UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, ILLINOIS 60532-4352

October 20, 2021

EA-21-128
EN 54809
NMED No. 200307 (Closed)

Mr. Chris Smith
Vice President, Corporate Compliance
Mistras Group, Inc.
161 Tower Dr., Suite E
Burr Ridge, IL 60527

SUBJECT: NRC ROUTINE INSPECTION REPORT NO. 03035114/2021001(DNMS) – MISTRAS GROUP, INC.

Dear Mr. Smith:

On June 21, 2021, an inspector from the U.S. Nuclear Regulatory Commission (NRC) conducted a routine inspection at your Merrillville, Indiana field office, with continued in-office review through September 24, 2021. The purpose of the inspection was to review activities performed under your NRC license to ensure that activities were performed in accordance with NRC requirements. The in-office review included a review of security-related information not available during the on-site inspection. The enclosed inspection report (Enclosure 1) and its non-public Security Addendum (Enclosure 2) 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.

Based on the results of this inspection, apparent violations of NRC requirements were identified and are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's website at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The apparent violations are security-related. Details of the apparent violations, as well as the corrective actions that have since been taken to restore compliance with regulatory requirements, are discussed in Enclosure 2.

Enclosure 2 contains Sensitive Unclassified Non-Safeguards Information. When separated from this Enclosure, this transmittal letter and Enclosure 1 is decontrolled.

Because the NRC has not made a final determination in this matter, the NRC is not issuing a Notice of Violation for these inspection findings at this time. Ms. Deborah A. Piskura, Senior Health Physicist, of my staff, discussed the circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective action with you, and members of your staff, on September 24, 2021.

Before the NRC makes its enforcement decision, we are providing you an opportunity to either: (1) respond in writing to the apparent violations addressed in this inspection report within 30 days of the date of this letter or (2) request a Predecisional Enforcement Conference (PEC). **Please contact Michael A. Kunowski at 630-829-9618 or michael.kunowski@nrc.gov within ten days of the date of this letter to notify the NRC of your intended response.**

If you choose to provide a written response, it should be clearly marked as "Response to the Apparent Violations in Inspection Report No. 03035114/2021001(DNMS); EA-21-128," and should include, for the apparent violations: (1) the reason for the apparent violations, or, if contested, the basis for disputing the apparent violations; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance was or will be achieved. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. 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. In addition, if you choose to provide a written response, please mark your entire response, "Security-Related Information – Withhold from Public Disclosure under Title 10 of the *Code of Federal Regulations* (CFR) 2.390." In accordance with 10 CFR 2.390(b)(ii), the NRC is waiving the affidavit requirements for your response to this letter. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. 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, it will afford you the opportunity to provide your perspective on the apparent violations and any other information that you believe the NRC should take into consideration before making an enforcement decision. The topics discussed during the conference may include the following: 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. If a PEC is held, the NRC will issue a press release to announce the time and date of the PEC. The PEC will be closed to public observation due to the security-related findings.

Please be advised that the number and characterization of the 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 Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agency wide Documents Access Management System (ADAMS), accessible from the NRC's website at http://www.nrc.gov/reading-rm/adams.html. However, Enclosure 2 and your written response, if you choose to provide one, will not be made available electronically for public inspection because of the security-related information that is or would be contained in each.

Please feel free to contact Ms. Piskura of my staff if you have any questions regarding this inspection. Ms. Piskura can be reached at 630-829-9867.

Sincerely,

David L. Pelton

Digitally signed by David L. Pelton
Date: 2021.10.20 16:46:00 -05'00'

David L. Pelton, Director
Division of Nuclear Materials Safety

Docket No. 030-35114
License No. 12-16559-02

Enclosures:
1. Inspection Report No. 03035114/2021001(DNMS)
2. Security Addendum to Inspection Report (Non-public)

cc w/encl: Matt Kim, Corporate Radiation Safety Officer

cc w/encl public: State of Illinois
State of Indiana

Letter to Chris Smith from Deborah Piskura, dated October 20, 2021.

SUBJECT: NRC ROUTINE INSPECTION REPORT NO. 03035114/2021001(DNMS) – MISTRAS GROUP, INC.

DISTRIBUTION w/encl:
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OFFICE	RIII-DNMS		RIII-DNMS		RIII-EICS		RIII	
NAME	DAPiskura:brt		MAKunowski		SLewman		DLPelton	
DATE	10/18/2021		10/18/21		10/20/21		10/20/21	

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U.S. Nuclear Regulatory Commission
Region III

Docket No.	030-35114
License No.	12-16559-02
Report No.	03035114/2021001(DNMS)
NMED NO.	200307
Licensee:	Mistras Group, Inc.
Facilities:	161 Tower Dr., Suite E Burr Ridge, Illinois
Location Inspected:	3827 E. 80th Place Merrillville, Indiana
Inspection Dates:	June 21, 2021, with continued in-office review through September 24, 2021
Exit Meeting Date:	September 24, 2021
Inspector:	Deborah A. Piskura, Senior Health Physicist
Approved By:	Michael A. Kunowski, Chief Materials Inspection Branch Division of Nuclear Materials Safety

Enclosure 2 contains Sensitive Unclassified Non-Safeguards Information. When separated from this Enclosure, Enclosure 1 is decontrolled.

