



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
2100 RENAISSANCE BLVD.  
KING OF PRUSSIA, PA 19406-2713**

April 15, 2019

EA-19-003

Donald J. Sipher, P. E.  
President & Chief Operating Officer  
Froehling & Robertson, Inc.  
3015 Dumbarton Road  
Richmond, VA 23228

**SUBJECT: FROEHLING & ROBERTSON, INC - NRC INSPECTION REPORT  
03006580/2018001**

Dear Mr. Sipher:

On September 24 and November 30, 2018, with continued in-office review through March 27, 2019, Dennis Lawyer of this office conducted a routine inspection of your facility at Roanoke, Virginia and at a temporary job site in Virginia Beach, Virginia. The inspection was an examination of your licensed activities as they relate to radiation safety and to compliance with the Commission's regulations and the conditions in your license. The inspection consisted of observations by the inspector, interviews with personnel, and a selective examination of representative records. The enclosed report presents the results of this inspection. The inspector discussed the preliminary inspection findings with you at the conclusion of the on-site portion of the inspection. A final exit briefing was conducted (telephonically) with Mr. Brett Clarke on March 27, 2019.

Based on the results of this inspection, four apparent violations were identified, three of which are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at <https://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The first and second apparent violations were related to a temporary loss of control of a portable gauge that occurred when a portable gauge fell out the back of a truck. The gauge was not maintained under surveillance while in an unrestricted area nor was it securely locked with two tangible barriers. The third apparent violation involved the failure to notify the NRC about this event. The fourth apparent violation, which is not being considered for escalated enforcement is related to not having required emergency procedures at a temporary job site. Additional details about these issues are described in Section 2 of the enclosed report.

The circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective action were discussed with Mr. Clarke at the inspection exit meeting on March 27, 2019. As a result, it may not be necessary to conduct a pre-decisional enforcement conference in order to enable the NRC to make an enforcement decision. In addition, since your facility has not been the subject of escalated enforcement actions within the last two inspections, and based on our understanding of your corrective action, a civil penalty may not be warranted in accordance with Section 2.3.4 of the Enforcement Policy.

We believe we have sufficient information to make an enforcement decision regarding the apparent violations. Therefore, you may choose to accept the violations as characterized in this letter and its enclosure, and notify us of your decision within 10 days. Alternately, before the NRC makes its enforcement decision, we are providing you an opportunity to offer your perspective on this matter and provide any information you believe the NRC should take into consideration. You can elect to provide such information by either: (1) responding to the apparent violations in writing within 30 days of the date of this letter or (2) requesting a Pre-decisional Enforcement Conference (PEC) to meet with the NRC and present your views in person.

If you choose to provide a written response, it should be clearly marked as a "Response to Apparent Violations in NRC Inspection Report 03006580/2018001; EA-19-003," and should be sent to the NRC's Document Control Center, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, with a copy mailed to James M. Trapp, Director, DNMS, Region I, 2100 Renaissance Boulevard, Suite 100, King of Prussia, PA 19406-2713, within 30 days of the date of this letter.

If you choose to request a PEC, the meeting should be held in our office in King of Prussia, PA, within 30 days of the date of this letter. The conference will include an opportunity for you to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The topics discussed during the PEC may include 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. The PEC would be open for public observation, and the NRC would issue a press release to announce the conference time and date.

Please contact Arthur Burritt at 610-337-5069 within 10 days of the date of this letter to notify the NRC which of the above options you choose. If you do not contact the NRC within the time specified, and an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site 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 available to the Public without redaction.

D. Sipher

3

If you have any questions concerning this matter, please contact Dennis Lawyer of my staff at 610-337-5366.

Sincerely,

*/RA/*

James M. Trapp, Director  
Division of Nuclear Materials Safety

Docket No. 03006580  
License No. 45-08890-02

Enclosure:  
Inspection Report 0306580/2018001

cc w Encl: Brett D. Clarke, Radiation Safety Officer

cc w/o Encl: Commonwealth of Virginia

FROEHLING & ROBERTSON, INC - NRC INSPECTION REPORT 0306580/2018001 Dated  
 \_April 15, 2019\_.

