UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

January 13, 2016

EA-15-258

Mr. David P. Tebo
Radiation Safety Officer
Team Industrial Services, Inc.
200 Hermann Drive
Alvin, Texas 77511

SUBJECT: NRC INSPECTION REPORT 030-35252/2015-001

Dear Mr. Tebo:

This letter refers to the routine, unannounced inspection conducted on October 8 and 9, 2015, at your facilities located in Hammond and Crown Point, Indiana, and a temporary job site located in Hammond, Indiana. This inspection examined activities conducted under your license as they relate to public health and safety, and to confirm compliance with the U.S. Nuclear Regulatory Commission's (NRC) rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, independent radiation measurements, and interviews with personnel. On October 9, 2015, at the conclusion of the onsite portion of the inspection, the inspector discussed the preliminary inspection findings with you. A final exit briefing was conducted telephonically with you and Mr. Earl Banfield on December 18, 2015. The enclosed report presents the results of this inspection.

Based on the results of this inspection, one apparent violation 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 Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The apparent violation concerned the failure of two radiographers to wear alarming ratemeters while conducting radiographic operations. Specifically, the radiographers were utilizing a device called a RadEye™ in order to fulfill the requirements in Title 10 of the *Code of Federal* Regulations (CFR) Part 34 for a direct reading pocket dosimeter and the alarming ratemeter. During the December 18, 2015, telephone call, Deborah Piskura and Jason vonEhr of the NRC discussed with you the circumstances surrounding this apparent violation, the significance of the issue, and the need for lasting and effective corrective actions. Your immediate corrective actions included providing the radiography crew with properly calibrated and operable direct reading pocket dosimeters and alarming ratemeters. In addition, the requirements for personnel monitoring were communicated to all the field locations and site-managers. Specifically, Team Industrial Services committed to all personnel wearing monitoring equipment required by 10 CFR 34.47. These actions and commitments are documented in a letter to the NRC dated December 18, 2015 (ML15362A654). Therefore, it may not be necessary to conduct a Pre- decisional Enforcement Conference (PEC) in order to enable the NRC to make an enforcement decision.

In addition, since Team Industrial Services, Inc. has not been the subject of escalated enforcement actions within the last 2 years, and based on our understanding of your docketed corrective actions, a civil penalty is not warranted in accordance with Section 2.3.4 of the Enforcement Policy.

Before the NRC makes its enforcement decision, we are providing you an opportunity to (1) respond to the apparent violation addressed in the enclosed inspection report within 30 days of the date of this letter or (2) request a PEC. 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. If you decide to participate in a PEC, please contact Brooke Smith at 817- 200- 1456 within 10 days of the date of this letter. A PEC should be held within 30 days of the date of this letter.

If you choose to provide a written response, it should be clearly marked as a "Response to An Apparent Violation in NRC Inspection Report 030-35252/2015-001; EA-15-258" 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; 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. Additionally, your response should be sent to the NRC's Document Control Center, with a copy mailed to Mark Shaffer, Director, Division of Nuclear Materials Safety, Region IV, 1600 East Lamar Blvd., Arlington, Texas 76011-4511, 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 these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a PEC conference does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference 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.

In addition, please be advised that the number and characterization of apparent violations 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.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," 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 or proprietary information so that it can be made available to the Public without redaction.

If you have any questions concerning this matter, please contact Brooke G. Smith of my staff at 817-200-1456.

Sincerely,

/RA/

Mark R. Shaffer, Director
Division of Nuclear Materials Safety

Docket No. 030-35252
License No. 42-32219-01

Enclosure:
NRC Inspection Report 030-35252/2015-001

cc: State of Indiana, Radiation Control Program Director
State of Texas, Radiation Control Program Director

To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

If you have any questions concerning this matter, please contact Brooke G. Smith of my staff at 817-200-1456.

Sincerely,

/RA/

Mark R. Shaffer, Director
Division of Nuclear Materials Safety

Docket No. 030-35252
License No. 42-32219-01

Enclosure:
NRC Inspection Report 030-35252/2015-001

cc: State of Indiana, Radiation Control Program Director
State of Texas, Radiation Control Program Director

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ADAMS ACCESSION NUMBER: ML15362A655

X SUNSI Review By: **JEV**	ADAMS **X** Yes ☐ No	**X** Publicly Available ☐ Non-Publicly Available	**X** Non-Sensitive ☐ Sensitive	Keyword:

OFFICE	RIII:DNMS	RIV:DNMS	AC:NMSB-A	ACES	D:DNMS
NAME	DAPiskura	JEvonEhr	BGSmith	MCHay	MRShaffer
SIGNATURE	**/RA via email/**	**/RA/**	**/RA/**	**/RA/**	**/RA/**
DATE	12/15/2015	12/15/2015	01/11/16	01/06/2016	01/13/16

