPY

Letter to John Merrill from John B. Giessner dated June 22, 2016.

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CONSUMERS ENERGY

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**U.S. Nuclear Regulatory Commission
Region III**

Docket No. 030-04868

License No. 21-08606-03

Report No. 03004868/2016001(DNMS)

EA No. EA-16-115

Licensee: Consumers Energy

Facility: 135 W. Trail Street
Jackson, Michigan

Inspection Dates: April 5 and 6, 2016

Exit Meeting Date: June 2, 2016

Inspector: Edward Harvey, Health Physicist

Approved By: Aaron T. McCraw, Chief
Materials Inspection Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Consumers Energy NRC Inspection Report 03004868/2016001(DNMS)

This was a routine, unannounced inspection conducted to review Consumers Energy's (licensee's) licensed activities under License No. 21-08606-03. The purpose of the inspection was to ensure that all licensed activities performed by the licensee were conducted safely and in accordance with U.S. Nuclear Regulatory Commission (NRC) requirements.

During the inspection, the inspector interviewed the Radiation Safety Officer (RSO) in regard to the use of personnel monitoring by the licensee. The RSO explained that all radiographers and their assistants were furnished with a personnel dosimeter and a Mirion DMC-2000S, which was used as both a direct reading dosimeter and an alarm ratemeter. Title 10 of the *Code of Federal Regulations* (CFR) 34.47(a) requires in part, that the licensee may not permit any individual to act as a radiographer or a radiographer's assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a direct reading dosimeter, an operating alarm ratemeter, and a personnel dosimeter. The inspector concluded, based on NRC guidance, that the DMC-2000S device could satisfy the requirement for a direct reading dosimeter or an alarm ratemeter, but could not simultaneously satisfy the requirement for both functions. Thus, the inspector identified one apparent violation of 10 CFR 34.47(a), involving the licensee's failure to ensure that its radiographers were equipped with an independent direct reading dosimeter and alarm ratemeter while performing radiographic operations.

The root cause of the apparent violation was attributed to a misunderstanding that the DMC-2000S did not meet the requirements of 10 CFR 34.47(a) when used to serve the functions of both an alarm ratemeter and a direct reading dosimeter simultaneously. As immediate corrective action, the licensee committed to equip each radiographer with a personnel dosimeter and two DMC-2000S devices, one of which would serve as a direct reading dosimeter, and the other as an alarm ratemeter. As longer term corrective action, the licensee committed to recalibrating a stock of NDS RA-500 alarm ratemeters to be used in conjunction with one DMC-2000S, as a direct reading dosimeter, and a personnel dosimeter.

REPORT DETAILS

1 Program Overview and Inspection History

The licensee is authorized by NRC Materials License No. 21-08606-03 to possess sealed sources for industrial radiography at both a permanent radiographic installation (PRI) and at temporary job sites anywhere the NRC maintains jurisdiction. The licensee has three authorized locations of storage and use; however, only the main office location contains a PRI. At the time of the inspection, the licensee employed 19 radiographers and 9 radiographer's assistants. A majority of the work was performed at temporary job sites several days per week. The PRI was mainly used for radiographer training.

The NRC last inspected the licensee on February 18, 2015. The NRC did not identify any violations as a result of the inspection. The previous inspection was conducted on March 4, 2014, with no violations identified.

2 Personnel Radiation Monitoring

2.1 Inspection Scope

The inspector reviewed the elements of the licensee's personnel radiation monitoring by interviewing the RSO and a selection of radiographers. In addition, the inspector reviewed a selection of licensee documents, including calibration records and reports from the dosimetry vendor.

2.2 Observations and Findings

On April 5, 2016, the inspector interviewed the RSO in regard to the personnel monitoring methods used by the licensee. The RSO explained that all radiographers and their assistants were furnished with a personnel dosimeter that is processed by an accredited National Voluntary Laboratory Accreditation Program (NVLAP) processor and one Mirion DMC-2000S, which was used as both a direct reading dosimeter and an alarm ratemeter simultaneously.

Title 10 CFR 34.47(a) states, in part, that the licensee may not permit any individual to act as a radiographer or a radiographer's assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a direct reading dosimeter, an operating alarm ratemeter, and a personnel dosimeter. The inspector expressed the concern that the dual functionality of the DMC-2000s did not appear to comply with NRC regulations and could potentially be a violation. The RSO asserted that he believed it did meet the requirements and that they have been using this monitoring method for the past 10 years.

Further in-office review of NRC guidance indicated that the Mirion DMC-2000S was not compliant with 10 CFR 34.47(a) when used to serve more than one of the functions required by the rule. The inspector then informed the licensee, by telephone, and requested immediate corrective action. The RSO committed to equip each radiographer with a personnel dosimeter and two DMC-2000S devices, one of which would serve as a direct reading dosimeter, and the other as an alarm ratemeter. As longer term corrective action, the licensee committed to recalibrating a stock of NDS RA-500 alarm ratemeters to be used in conjunction with one DMC-2000S and a personnel dosimeter.

The root cause of the apparent violation was attributed to a misunderstanding that the DMC-2000S did not meet the requirements of 10 CFR 34.47(a) when used to serve the functions of an alarm ratemeter and a direct reading dosimeter simultaneously.

2.3 Conclusions

The inspector identified one apparent violation of 10 CFR 34.47(a), involving the licensee's failure to equip radiographers with an independent direct reading dosimeter and alarm ratemeter while performing radiographic operations. The licensee took prompt and adequate corrective actions to restore compliance.

3 **Other Areas Inspected**

3.1 Inspection Scope

The inspector reviewed other aspects of the licensee's radiation protection program, including training, radiographer audits, equipment maintenance, labeling of containers, postings, and PRI safety features. The inspector interviewed selected individuals, toured the licensee's facility, examined the licensee's containers, and reviewed selected records.

3.2 Observations and Findings

A team of radiographers demonstrated adequate knowledge of radiation safety principles, emergency procedures, and security of radioactive material when interviewed at a temporary job site. Delays in the licensee work schedule prevented the inspector from observing the use of the radiographic exposure device (RED) at the job site. The inspector noted that the radiographers possessed the appropriate utilization log and emergency procedures.

The inspector observed that the radiation alarm unit within the PRI was operable and the door to the PRI locks once the alarm unit exceeds a threshold. Additionally, the RSO demonstrated how source exchanges and daily equipment checks were performed within the PRI.

The inspector reviewed records of leak tests, source exchanges, weekly inventories, and training completion, with no issues noted. A review of the personnel dosimetry records indicated that the highest dose for 2015 was 444 millirem.

3.3 Conclusions

The inspector identified no violations of NRC requirements in these areas.

4 **Exit Meeting Summary**

The NRC inspector presented preliminary inspection findings following the on-site inspection on April 6, 2016. The licensee acknowledged the findings presented. A final telephonic exit meeting between the NRC and the RSO was conducted on June 2, 2016.

PARTIAL LIST OF PERSONNEL CONTACTED

- # David Hubert, Manager
- #* John Merrill, RSO
- # Brian Miles, NDT/Materials Department Head

- # Attended exit meeting on April 6, 2016
- * Attended telephonic exit meeting on June 2, 2016

INSPECTION PROCEDURES USED

87121: Industrial Radiography Programs