**DISTRIBUTION:**

ADAMS (PARS)

J Peralta, OE

N Hasan, OE

S Rodriguez, OE

L Sreenivas, OE

M Burgess, NMSS

R Sun, NMSS

S Holiday, NMSS

J Trapp, NMSS, RI

J Nick, DNMS, RI

A Burritt, DNMS, RI

D Lawyer, DNMS, RI

B Klukan, RI

R1Enforcement

D Bearde, RI

S Villar, RI

Region I OE Files (with concurrences)

DOCUMENT NAME: G:\WBL Documents\WBL Inspection Letter\L45-08890-02.2018001.choice.doc

**SUNSI Review Complete:** DLawyer

**ML19105A098**

After declaring this document "An Official Agency Record" it **will** be released to the Public.

**To receive a copy of this document, indicate in the box: "C" = Copy w/o attach/encl "E" = Copy w/ attach/encl "N" = No copy**

OFFICE	RI:DNMS	N	RI:DNMS	N	RI:ORA	N	OE	N
NAME	DLawyer/ab for		ABurritt/ab		MMcLaughlin/mmm		Woods/sw via email	
DATE	3/27/2019		3/28/2019		4/12/2019		4/12/2019	
OFFICE	RI:DNMS	N						
NAME	JTrapp/jt							
DATE	4/15/2019							

OFFICIAL RECORD COPY



## EXECUTIVE SUMMARY

Froehling & Robertson, Inc.  
NRC Inspection Report No. 03006580/2018001

An unannounced inspection was performed of Froehling & Robertson, Inc. (F&R) portable gauge program on September 24, 2018. A temporary job site was observed on November 30, 2018.

Overall, F&R implemented a well maintained, safe, and compliant program. However, during this inspection, four apparent violations of NRC requirements were identified. Three apparent violations are associated with a February 27, 2017, event at the Fort Bragg aerial gunnery range in Fayetteville, North Carolina. F&R temporarily lost control of a portable gauge. This event was the subject of NMED Event No. 190008.

On February 27, 2017, inside the Fort Bragg, North Carolina, military installation, near the Aerial Gunnery Range, an authorized F&R gauge user (AU) was transporting a Troxler Electronics Arts Model 3440 portable density gauge containing a 8 millicurie cesium-137 source and a 40 millicurie americium – 241 source from one temporary job site to another. The AU placed the gauge inside a transport case, placed the transport case in the back of a pickup truck without blocking and bracing the gauge, and then proceeded to drive a distance of about 1.5 miles over non-public roadways to the second temporary job site. During that trip, the truck tailgate fell down and the gauge fell off the back of the truck. When the AU reached his destination, he discovered that the gauge was missing. Another site contractor, driving a water truck, observed the unsecured gauge on the road, recovered the gauge, and returned the gauge to the AU approximately 20 minutes later. During this period of time, the gauge was not secured to prevent unauthorized removal and was not under the control and constant surveillance of the licensee.

Following this event, F&R failed to recognize that a temporary loss of control of the portable gauge, which contained a quantity of americium-241 greater than 1,000 times the quantity specified in appendix C to 10 CFR 20, required an immediate telephone report to the NRC.

During this event the licensee failed to: (1) control and maintain constant surveillance of material that was in an unrestricted area as required by 10 CFR 20.1802; (2) use two independent physical controls that form tangible barriers to secure portable gauges whenever portable gauges are not under the control and constant surveillance of the license as required by 10 CFR 30.34(i); and (3) report the occurrence of the lost gauge to NRC as required by 10 CFR 20.2201(a)(i).

Additionally there is one apparent violation that is not being considered for escalated enforcement where the licensee did not provide emergency procedures at their temporary job site.

Corrective actions included securing the gauge when it was received and subsequently reporting the event to the NRC after being requested by the inspector. Corrective actions to prevent reoccurrence included training all AUs regarding methods to secure portable gauges during transport, training AUs on NRC reporting requirements, and supplying all AUs with emergency procedures for use at temporary job sites.

## REPORT DETAILS

### 1. **Organization and Scope of the Program**

#### a. Inspection Scope

The inspector reviewed the organization and scope of the licensee's portable gauge program. Information was gathered through direct observations, reviews of records, and interviews with licensee staff.