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U.S. Nuclear Regulatory Commission
Region IV

Docket No.	030-35252
License No.	42-32219-01
Report No.	030-35252 / 2015-001(DNMS)
EA No.	EA-15-258
Licensee:	Team Industrial Services, Inc.
Facilities:	3640 W. 179 h Street Hammond, Indiana 578 North Indiana Avenue Crown Point, Indiana Amex Nooter Hammond, Indiana (temporary job site)
Inspection Dates:	October 8 and 9, 2015, with continued in-office review through December 18, 2015
Exit Meeting Date:	December 18, 2015
Inspector:	Deborah A. Piskura, Senior Health Physicist
Approved By:	Brooke G. Smith, Acting Chief Nuclear Materials Safety Branch A Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

Team Industrial Services, Inc.
NRC Inspection Report 030-35252/2015-001(DNMS)

This was a routine, unannounced inspection conducted to review licensed activities under License No. 42-32219-01. The inspection was limited to the licensee's field office and activities conducted out of Hammond, Indiana. The purpose of the inspection was to ensure that all licensed activities performed by the licensee were conducted safely and in accordance with NRC requirements.

During the inspection, the inspector reviewed radiographic operations at a temporary jobsite in Hammond, Indiana. The inspector observed that the radiography crew utilized monitoring devices that did not meet the requirements of Title 10 of the *Code of Federal Regulations* CFR 34.47(a) which 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 radiography crew wore a device called the RadEye^{TM} Personal Radiation Detector, intended to fulfill the function of both a direct reading dosimeter and an alarming ratemeter, while the crew conducted operations. The inspector concluded, based on NRC guidance, that the RadEye^{TM} device could satisfy the requirement for wearing a direct reading dosimeter, but could not simultaneously satisfy the requirement for wearing an alarming ratemeter. Thus, the inspector identified one apparent violation of 10 CFR 34.47(a), involving the licensee's failure to ensure that its radiographers wore alarming ratemeters while conducting radiographic operations. The inspector attributed the apparent violation to the site Radiation Safety Officer's misunderstanding that the RadEye^{TM} dosimeter could function simultaneously as an alarming ratemeter and a direct reading dosimeter. The licensee removed these devices from service and provided the radiography crew with both alarming ratemeters and direct reading dosimeters.

REPORT DETAILS

1 Program Overview and Inspection History

License No. 42-32219-01 authorized Team Industrial Services, Inc. (the licensee) to possess sealed sources in exposure devices and source changers for use in industrial radiography. The licensee operated approximately 50 field offices, including field offices in Hammond and Crown Point, Indiana. The licensee is authorized to perform radiographic operations at temporary job sites and on the Hammond, Indiana, business property as well as within a permanent radiographic installation (PRI). The licensee is required to maintain records related to decommissioning at its Crown Point, Indiana, office. Radiographic operations were conducted daily by 20 radiographers and 20 radiographer's assistants who utilized exposure devices containing iridium-192 and cobalt-60 sources. The licensee possessed a cesium-137 source for instrument calibrations. The majority of the radiographic operations were conducted at temporary job sites. In-house radiography was conducted occasionally within the PRI.

No previous escalated enforcement has been issued to this licensee within the past two years or two inspections. Routine safety inspections were performed on three occasions in 2014 at various field stations. No violations of NRC requirements were identified during these inspections. The previous inspection conducted in 2013, at multiple Alaska field offices, also identified no violations.

2 Management Oversight

2.1 Inspection Scope

The inspector reviewed the licensee's management of its radiation safety program and its internal audit program. The inspector interviewed the Corporate Radiation Safety Officer (RSO) and the Hammond, Indiana field office RSO (site RSO).

2.2 Observations and Findings

Mr. David Tebo was the corporate RSO at the time of this inspection. Mr. James Maramba served as the site RSO for the Hammond, Indiana, field office. The field office RSO or a senior level radiographer conducted unannounced audits of all radiography personnel at least every six months. The audit forms were reviewed and noted to include: radiation safety, surveys, dosimetry, radiographic operations, transportation, training, leak tests, and equipment maintenance. The auditor indicated that no violations of NRC regulations or the license requirements were identified during the reviews.

The licensee reviewed the radiation safety program annually. The inspector reviewed the audit report for 2014 and noted that the review contained elements similar to an NRC inspection.

2.3 Conclusions

No violations of NRC requirements were identified in this program area.

3 Conduct of Radiographic Operations

3.1 Inspection Scope

On October 8, 2015, the inspector observed radiographic operations at a temporary job site in Hammond, Indiana. The inspector interviewed the site RSO and select radiographers and reviewed documentation available at the temporary job site.

