



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

July 9, 2015

Docket No. 03020195
EA-15-127

License No. 45-23031-01

Colin Stevenson
President
CTI Consultants, Inc.
13500 East Boundary Road
Midlothian, VA 23112

SUBJECT: NRC INSPECTION REPORT NO. 03020195/2015001; CTI CONSULTANTS, INC., ASHLAND, VIRGINIA AND COLUMBIA, MARYLAND FIELD OFFICES AND TEMPORARY JOBSITES IN NRC JURISDICTION; NOTICE OF VIOLATION AND EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Stevenson:

On June 15, - 18, 2015, and continuing with an in-office review until July 2, 2015, Scott Wilson of this office conducted a safety inspection at CTI Consultants, Inc.'s field offices in Ashland, Virginia and Columbia, Maryland, and at temporary jobsites in Fort Lee, Virginia and Washington, D.C. of activities authorized by the above listed NRC license. 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 license conditions. The inspection consisted of observations by the inspector, interviews with personnel, and a selective examination of representative records. The findings of the inspection were discussed with you, Joseph Duquette, and Patrick McCabe of your organization via telephone on July 2, 2015. The enclosed report presents the results of this inspection.

Based on the results of this inspection and in accordance with the NRC Enforcement Policy, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The violations involved: 1) the failure to use two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal, whenever the portable gauge was not under CTI Consultants, Inc.'s control and constant surveillance as required by 10 CFR 30.34(i); and 2) the failure to ensure that an individual monitoring device was worn by a portable gauge user while working with a gauge, as required by Condition 19 of CTI Consultants, Inc.'s NRC license.

The above stated violations were identified by the inspector and are described in the enclosed Notice of Violation.

In accordance with the NRC's Enforcement Policy, although violations of 10 CFR 30.34(i) are normally categorized at Severity Level III and considered for escalated enforcement action, because: 1) one physical control existed to prevent loss or theft of the portable gauge; 2) you retained possession of the gauge; 3) the violation was isolated in nature; and 4) no indication of programmatic weakness was identified, the NRC is exercising enforcement discretion to categorize this violation as Severity Level IV.

During the inspection, several authorized gauge users were observed conducting licensed activities in a manner compliant with regulatory requirements. The inspector determined that the violation discussed above was the result of the actions of one authorized user that was not fully aware of the regulatory requirement and how to comply with the requirement. Therefore, the violation was characterized as isolated in nature.

During our inspection exit meeting via telephone on July 2, 2015, you indicated that the violations were the result of employees not having a full understanding of the requirements. You stated that you have taken corrective and preventative actions to address each violation and that CTI Consultants, Inc. is committed to radiation safety and to compliance with NRC regulations and licensed conditions. Further, you stated verbally during the exit meeting that you have taken, or will take, the following corrective and preventative actions:

- 1) ensure personnel monitoring devices are worn by all authorized gauge users; and
- 2) provide refresher training to the authorized gauge users involved, emphasizing gauge security and personnel monitoring; and
- 3) inform all authorized gauge users of the results of this inspection.

The NRC has concluded that information regarding the reason for the violations, the corrective actions taken and planned to correct the violations and prevent recurrence is already adequately addressed in our records. Therefore, you are not required to respond to this letter unless the description of your corrective actions in this letter and the enclosed inspection report does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, 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 document system (ADAMS), accessible from the NRC 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 available to the Public without redaction.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Med, Ind, & Academic Uses**; then **Regulations, Guidance and Communications**. The current Enforcement Policy is included on the NRC's website at www.nrc.gov; select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents**; then **Enforcement Policy (Under 'Related Information')**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays).

The NRC's Safety Culture Policy Statement became effective in June 2011. While a policy statement and not a regulation, it sets forth the agency's *expectations* for individuals and organizations to establish and maintain a positive safety culture. You can access the policy statement and supporting material that may benefit your organization on NRC's safety culture

Web site at <http://www.nrc.gov/about-nrc/safety-culture.html>. We strongly encourage you to review this material and adapt it to your particular needs in order to develop and maintain a positive safety culture as you engage in NRC-regulated activities.