#### b. Observations and Findings

Froehling & Robertson, Inc. (F&R) is licensed to use X-ray fluorescence analyzers and portable gauges for measuring physical properties of materials. They have 12 locations where they store and dispatch these devices. Their offices are located in Virginia, North Carolina, South Carolina, and Maryland. Typically they use these devices under the NRC license at military bases in the Virginia and North Carolina. Each of the offices has a local Radiation Safety Officer. The license Radiation Safety Officer performs an annual review of the radiation safety program content and implementation, but may not review each location within a year.

### 2. **Material Receipt, Use, Transfer, and Control**

#### a. Inspection Scope

The inspector reviewed the licensee's use of portable gauges in NRC jurisdiction. Information was gathered by reviews of records, interviews with cognizant personnel, and direct observations of use of a portable gauge at the Oceanic Naval Air Station.

#### b. Observations and Findings

##### Review of Records

Records showed that the licensee maintained proper records of gauge inventory, gauge leak tests, annual reviews of the radiation safety program content and implementation, training, gauge user periodic audits, operating procedures, and transportation documents.

##### Field Observations

The inspector observed a gauge user demonstrate use of a portable gauge at a temporary job site. The gauge user was familiar with the operation and use of the gauge and with operating procedures, he possessed a bill of lading and was knowledgeable regarding requirements for maintaining constant surveillance when the gauge is not in storage. The gauge user also demonstrated proper methods for securing gauges in the truck to meet the security requirements in 10 CFR 30.34(i). However, the AU did not possess emergency procedures as committed to in the licensee's February 21, 2012, application.

## Independent Radiation Measurements

The inspector obtained independent radiation survey measurements of a Troxler Electronic Laboratories Model 3411 portable gauge using a Ludlum Model 2401-EC Survey Meter, NRC Serial Number 32692G, calibration expiration date 5/21/2019. All contact dose rates were less than the maximum exposure rates listed in the sealed source and device registry, with the maximum reading of 6 mR/hr.

## NMED Event No. 190008

On February 27, 2017, inside the Fort Bragg, North Carolina, military installation, near the Aerial Gunnery Range, an authorized F&R gauge user (AU) was transporting a Troxler Electronics Arts Model 3440 portable density gauge containing a 8 millicurie cesium-137, QSA Global, Inc. Model CDCW556, Serial #5800 and 40 millicurie americium-241, QSA Global, Inc. Model AMNV.997, Serial #19636 source from one temporary job site to another. The AU placed the gauge inside a transport case, placed the transport case in the back of a pickup truck without blocking and bracing the gauge, and then proceeded to drive a distance of about 1.5 miles over non-public roadways to the second temporary job site. During that trip, the truck tailgate fell down and the gauge fell off the back of the truck. When the AU reached his destination, he discovered that the gauge was missing. Another site contractor, driving a water truck, observed the unsecured gauge on the road, recovered the gauge, and returned the gauge to the AU within about 20 minutes. During this period of time, the gauge was not secured to prevent unauthorized removal and was not under the control and constant surveillance of the licensee.

Following this event, F&R failed to recognize that a temporary loss of control of the portable gauge, which contained a quantity of americium-241 greater than 1,000 times the quantity specified in appendix C to 10 CFR 20, required an immediate telephone report to the NRC.

Notification of the event was not made at that time. The licensee did not recognize that the americium 241 source was over 1000 times Appendix C and only considered the cesium 137 source, thus did not make notification.

The RSO stated that the AU who mishandled the gauge was terminated from employment. All gauge users received training about the event.

The RSO called in the event on December 20, 2018, after being requested by the NRC inspector to do so. The RSO will consider both sources for notification purposes in the future.

### c. Conclusions

Overall, F&R implemented a well maintained, safe, and compliant program. However, during this inspection, four apparent violations of NRC requirements were identified. Three of these apparent violations are associated with the February 27, 2017, event at Fort Bragg, in which F&R lost control of a portable gauge. This event was the subject of NMED Event No. 190008. The following are the apparent violations being considered for escalated enforcement:



- A. 10 CFR 20.1802 requires that the licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and is not in storage.