Enclosure 1

EXECUTIVE SUMMARY

Mistras Group, Inc.
NRC Inspection Report 03035114/2021001(DNMS)

The U.S. Nuclear Regulatory Commission (NRC) conducted a routine inspection of the Merrillville, Indiana field office operated by Mistras Group, Inc. (the licensee) on June 21, 2021, with continued in-office review through September 24, 2021. The inspection included a review of the licensee's written report dated August 24. 2020, for an event involving a stuck/irretrievable radiography source that occurred on July 31, 2020, at a temporary job site in St. Albans, West Virginia. The in-office review included an evaluation of security-related information unavailable during the onsite inspection.

The inspector identified apparent security-related violations. Details of the security-related violations, as well as the corrective actions that have been taken to restore compliance, are discussed in the non-public Security Addendum to this Inspection Report.

REPORT DETAILS

1 Program Overview and Inspection History

The licensee is a large testing firm authorized to possess sealed sources in exposure devices and source changers for industrial radiography. The licensee operated over 50 field offices nationwide with the oversight of its radiation protection program headquartered in Burr Ridge, Illinois. The licensee is authorized to perform radiographic operations at temporary job sites and on the business property as well as within a permanent radiographic installation (PRI) and select locations listed on the license; this routine inspection focused on the licensee's radiographic operations at its Merrillville, Indiana field office. The licensee is authorized to perform source retrieval operations. Radiographic operations were conducted daily by over 1,000 radiography personnel who utilized exposure devices containing iridium-192, selenium-75, and cobalt-60 sources. The licensee possessed cesium-137 sources for instrument calibrations, and other sources in various analyzer devices. The majority of the radiographic operations were conducted at temporary job sites.

The Merrillville, Indiana field office was staffed with three employees who supported radiographic operations and coordinated customer services with radiographic personnel from an Agreement State field office. These Agreement State personnel supported Merrillville radiographic operations as needed. The Merrillville field office occasionally used its permanent radiographic installation.

The NRC inspected at the Merrillville field office on June 21 - July 7, 2016, and June 19 - July 19, 2017, with no violations identified during these inspections. The NRC conducted routine inspections on June 12, 2019, and March 3, 2020, at two of the licensee's field offices located in West Virginia; no violations were identified during these routine inspections. The NRC issued previous escalated enforcement action against the licensee on February 13, 2019, (EA-18-113), involving the licensee's failure to confine the use of byproduct material to the purposes authorized in its license in accordance with Title 10 of the *Code of Federal Regulations* (CFR) 30.34(c). In that instance, a former radiographer used a radiographic exposure device to radiograph his own hand. A special follow up inspection was conducted on November 19, 2019, with the focus on corrective actions the licensee took in response to the previous escalated enforcement action; no violations were identified during the follow up inspection.

2 Management Oversight and the Radiation Safety Committee

2.1 Inspection Scope

The inspector reviewed the licensee's management of the radiation safety program and the radiation protection program reviews. The inspector interviewed selected licensee staff and the RSO. The inspector also reviewed selected audit reports for the calendar years 2019 through 2021.

2.2 Observations and Findings

The radiation safety program was managed by the Director of Radiation Safety (the Corporate RSO) and supported by a delegated RSO for each field office. The Corporate

RSO reported to the Vice President of Compliance within the company. The licensee designated an individual at each field office as the site RSO who managed the day-to-day operations at the respective field office. The RSO conducted annual audits (either announced or unannounced) of each field office. The RSO or the department supervisor conducted unannounced audits of all radiography personnel at least every 6 months. The audit forms included: 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 his reviews.

The licensee's Corporate RSO reviewed the radiation safety program at each field office annually. The Corporate RSO conducted the last annual review of the Merrillville, Indiana field office May 21, 2021; no violations of NRC requirements were identified during this annual review.

2.3 Conclusions

Based on record reviews, interviews with personnel, and the observations described above, the inspector identified no violations of NRC requirements.

3 Review of July 31, 2020, Stuck/Irretrievable Source Event

3.1 Inspection Scope

The inspector reviewed the licensee's response to a source hang up event that occurred at a temporary job site in St. Albans, West Virginia, on July 31, 2020. The inspector interviewed the corporate RSO and reviewed the licensee's written reported dated August 24, 2020.

