



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

September 12, 2016

EN 52175 (retracted)

Mr. Robert J. Tozzie
Radiation Safety Officer
EF2 110 AIB
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: NRC REACTIVE INSPECTION REPORT NO. 03004803/2016002(DNMS)
DTE ENERGY

Dear Mr. Tozzie:

On August 15, 2016, two inspectors from the U.S. Nuclear Regulatory Commission (NRC) conducted a reactive inspection at your St. Clair Power Plant in East China, Michigan. The purpose of the inspection was to review the events involving a fire that occurred on August 11-12, 2016. At the conclusion of the inspection, Ms. Deborah Piskura and Mr. Edward Harvey of my staff discussed the inspection findings with you and members of your staff. 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.

No violations of NRC requirements were identified during this inspection. The inspectors determined that the licensee adequately responded to the radiological concerns involving fixed gauges potentially damaged during the facility fire. We have no further questions regarding this matter and consider our review of this incident closed.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) Section 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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>.

R. Tozzie

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Please feel free to contact Ms. Deborah Piskura or Mr. Edward Harvey of my staff if you have any questions regarding this inspection. Ms. Piskura can be reached at 630-829-9867, and Mr. Harvey can be reached at 630-829-9819.

Sincerely,

/RA/

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

Docket No. 030-04083
License No. 21-02335-05

Enclosure: IR 03004083/2016002(DNMS)

cc w/encl: Leann Warner, Plant Manager,
St. Clair Power Plant
State of Michigan

R. Tozzie

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Aaron T. McCraw, Chief
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Enclosure: IR 03004083/2016002(DNMS)

cc w/encl: Leann Warner, Plant Manager,
St. Clair Power Plant
State of Michigan

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

Docket No. 030-04803

License No. 21-02335-05

Report No. 03004803/2016002(DNMS)

Licensee: DTE Energy

Facility: St. Clair Power Plant
4901 Pointe Drive
East China, Michigan 48054

Inspection Date: August 15, 2016

Exit Meeting Date: August 15, 2016

Inspectors: Edward Harvey, Health Physicist
Deborah A. Piskura, Senior Health Physicist

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

Enclosure

EXECUTIVE SUMMARY

DTE Energy NRC Inspection Report 03004803/2016002(DNMS)

On August 15, 2016, the U.S. Nuclear Regulatory Commission (NRC) conducted a reactive inspection to review the circumstances associated with a fire that occurred on August 11-12, 2016, at the DTE Energy, (the licensee) St. Clair Power Plant in East China, Michigan. The licensee reported the fire and the potential damage to its gauging devices to the NRC on August 11, 2016. The fire was contained within the Unit 7 Turbine Building. The licensee used gauging devices containing cesium-137 sources in its plant.

The first responders to the fire surveyed the gauges and initially determined that the shielding for three gauges could be comprised based on their observations of apparent damage to the gauges and their survey readings. At approximately 09:30 (EDT) on August 12, 2016, the fire was extinguished. The radiation safety officer (RSO) performed a visual inspection, a sealed source leak test, and radiation survey of each of the seven gauges within the Unit 7 Turbine Building. The RSO visually observed no apparent physical damage to the gauges. The RSO's sealed source leak tests revealed no apparent contamination or source leakage.

The licensee determined that all gauges were unaffected by the fire. On August 12, 2016, the RSO notified the NRC Headquarters Operations Center to retract the licensee's event report. The gauges remain secured in the Unit 7 Turbine Building pending further evaluation of the building structure.

The inspectors performed a confirmatory inventory and independent surveys of each gauging device within the Unit 7 Turbine Building. The inspectors determined that the licensee adequately responded to the radiological concerns involving the potentially damaged gauges from the fire.

No violations of NRC requirements were identified during this inspection.

REPORT DETAILS

1 Program Overview and Inspection History

DTE Energy (the licensee) is authorized under NRC Materials License No. 21-02335-05 to use cesium-137 sources in various makes and models of fixed gauging devices for continuous water and coal level measurements. Licensed material is authorized to be used at the licensee's St. Clair Power Plant in East China, Michigan. The licensee possessed 22 gauging devices throughout its plant; seven gauges were installed within the Unit 7 Turbine Building. The radiation safety program was managed by a dedicated full-time (RSO).

The NRC conducted routine inspections of the licensee on July 12, 2016, and February 17, 2011. No violations were identified during these inspections.

2 Sequence of Events and Licensee Investigation

2.1 Inspection Scope

The inspectors reviewed the licensee's investigation of the fire. The inspectors interviewed selected licensee staff, reviewed selected records, and observed related equipment and facilities.

2.2 Observations and Findings

On August 11, 2016, at approximately 18:20 (EDT), a fire occurred at the licensee's St. Clair power plant; the fire was contained within the Unit 7 Turbine Building. The cause of the fire was believed to be attributed to a damaged turbine blade within Unit 7.

The first responders to the fire included an individual formerly employed by the licensee who was knowledgeable of the plant and its gauging devices. As the first responders responded to the fire, a team secured each of the seven gauges by closing and locking the shutter mechanisms. The team surveyed the gauges and initially determined that the shielding for three gauges could be compromised based on their observations of apparent damage to the gauges and their respective survey readings. The team reported to the licensee that they observed damage to the lead housings of three gauge units. The team described the damage as "melted." The team surveyed two of the three gauges and reported their measurements at approximately 30 centimeters as 66 milliRoentgens/hour (mR/hr) and 42 mR/hr. Based on the initial information provided by the first responders, at approximately 22:15 (EDT), the licensee's RSO notified the NRC Headquarters Operations Center of the fire. All plant personnel were prohibited from entering the Unit 7 Turbine Building until the fire was extinguished.