Please contact Scott Wilson at 610-337-5136 if you have any questions regarding this matter.

Sincerely,

/RA/

Daniel S. Collins, Director
Division of Nuclear Materials Safety

Enclosures:

1. Notice of Violation
2. Inspection Report No. 03020195/2015001

cc w/Enclosures: Joseph Duquette, Radiation Safety Officer
Commonwealth of Virginia

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cc w/Enclosures: Joseph Duquette, Radiation Safety Officer
Commonwealth of Virginia

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DATE	07/02/2015		7/06/2015		06/19/2015 via email		07/09/15	

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NOTICE OF VIOLATION

CTI Consultants, Inc.
Midlothian, VA

Docket No. 03020195
License No. 45-23031-01
EA-15-127

During an NRC inspection conducted on June 15, 2015, and continuing with an in-office review until July 2, 2015, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. 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, between May 29, 2015, and June 16, 2015, CTI Consultants, Inc. did not use a minimum of two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal, and the gauge was not under the control and constant surveillance of the licensee. Specifically, while working at a temporary jobsite in Washington, D.C. (NRC jurisdiction), the licensee used only one independent physical control (chained and locked to a robust structure) that formed a tangible barrier to secure a portable gauge from unauthorized removal, and the portable gauge was not under the control and constant surveillance of the licensee.

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

- B. Condition 19 of NRC License No. 45-23031-01, requires, in part, that the licensee conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The document listed below was the license application dated July 31, 2014 (ML14219A362). The application included CTI Consultant, Inc.'s Corporate Radiation Safety Program dated April 21, 2014. Section 5, paragraph b of the Corporate Radiation Safety Program stated, in part, that all personnel utilizing radiation gauges shall be provided and be required to wear external dosimeters.

Contrary to the above, between May 29, 2015, and June 17, 2015, CTI Consultant, Inc. did not conduct its program in accordance with the Corporate Radiation Safety Program, a document included in the listed license application, in that all personnel utilizing radiation gauges were not provided and did not wear external dosimeters. Specifically, an authorized user was not provided and did not wear an external dosimeter and the individual utilized a portable gauge while working at a temporary jobsite in Washington, D.C. (NRC jurisdiction).

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

The NRC has concluded that information regarding the reason for the violations, the corrective actions taken and planned to correct the violation and prevent recurrence and the date when full compliance will be achieved is already adequately addressed on the docket. However, you are

required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region I, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, any response which contests an enforcement action shall be submitted under oath or affirmation.

Your response will be placed in the NRC Public Document Room (PDR) and on the NRC Web site. To the extent possible, it should, therefore, not include any personal privacy, proprietary, or safeguards information so that it can be made publically available without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that you desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public.

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

Dated This 9th day of July 2015

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No. 03020195/2015001
Docket No. 03020195
License No. 45-23031-01
EA No. EA-15-127
Licensee: CTI Consultants, Inc.
Address: 13500 East Boundary Road, Midlothian, Virginia 23112
Locations Inspected: Offices in Columbia, Maryland, Ashland, Virginia, and temporary jobsites at Fort Lee, Virginia and Washington D.C.
Inspection Dates: June 15 through July 2, 2015

Inspector:	<i>/RA S. Lodhi for/</i> _____ Scott Wilson, Health Physicist Commercial, Industrial, R&D and Academic Branch Division of Nuclear Materials Safety	<i>07/06/15</i> _____ date
Approved By:	<i>/RA S. Lodhi for/</i> _____ Blake Welling, Chief Commercial, Industrial, R&D and Academic Branch Division of Nuclear Materials Safety	<i>07/06/15</i> _____ date

EXECUTIVE SUMMARY

CTI Consultants, Inc.
NRC Inspection Report No. 03020195/2015001

CTI Consultants, Inc. is an engineering company that operates in several Mid-Atlantic states. This was a routine, unannounced inspection of licensed activities involving the use of sealed sources of byproduct material (cesium-137 and americium-241) in portable moisture-density gauges used for the purpose of measuring the physical properties of materials.

