



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

May 5, 2016

Dr. Elizabeth Hurst  
Radiation Safety Officer  
Cayman Chemical Company, Inc.  
1180 East Ellsworth Road  
Ann Arbor, MI 48108

SUBJECT: NRC ROUTINE INSPECTION REPORT NO. 03029143/2016001(DNMS) AND  
NOTICE OF VIOLATION – CAYMAN CHEMICAL COMPANY, INC.

Dear Dr. Hurst:

On April 14, 2016, an inspector from the U.S. Nuclear Regulatory Commission (NRC) conducted a routine inspection at your facility on Venture Drive in Ann Arbor, Michigan. 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. Mr. Ryan Craffey of my staff conducted a final exit meeting by telephone with you on April 20, 2016 to discuss the inspection findings.

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, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The violations were evaluated in accordance with the NRC Enforcement Policy, which can be found on the NRC's website at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The violations concerned (1) the failure to conduct the radiation safety program in accordance with the statements, representations, and procedures for survey meter calibration frequencies contained in the license renewal application dated November 11, 2011, as required by Condition 20.B of your NRC license; and (2) the failure to periodically (at least annually) review the radiation protection program content and implementation, as required by Title 10 of the *Code of Federal Regulations* (CFR) Part 20.1101(c). The violations are cited in the enclosed Notice of Violation (Notice). The NRC is citing the violations in the enclosed Notice because the inspector identified the violations.

The inspector determined that the root cause of the first violation was an oversight. As corrective actions to restore compliance and to address the potential for recurrence, you committed to send in the Ludlum 9-3 survey instrument for calibration, and to ensure that the instrument will be calibrated on an annual basis.

The inspector determined that the root cause of the second violation was a lack of understanding of regulatory requirements. As corrective action, you committed to perform an audit of the radiation safety program within the next two weeks, and to ensure that the program is audited on an annual basis.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. 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>. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

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. Craffey of my staff if you have any questions regarding this inspection. Mr. Craffey can be reached at 630-829-9655.

Sincerely,

*/RA/*

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

Docket No. 030-29143  
License No. 21-24683-01

Enclosure:  
Notice of Violation

cc w/encl: State of Michigan

The inspector determined that the root cause of the second violation was a lack of understanding of regulatory requirements. As corrective action, you committed to perform an audit of the radiation safety program within the next two weeks, and to ensure that the program is audited on an annual basis.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. 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 website at: <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/1996/in96028.html>. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

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Please feel free to contact Mr. Craffey of my staff if you have any questions regarding this inspection. Mr. Craffey can be reached at 630-829-9655.

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

Docket No. 030-29143  
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Enclosure:  
Notice of Violation

cc w/encl: State of Michigan

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## NOTICE OF VIOLATION

Cayman Chemical Company, Inc.  
Ann Arbor, Michigan

License No. 21-24683-01  
Docket No. 030-29143

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted on April 14, 2016, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

Condition 20.B of NRC Materials License 21-24683-01 states that, except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the application dated November 18, 2011.

Section 10.2 of the licensee's renewal application dated November 18, 2011, states in part that survey instruments which are used for health protection purposes will be calibrated annually. Section 10.2 further states in part that Cayman Chemical has a Ludlum Model 3 portable survey meter with a Model 44-9 pancake probe for measurement of phosphorous-32 and iodine-125, and that this instrument will be used for ambient radiation surveys for high energy beta emitters.

Contrary to the above, on several occasions between July 21, 2014 and November 3, 2014, Cayman Chemical Company conducted research with phosphorous-32, and used, for ambient radiation surveys following each experiment, a Ludlum Model 3 portable survey meter with Model 44-9 pancake probe that had not been calibrated annually. The instrument was last calibrated on November 8, 2003.

This is a Severity Level IV violation (Section 6.7).

Title 10 of the *Code of Federal Regulations* (CFR) Section 20.1101(c) requires that the licensee shall periodically (at least annually) review the radiation protection program content and implementation.

Contrary to the above, as of April 14, 2016, the licensee failed to periodically (at least annually) review the radiation protection program content and implementation. Specifically, the licensee had not reviewed the content and implementation of its radiation protection program since at least February 24, 2011, a period greater than annually.

This is a Severity Level IV violation (Section 6.3).

Pursuant to the provisions of 10 CFR 2.201, Cayman Chemical Company, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region III, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include: (1) the reason for the violations, or, if contested, the basis for disputing the violations or their severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not

received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

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, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made publicly available without redaction.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 5<sup>th</sup> day of May, 2016.