At approximately 09:30 (EDT), on August 12, 2016, the fire was extinguished. Limited personnel, including the RSO, were cleared to assess damage to the plant. The RSO performed a visual inspection, a sealed source leak test, and radiation survey of each of the seven gauges within the Unit 7 Turbine Building. The RSO visually observed no apparent physical damage to the gauges. The RSO's sealed source leak tests revealed no apparent contamination or source leakage. Once the RSO confirmed that all of the

gauging devices in Unit 7 were unaffected by the fire, the RSO notified the NRC Headquarters Operations Center and retracted the licensee's event report.

On August 15, 2016, two NRC inspectors conducted a reactive inspection to independently review the facts and circumstances. The inspectors examined each gauge unit in the Unit 7 Turbine Building and noted that each bore a clearly visible label identifying the source radionuclide and source activity. The inspectors visually inspected gauges and noted no apparent damage to the gauges as a result of the fire. The shutter mechanisms were locked in the shielded position. The inspectors also observed that the areas where licensed material was used/installed and stored were secured and posted with "CAUTION-RADIOACTIVE MATERIALS" signs.

The inspectors performed a confirmatory inventory and independent surveys of each gauging device within the Unit 7 Turbine Building. The inspectors conducted independent radiation measurements using a Thermo Scientific RadEye G, NRC Tag No. 49501G, calibration date January 19, 2016. The inspectors performed direct radiation measurements at contact and around each of the seven gauges within the Unit 7 Turbine Building. The inspectors determined that the highest levels were measured at contact on gauge units; these measurements correlated with the expected radiation levels listed in the Sealed Source and Device Registry for the specific models and activities of cesium-137 sources within the gauge units. The inspectors determined that radiation levels at one meter from the gauge units and in the unrestricted areas outside the exterior of the turbine building were indistinguishable from background.

The inspectors reviewed the RSO's survey results and noted that the exposure rates recorded by the RSO correlated with the expected radiation levels listed in the Sealed Source and Device Registry for the specific models and activities of cesium-137 sources within the gauge units. The inspectors concluded that the licensee adequately responded to the radiological concerns involving the potentially damaged gauges from the fire.

The licensee maintained its gauges secured within the Unit 7 Turbine Building until the completion of the fire investigation by the local emergency responders. If the turbine building is determined to be unusable, the licensee will make arrangements for removal and appropriate disposal of the gauge units.

2.3 Conclusions

The inspectors reviewed the sequence of events involved in the fire and the licensee's response to the event. The inspectors determined that the licensee adequately responded to the radiological concerns involving the potentially damaged gauges from the fire. No violations were identified.

3 Notifications and Reports

3.1 Inspection Scope

The inspectors reviewed the licensee's notification to the NRC Headquarters Operations Center and subsequent retraction of the event report. The inspectors interviewed selected licensee personnel.

3.2 Observations and Findings

Title 10 of the *Code of Federal Regulations* (CFR) Section 30.50(b)(4) requires that each licensee notify the NRC within 24 hours after the discovery of an unplanned fire damaging any licensed material or device, container, or equipment containing licensed material when the quantity of material involved is greater than five times the lowest annual limit on intake specified in Appendix B of Section 20.1001-20.2401 of 10 CFR Part 20 and the damage affects the integrity of the licensed material or its container. On August 11, 2016, at 18:20 (EDT), the licensee notified the NRC Headquarters Operations Center of an unplanned fire that occurred at its St. Clair Power Plant (Event Number 52175). Once the fire was extinguished on August 12, 2016, the RSO performed a visual inspection, radiation survey, and leak test of each of the seven gauges installed the Unit 7 Turbine Building. The licensee determined that all gauges were unaffected by the fire. On August 12, 2016, the RSO notified the NRC Headquarters Operations Center to retract the licensee's event report. On August 15, 2016, during the onsite reactive inspection, the NRC inspectors verified that the licensee appropriately retracted its event report through reviewing licensee survey data and leak test results and conducting independent surveys.

3.3 Conclusions

The licensee conservatively made the appropriate notifications and reports as required by 10 CFR 30.50(b)(4) within the specified time period. No violations of NRC requirements were identified.

4 Exit Meeting Summary

The NRC inspectors presented the inspection findings during the inspection on August 15, 2016. The licensee did not identify any documents or processes reviewed by the inspectors as proprietary. The licensee acknowledged the findings presented.

PARTIAL LIST OF PERSONNEL CONTACTED

- # Russell Boynton, I & C Supervisor
 - # Meg Guillaumin, Maintenance Manager
 - # Robert J. Tozzie, Radiation Safety Officer
 - # Leann Warner, Plant Manager
 - # Bryan Weber, Principle Technician Specialist – RP
 - # William Wells, I & C Technician
- # Attended exit meeting on August 15, 2016.

INSPECTION PROCEDURES USED

- 87103, “Inspection of Materials Licensees Involved in an Incident or Bankruptcy Filing”
- 87124, “Fixed and Portable Gauge Programs”