3.2 Observations and Findings

On October 8, 2015, the crew performed numerous exposures with an iridium-192 source at a temporary job site in Hammond, Indiana. The crew completed the exposures and was processing film at the time of the inspector's field inspection. The inspector verified documents pertaining to shipping papers, utilization logs, radiographer's certifications, operating and emergency procedures, and NRC regulations. The inspector performed a radiation survey around the outside of the transport vehicle and in the passenger compartment utilizing a Ludlum 2403 survey meter (calibration date 07/30/2015). The maximum radiation readings were found on the surface of the transportation case. The radiation readings in the passenger compartment were approximately 0.05 millirem/hour. The inspector observed that the exposure device was blocked and braced in the vehicle within a Type B container, which was labeled to meet transportation requirements. The licensee's shipping papers were reviewed and contained all the required information. The radiography crew confirmed that the shipping papers were visible and readily accessible in the front of the cab. A side-by-side comparison of the inspector's survey meter reading and the licensee's survey meter reading at the surface of the radiographic camera containing an iridium-192 source was performed and both instruments were within 20 percent agreement.

The inspector observed the radiographers' use of safety equipment (survey instruments, assigned dosimeters, pocket dosimeters, and alarm ratemeters). The inspector noted that the crew wore a device called the RadEye™ Personal Radiation Detector intended to fulfill the function of a direct reading dosimeter and an alarming ratemeter while the crew conducted operations. The crew wore their assigned personnel dosimeters and utilized calibrated survey instruments. At the time of this field inspection, the crew had completed their exposures and were processing film. The inspector requested demonstrations of the RadEye™ device. The site RSO explained that this crew was a good performing crew and he assigned them the RadEye™ device in lieu of a direct reading dosimeter and an alarming ratemeter. The site RSO asserted that the RadEye™ device satisfied the requirements in Section 34.47(a) based on his rationale that other Agreement State radiography firms utilized this device. The site RSO also asserted that workers in nuclear power plants utilized this device.

Based on a previous review of the RadEye™ device, the NRC concluded that the RadEye™ could not simultaneously fulfill the functions of an alarming ratemeter and a direct reading dosimeter. The RadEye™ could serve as a direct reading dosimeter but was not approved by the NRC to be used as an alarming ratemeter. The inspector

discussed the use of the RadEye™ with the corporate RSO who stated that he was not aware that the site RSO had been utilizing this device for the crew without supplemental personnel monitoring equipment (alarming ratemeter and direct reading dosimeter). The corporate RSO instructed the site RSO to immediately remove these assigned RadEye™ units from service. The site RSO agreed to provide the crew with both alarming ratemeters and direct reading dosimeters.

Title 10 CFR Part 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 licensee's failure to ensure that its radiographers wore alarming ratemeters while conducting radiographic operations on October 8, 2015, is an apparent violation of 10 CFR 34.47(a). The RadEye™ is approved to be used as a direct reading dosimeter.

Once the inspector informed the licensee that the RadEye™ was not approved/recognized by the NRC as a device that simultaneously meets the requirements in Section 34.47(a) for an alarming ratemeter and a direct reading dosimeter, the corporate RSO instructed the site RSO to immediately remove this device from service. The site RSO and the corporate RSO committed to keep this RadEye™ device out of service until the licensee received correspondence from NRC on the status of its approval/recognition as a device that meets Part 34 requirements. The site RSO committed to immediately furnish the radiography crew with both pocket dosimeters and alarming ratemeters.

The root cause of the apparent violation involving Section 34.47(a) was attributed to a misunderstanding by the site RSO that the RadEye™ had not been approved/recognized by the NRC to function simultaneously as an alarming ratemeter and a direct reading dosimeter. The site RSO previously worked in the reactor industry and was accustomed to wearing the RadEye™ dosimeter in high radiation areas. The site RSO believed that providing this device to the radiography crew was acceptable and asserted that the device was more dependable and reliable than other commercially available alarming ratemeters and direct reading dosimeters.

3.3 Conclusions

The inspector identified one apparent violation of 10 CFR 34.47(a), involving the licensee's failure to permit two radiographers to conduct radiographic operations without wearing alarming ratemeters. The inspector concluded that the apparent violation was attributed to the site RSO's misunderstanding that the RadEye™ dosimeter could function simultaneously as an alarming ratemeter and a direct reading dosimeter. The licensee removed these devices from service and provided the radiography crew with alarming ratemeters and direct reading dosimeters.

4 Training and Qualifications of Radiography Personnel

4.1 Inspection Scope

The inspection included a review of the licensee's training program. The inspector interviewed the site RSO, selected radiography personnel, and reviewed selected records.