Based on the results of the inspection, two Severity Level IV violations of NRC requirements were identified regarding the licensee's failure to use two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal whenever the portable gauges were not under the control and constant surveillance of the licensee, as required by 10 CFR 30.34(i), and failure to wear individual monitoring devices while working with a portable gauge as required by license Condition 19.

The inspector observed licensed activities at a temporary jobsite and determined that licensee employees had secured a portable gauge in its transport container at a construction site using one independent physical control (chain and lock) while it was not under constant surveillance of the licensee. The inspector also determined that one authorized user in-training had worked with portable gauges and was not wearing an individual monitoring device as required by license condition and the licensee's radiation safety program. Both violations involved isolated instances of non-compliance at one temporary jobsite.

As immediate and preventative corrective actions CTI Consultants, Inc.: (1) implemented an additional physical barrier (chain and lock) to prevent unauthorized access to the gauges while in storage and not under the control and constant surveillance of the licensee; (2) conducted refresher training for the gauge user's involved, with an emphasis on portable gauge security and personnel monitoring; (3) will ensure that all gauge users wear individual monitoring devices; and (4) will inform all authorized users of the results of this inspection.

REPORT DETAILS

I. Organization and Scope of the Program

a. Inspection Scope

The inspector reviewed the license application, supporting documents, and other pertinent licensee records. Collectively, these documents describe the licensee's approved radiation safety program. The inspection was conducted using Inspection Procedure (IP) 87124, Focus Elements 1 – 7.

b. Observations and Findings

CTI Consultants, Inc. (licensee) was authorized under NRC License No. 45-23031-01 to possess and use sealed sources of byproduct material in portable moisture-density gauges (gauges) for the purpose of measuring the physical properties of materials. The gauges were authorized to be used at temporary job sites in areas under NRC jurisdiction. The licensee used gauges in NRC jurisdiction at military installations and in Washington, D.C. at construction projects. Gauges were used to conduct moisture-density testing of materials. The licensee employed approximately 108 authorized gauge users (AU's) at field offices in multiple Agreement States. AU's reported directly to their respective branch manager, who reported to the corporate Radiation Safety Officer (RSO), Joseph Duquette. Mr. Duquette reported directly to the company President, Colin Stevenson.

c. Conclusion

No violations were identified.

II. Management Oversight of the Program

a. Inspection Scope

The inspector's review of management's oversight of the program included interviews with licensee personnel, direct observations of licensed activities, and a review of licensee records associated with the program. The inspection was conducted using IP 87124, Focus Elements 1 – 7.

b. Observations and Findings

Routine, unannounced inspections of the licensee's field offices located in Ashland, Virginia, and Columbia, Maryland, were conducted on June 15 and 17, 2015, respectively. Gauge usage was observed and authorized users were interviewed at Fort Lee, Virginia, and Washington, D.C., (temporary jobsites in NRC jurisdiction) on June 16, 2015.

The branch managers and AU's were interviewed and observations were made regarding gauge user training, gauge use, transportation, storage, and security. Licensee program records were reviewed, including: sealed source leak tests, personnel dosimetry reports, shipping papers, operating and emergency procedures and annual program reviews.

The licensee possessed eight gauges at the Ashland field office and seventeen at the Columbia field office. Some of the gauges were not present as they were being calibrated or being used in the field by authorized users. The gauges were possessed and used in accordance with the authorization on the license.

The inspector found that each field office maintained its program records in a complete, accurate and easily retrievable manner. Dosimetry reports were reviewed for the inspection period and personnel doses were well below the regulatory limits. Authorized user training records were maintained. Each office had conducted refresher training annually. Initial gauge user and HAZMAT employee training was conducted either through classroom training or online training and included on-the-job practical training with an authorized user. Each field office also maintained a calibrated dose-rate survey instrument as required by license condition.

Annual program reviews were comprehensive and complete. Items identified during the program reviews were documented and corrected.

c. Conclusion

The inspector determined that licensee management was engaged in the implementation and maintenance of the licensed program. No programmatic weaknesses or violations were identified.