Contrary to the above, on February 27, 2017, the portable gauge licensee did not control and maintain constant surveillance of licensed material, a portable gauge, that was in an unrestricted area and that was not in storage. Specifically, an authorized gauge user left a portable nuclear moisture density gauge containing licensed material in the bed of a pickup truck while transporting to another site. The gauge fell out of the truck and was unattended. The gauge was recovered in approximately 20 minutes.

- B. 10 CFR 30.34(i) requires, in part, that each portable gauge licensee shall use a minimum of two independent physical controls that form tangible barriers to secure portable gauges from unauthorized removal, whenever portable gauges are not under the control and constant surveillance of the licensee.

Contrary to the above, on February 27, 2017, the portable gauge licensee did not control and maintain constant surveillance of licensed material, a portable gauge, and did not use a minimum of two independent physical controls that formed tangible barriers to secure the gauge from unauthorized removal. Specifically, an authorized gauge user left a portable nuclear moisture density gauge containing licensed material in the bed of a pickup truck while transporting to another site. The gauge fell out of the truck and was unattended. The gauge was recovered in approximately 20 minutes.

- C. 10 CFR 20.2201(a)(i) requires that each licensee shall report by telephone immediately after its occurrence becomes known to the licensee, an lost, stolen, or missing licensed material in an aggregate quantity equal to or greater than 1,000 times the quantity specified in appendix C to part 20 under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas.

Contrary to the above, on February 27, 2017, the licensee did not report by telephone immediately after its occurrence becomes known to the licensee, an lost, stolen, or missing licensed material in an aggregate quantity equal to or greater than 1,000 times the quantity specified in appendix C to part 20 under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas. Specifically, an authorized gauge user had lost a portable gauge containing a quantity greater than 1,000 times the quantity specified in appendix C to part 20 in which the exposure could result to persons in unrestricted area.

The following apparent violation is being considered for non-escalated enforcement:

- D. Condition 18 of Amendment 23 of NRC License No.45-08890-02 requires that the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including electronic mail attachment received March 8, 2012.

The electronic mail attachment received March 8, 2012, states, "We will implement and maintain the operating and emergency procedures in Appendix H of NUREG-1556, Volume 1, Rev. 1, dated November 2001, and provide copies of these procedures to all gauge users and at each jobsite."

Contrary to the above, on November 30, 2018, the licensee did not implement and maintain the operating and emergency procedures in Appendix H of NUREG-1556, Volume 1, Rev. 1, dated November 2001, and provide copies of these procedures to all gauge users and at each jobsite. Specifically, the licensee did not have the emergency procedures at the jobsite in Oceana Naval Air Station, Virginia Beach, Virginia.

### **3. Exit Meeting**

On March 27, 2019, the inspector conducted an exit meeting by telephone with Mr. Brett Clarke, Radiation Safety Officer. The inspector discussed the inspection findings including the apparent violations of 10 CFR 20.1802, 10 CFR 30.34(i), 10 CFR 20.2201(a)(i) and License Condition 18. The licensee acknowledged the inspection findings, emphasized that F&R took immediate corrective and preventative actions to address the temporary loss of material, and emphasized that F&R is committed to compliance with NRC requirements.

## ATTACHMENT

### **PARTIAL LIST OF PERSONS CONTACTED**

\*#Brett Clarke, Radiation Safety Officer  
Craig Mintz, Supervisor  
Lee Smith, Authorized User

\* Present at Entrance Meeting  
# Present at Exit Meeting

### **SUPPLEMENTAL INFORMATION**

Licensee's 30 Day Report required by 10 CFR 20.2201(b)

### **INSPECTION PROCEDURES USED**

IP 87124, Fixed and Portable Gauge Programs

### **LIST OF DOCUMENTS REVIEWED**

Dosimetry Reports for 2018  
Leak test records for 2018  
Self-assessment for 2017 and 2018  
Gauge inventory records  
Gauge use logs  
Bill of lading  
Emergency procedures

### **LIST OF ACRONYMS USED**

ADAMS: Agency wide Documents Access and Management System  
AU: Authorized Gauge User  
CFR: Code of Federal Regulations  
EA: Enforcement Action  
EN: Event Notification  
F&R: Froehling & Robertson, Inc.  
NMED: Nuclear Material Event Database  
RSO: Radiation Safety Officer