3.2 Observations and Findings

Since the previous routine inspection, the licensee reported one incident to the NRC involving a stuck/irretrievable radiography source. On July 31, 2020, at approximately 11:55 a.m., EDT, two radiographers performed radiography on a pipe at a temporary job site within a customer's facility in St. Albans, West Virginia. The radiography crew utilized a camera, containing an iridium-192 source. The crew had radiographed several welds and prepared to take another exposure of the pipe. As the crew made the exposure, the pipe rolled off the table, with the guide tube and collimator attached. The pipe fell onto the floor, crushing the guide tube while the source was exposed. Although the crew made unsuccessful attempts to retract the source into the camera, they were able to shield the source within the collimator. The crew notified their field office RSO, adjusted their restricted area boundary tapes, and maintained surveillance of the area until licensee personnel arrived at 1:50 p.m., EDT. The crew surveyed the exterior of the building to ensure radiation exposure rates were below 10 CFR Part 20 limits for members of the public. The crew informed the customer personnel of the stuck source event, advising their staff on their potential radiation exposure. The licensee assembled and dispatched two individuals, to the respond to the struck source incident; both individuals were trained and qualified to perform source retrievals.

The retrieval team surveyed the exposure set up and determined, based on their readings, that while the source was shielded within the collimator, a narrow beam of

radiation projected from the collimator port towards the wall of the customer's business. The retrieval team covered the collimator with additional lead shot and lead plates to reduce the ambient radiation exposure rate. The team made two unsuccessful attempts to straighten the crimp in the guide tube.

The retrieval team decided to cut out the crimped section of the guide tube to allow the source to be manually cranked into the exposure device. The team removed the outer coating and the metal conduit of the crimped section with a grinding tool. Once the crimped section of the guide tube was removed, the retrieval team cranked the source into the exposure device. The licensee's surveys confirmed that the source was successfully secured within the device.

The license transported the exposure device to the field office. The damaged guide tube was tagged out as unusable and removed from service. The field office sent the camera to the device manufacturer for a complete maintenance service and inspection.

The maximum exposures for the members of the retrieval team and the radiography crew were reported in millirem as follows:

	TEDE
Individual A	30
Individual B	22
Individual C	29
Individual D	30

The licensee's corrective actions in response to this stuck/irretrievable source event included providing instruction to radiography personnel on hazard analysis (the suitable stabilization of a heavy component to be radiographed) for jobs at customer's facilities.

The licensee submitted a written report of this stuck/irretrievable source incident in its letter dated August 24, 2020. The written report contained the required information in 10 CFR 30.50(c)(2) and 34.101(a). The licensee notified the NRC Operations Center of the event by telephone at approximately 9:51 a.m. (EDT) on August 1, 2020, within 24 hours of the event as required by 10 CFR 30.50(b)(2).

3.3 Conclusions

The inspector determined that the licensee implemented adequate corrective actions to address the root cause of the source hang up event. The licensee made all of the notifications and reports, within the specified time period, as required by 10 CFR 30.50(b), 30.50(c), and 10 CFR 34.101(a). The licensee's written report included all of the required information.

4 Other Areas Inspected

4.1 Inspection Scope

The inspector reviewed other aspects of the licensee's radiation protection program which included security of licensed material, personnel monitoring, training, physical

inventory and leak testing of sealed sources, labeling of containers, and postings. The inspector interviewed selected individuals, toured the licensee's facilities, examined the licensee's containers, and reviewed selected records.

4.2 Observations and Findings

At the time of this inspection, the licensee possessed several survey meters (range 0-1 Roentgens per hour), calibrated every 6 months by an authorized service company. 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 inspection included review of other radiation safety program areas such as 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.

The inspector observed that the licensee posted a copy of NRC Form 3. The inspector also observed that the areas where licensed material was used and stored were appropriately posted with "CAUTION-RADIOACTIVE MATERIALS" signs.

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

Year	TEDE
2019	922
2020	675
YTD 5/2021	201

4.3 Conclusions

Based on record reviews, interviews with personnel, and the observations described above, the inspector identified no violations of NRC requirements.

5 Exit Meeting Summary

The inspector discussed the preliminary inspection findings, as described in this report, with licensee management during the exit meeting conducted at the licensee's facility on June 21, 2021. The inspector also discussed the security-related apparent violations with the RSO during a final telephone exit conference on September 24, 2021. The inspector discussed the activities reviewed, the inspection findings, and the apparent violations. The licensee did not identify any information reviewed during the inspection and proposed for inclusion in the inspection report as proprietary in nature.

LIST OF PERSONNEL CONTACTED

Mark Alexander, Site Manager
*#Matthew C. Kim, Director of Radiation Safety
*#Nick Mason, Site Radiation Safety Officer
#Chris Smith, Vice President, Compliance

*Attended the on-site exit meeting on June 21, 2021
#Attended the final telephonic exit meeting on September 24, 2021

INSPECTION PROCEDURES USED

IP	87121	Industrial Radiography Programs
IP	87103	Inspection of Materials Licensees Involved in an Incident or Bankruptcy Filing