III. Material Use, Transportation and Security

a. Inspection Scope

The inspector's review of the program included interviews with licensee personnel, direct observations of licensed activities, and a review of procedures and records associated with material use, transport and security. The inspection was conducted using IP 87124, Focus Elements 1 – 7.

b. Observations and Findings

Gauges were used and transported in accordance with licensee procedures, license conditions and regulations. The authorized users were knowledgeable of the licensee's operating and emergency procedures. Shipping papers were maintained as required and transport containers were secured to prevent shifting during normal transport conditions. Container labels and markings were adequate, accurate and legible, containing all of the required information. Authorized users were trained in the transportation requirements as required by 10 CFR 71.5.

Gauge use, transport and security at the Fort Lee temporary jobsite was compliant with the license conditions and regulations. However, gauge security was found to be inadequate at a temporary jobsite in Washington, D.C. The temporary jobsite was at the construction site of the Art Place Fort Totton, 5180 South Dakota Ave, Northeast (NE). The inspector found that the two authorized users at the jobsite were performing concrete testing approximately 150 feet from the gauge storage location. The gauge was stored with a lock on the trigger and inside a locked shipping container. The container was secured to a robust structure by a chain and lock. 10 CFR 30.34(i) requires each portable gauge licensee to 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. Considering the distance from the gauge, the obstructed view of the gauge from the vantage point of the authorized users, and that the users were distracted from maintaining constant surveillance, the inspector determined this to be a violation of 10 CFR 30.34(i).

The authorized users stated that they believed the locks on the trigger, shipping container, and the chain constituted two physical controls. The inspector described to the authorized users how the gauge could be removed by an unauthorized individual by defeating only one physical control, the chain securing it to the structure. The authorized users retrieved another chain and lock and secured the transport container with the additional chain and lock prior to the inspector leaving the site.

In accordance with the NRC's Enforcement Policy, although such violations are normally categorized at Severity Level III and considered for escalated enforcement action, because (1) one physical control existed to prevent loss or theft of the portable gauge; (2) the licensee retained possession of the gauge; (3) the violation was isolated; and (4) no indication of programmatic weakness was identified, the NRC is exercising enforcement discretion to categorize this violation as Severity Level IV (SL IV).

Several authorized gauge users were observed conducting licensed activities in a manner in which the inspector determined to be in compliance with regulatory requirements. The inspector determined that the violation discussed above was the result of the actions of one authorized user that was not fully aware of the regulatory requirement and how to comply with the requirement. Therefore, the violation was characterized as isolated in nature.

c. Conclusions

One Severity Level IV violation was identified:

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, between May 29, 2015, and June 16, 2015, CTI Consultants, Inc. did not use a minimum of two independent physical controls that form tangible barriers to secure a portable gauge from unauthorized removal, and the gauge was not under the

control and constant surveillance of the licensee. Specifically, while working at a temporary jobsite in Washington, D.C., the licensee used only one independent physical control (chained and locked to a robust structure) that formed a tangible barrier to secure the portable gauge from unauthorized removal, and the portable gauge was not under the control and constant surveillance of the licensee.

The licensee stated that the reason for the violation was that the authorized user was not fully aware of the requirement.

As immediate and preventative corrective actions the licensee implemented an additional physical barrier (chain and lock) to prevent unauthorized removal of the gauge while in storage and not under the control and constant surveillance of the licensee and communicated the requirements to all authorized gauge users. The licensee also stated that refresher training would be provided to the authorized users involved within 30 days. The refresher training would emphasize gauge security requirements and the corporate requirement for gauge users to wear an individual monitoring device.

No other items of non-compliance were observed.

IV. Personnel Monitoring

a. Inspection Scope

The inspector's review of the program included interviews with licensee personnel, direct observations of licensed activities, and a review of procedures and records associated with the use of personnel monitoring. The inspection was conducted using IP 87124, Focus Elements 1 – 7.

b. Observations and Findings

The inspector reviewed personnel dosimetry records, reviewed the licensee's corporate radiation safety program and interviewed management and authorized gauge users. The licensee's Corporate Radiation Safety Program included operating and emergency procedures which required the use of an individual monitoring device (personal dosimeter), for all individuals while working with portable gauges. The branch managers, corporate radiation safety officer, and all authorized users interviewed acknowledged that personal dosimeters were required to be worn while using gauges.