4.2 Observations and Findings

All radiographers were certified in industrial radiography through a recognized radiographer certification program. A review of each radiographer's wallet cards verified that these individuals were currently certified to perform work in industrial radiography. The licensee provided in-house training to radiographers assistants. An assistant must pass written and practical examinations demonstrating competence in the licensee's operating and emergency procedures and in the use of radiography equipment. After completing a minimum of 2 months on-the-job training under a radiographer's supervision, an assistant was eligible to take the radiographers certification examination.

The licensee provided several annual refresher training sessions to its radiography personnel. The inspector interviewed two radiographers and these individuals demonstrated their knowledge in the licensee's operating and emergency procedures.

4.3 Conclusions

The inspector determined that the licensee's training program sufficiently addressed radiation safety. No concerns or problems were noted with the licensee's training program.

5 Personnel Radiation Protection

5.1 Inspection Scope

The inspector interviewed the site RSO, select radiography personnel, reviewed select records, and reports from the dosimetry vendor.

5.2 Observations and Findings

The inspector reviewed radiation exposure dosimetry records from July 2014 to October 2015 and discussed those records with licensee representatives to determine if the licensee's personnel dosimetry program met regulatory and license requirements. The inspector also observed the use of personnel dosimetry by licensee personnel handling licensed materials. Radiography personnel were issued whole body dosimetry, exchanged on a monthly basis, pocket dosimeters (range, 0-200 milliRoentgens) which were charged daily, and alarm ratemeters (set point at 500 milliRoentgens/hour). Interviews with the site RSO and a review of the utilization logs and the dosimeter logs confirmed that no off-scale or high pocket dosimeter readings had occurred during the 2014 to year-to-date (YTD) 2015 period.

The following table summarizes the maximum total effective dose equivalent (TEDE) to personnel:

Year	TEDE	
2014	1,351 millirem	(Average monthly exposure
YTD 10/1/2015	1,618 millirem	50 to 100 millirem)

5.3 Conclusions

Based on the above referenced reviews, discussions, and observations, the inspector determined that the licensee was maintaining personnel radiation exposures as low as reasonably achievable (ALARA) and that no individual exceeded NRC regulatory radiation exposure limits.

6 Other Areas Inspected

6.1 Inspection Scope

The inspector reviewed other aspects of the licensee's radiation protection program, which included security of licensed material, equipment maintenance, labeling of containers, and postings. The inspector interviewed selected individuals, toured the licensee's facilities, examined the licensee's containers, and reviewed selected records.

6.2 Observations and Findings

At the time of this inspection, the licensee possessed several survey meters (range 0-1 Roentgens per hour) which were calibrated every six months utilizing its calibrator unit. All calibrations were performed within the licensee's PRI. The licensee maintained copies of the calibration certificates on file. The inspector found a sampling of these survey meters to be calibrated within the required frequency and operable. The inspector reviewed records related to decommissioning activities performed in 2014 of the licensee's Fairbanks, Alaska field office. These records were maintained at the Crown Point, Indiana, office as required by License Condition 19. The inspection also included review of other radiation safety program areas including: survey instrument calibration; radiation surveys; maintenance of exposure devices, containers and source changers; depleted uranium contamination tests and sealed source leak tests; transportation and source exchanges.

6.3 Conclusions

The inspector identified no violations of NRC requirements.

7 Exit Meeting Summary

The inspector discussed the preliminary inspection findings, as described in this report, with licensee management during the exit meeting conducted on October 9, 2015. The inspector also discussed the apparent violation with the Corporate Radiation Safety Officer and the Corporate Radiation Safety Manager during a final telephone exit conference on December 18, 2015. The inspector discussed the activities reviewed, the inspection findings, and the apparent violation. The licensee did not identify any information reviewed during the inspection and proposed for inclusion in the inspection report as proprietary in nature.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

*+Earl Banfield, Corporate Radiation Safety Manager
Mike Barjas, Radiographer
Robert Edmonds, Radiographer
James Maramba, Field Office Radiation Safety Officer
Jeanne Nymeyer, Administrative Assistant
*David Tebo, Corporate Radiation Safety Officer

*Attended exit meeting on October 9, 2015,
and final exit meeting on December 18, 2015
+Individual contacted by telephone

INSPECTION PROCEDURES USED

IP 87121, “Industrial Radiography Programs”

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

030-35252/2015-01	APV	An apparent violation involving the use of personnel monitoring equipment.

Closed

None

Discussed

None

LIST OF ACRONYMS USED

APV	Apparent Violation
CFR	Code of Federal Regulations
EA	Enforcement Action
NRC	Nuclear Regulatory Commission