The inspector determined that one authorized user was not wearing a personal dosimeter while working at the construction site of the Art Place Fort Totton, 5180 South Dakota Ave, Northeast, in Washington, D.C. The authorized user was a new employee that was in-training and accompanied by a fully qualified gauge user. The qualified gauge user was wearing a personal dosimeter. The employee stated that he had forgotten his personal dosimeter. He further stated that he was not aware that he was required to wear a personal dosimeter as he was in-training and was not the principal user of the gauge. The inspector verified that the authorized user had completed initial gauge user training through an online training program and had been instructed on the

licensee's operating and emergency procedures by the branch manager prior to being assigned to practical, or on-the-job, training with an experienced gauge user.

c. Conclusion

One Severity Level IV violation was identified.

Condition 19 of NRC License No. 45-23031-01, requires, in part, that the licensee conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The document listed below was the license application dated July 31, 2014 (ML14219A362). The application included CTI Consultant, Inc.'s Corporate Radiation Safety Program dated April 21, 2014. Section 5 of the Corporate Radiation Safety Program stated, in part, that all personnel utilizing radiation gauges shall be provided and be required to wear external dosimeters.

Contrary to the above, between May 29, 2015, and June 17, 2015, CTI Consultant, Inc. did not conduct its program in accordance with the Corporate Radiation Safety Program, a document included in the listed license application, in that all personnel utilizing radiation gauges did not wear external dosimeters. Specifically, an authorized user did not wear an external dosimeter and the individual utilized a portable gauge while working at a temporary jobsite in Washington, D.C. (NRC jurisdiction).

The branch manager stated that he believed the cause of the violation was miscommunication between himself and the employee, and the employee not being fully aware of the requirement. He further stated that the employee was in-training to become an authorized gauge user. He stated that he had a "spare" dosimeter for the individual, but had not been present at times when the individual left the office to work at the temporary jobsite. As corrective and preventative actions, the branch manager stated that he provided a personal dosimeter to the user and conducted refresher training with the individual on the day of the field site inspection. He further stated that he would ensure all authorized gauge users would be provided with the results of the inspection.

V. Radiation Surveys

a. Inspection Scope

The inspector's review of the program included independent and confirmatory dose-rate surveys of portable gauges. The inspection was conducted using IP 87124, Focus Elements 2 and 5.

b. Observations and Findings

Independent surveys performed by the inspector revealed that all of the gauges were reading 12 millirem per-hour or less on contact and approximately 0.3 millirem per-hour at one meter. The licensee's survey results and the manufacturers reported dose rates were comparable to the inspectors' survey results. The NRC survey instrument used

was a Ludlum Model 2401-P Survey Meter, Serial No. 142673, Calibration due September 15, 2015.

c. Conclusions

No violations were identified.

VI. Exit Meeting

On July 2, 2015, a telephonic exit meeting was conducted with the company president, radiation safety officer, and the branch manager of the Columbia, Maryland field office. Licensee representatives acknowledged the inspector's findings and the corrective actions. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

#*Colin Stevenson, President

#*Joseph Duquette, Corporate Radiation Safety Officer

#Aiden Murphy, Branch Manager, Ashland, Virginia field office

*Patrick McCabe, Branch Manager, Columbia, Maryland field office

Field Inspector No. 1 (authorized gauge user), Ashland, Virginia field office

Field Inspector No. 2 (authorized gauge user), Ashland, Virginia field office

Field Inspector No. 3 (authorized gauge user), Columbia, Maryland field office

Field Inspector No. 4 (authorized gauge user), Columbia, Maryland field office

- present at entrance meeting

* - present at exit meeting

INSPECTION PROCEDURES USED

NRC Inspection Procedure 87124, "Fixed and Portable Gauge Programs"

ITEMS OPEN, CLOSED, AND DISCUSSED

Two Severity Level IV violations were identified involving the licensee's: (1) failure to use a minimum of two independent physical controls to secure a portable gauge from unauthorized removal (Section III); and (2) failure to follow license condition requirements regarding authorized user personal dosimetry use while working with portable gauges (Section IV).