July 31, 2017

Eric P. Brand, Quality Manager
Mirion Technologies (IST) Corporation
315 Daniel Zenker Drive 300 IST Center
Horseheads, NY 14845

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT OF MIRION IST NO. 99901478/2017-201, AND NOTICE OF NONCONFORMANCE

Dear Mr. Brand:

On June 12 through 15 2017, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Mirion Technologies (IST) Corporation (hereafter referred to as Mirion) facility in Horseheads, New York. The purpose of this limited-scope routine inspection was to assess Mirion's compliance with provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 21, "Reporting of Defects and Noncompliance," and selected portions of Appendix B, "Quality Assurance Program Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

This technically-focused inspection evaluated Mirion's design, manufacturing and testing of the AP1000 excore detector nuclear instrumentation for the Vogtle Units 3 and 4 and V.C. Summer Units 2 and 3 sites currently under construction. Additionally, this inspection evaluated the implementation of select portions of Mirion's quality assurance (QA) program activities.

During this inspection, the NRC inspectors found that the implementation of your QA program did not meet certain regulatory requirements imposed on you by your customers. The NRC inspection team determined that Mirion was not fully implementing its QA program in the area of control of purchased material, equipment, and services for various raw materials used in the production of excore detector nuclear instruments. Specifically, the NRC inspection team identified several examples where Mirion failed to establish measures to adequately ensure purchased material conformed to the procurement documents. The specific finding and references to the pertinent requirements are identified in the enclosures to this letter. Please provide a written explanation or statement within 30 days from the date of this letter in accordance with the instructions specified in the enclosed Notice of Nonconformance (NON). We will consider extending the response time if you show good cause for us to do so. In response to the enclosed NON, Mirion should also document the results of the extent of condition review for the finding and determine if there are any effects on other safety-related components.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," the NRC will make available electronically for public inspection a copy of this letter, its enclosure, and your response through the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, which is accessible at http://www.nrc.gov/reading-rm/adams.html. To the extent possible (and if applicable), your response should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

/RA/

Terry W. Jackson, Chief
Quality Assurance Vendor Inspection Branch-1
Division of Construction Inspection
and Operational Programs
Office of New Reactors

Docket No.: 99901478

Enclosures:
1. Notice of Nonconformance
2. Inspection Report No. 99901478/2017-201
   and Attachment

SUBJECT: NUCLEAR REGULATORY COMMISSION INSPECTION REPORT OF MIRION IST NO. 99901478/2017-201, AND NOTICE OF NONCONFORMANCE

Dated: July 31, 2017

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DATE	07/31/17	07/28/17	07/31/17	07/31/17

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NOTICE OF NONCONFORMANCE

Mirion Technologies (IST) Corporation
315 Daniel Zenker Drive 300 IST Center
Horseheads, NY 14845

Docket No. 99901478
Report No. 2017-201

Based on the results of a U.S. Nuclear Regulatory Commission (NRC) inspection from June 12, 2017, to June 15, 2017, of activities performed at Mirion Technologies (IST) Corporation (hereafter referred to as Mirion), it appears that certain activities were not conducted in accordance with NRC requirements contractually imposed upon Mirion by NRC licensees.

Criterion VII, "of Appendix B to 10 CFR Part 50, "Control of Purchased Material, Equipment, and Services," states, in part that, "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly, or through contractors and subcontractors, conform to the procurement documents."

Mirion's Quality Assurance Manual, Section 7, "Control of Purchase Material, Items and Services," Revision 10, dated June 21, 2017, states in part that, "Methods used to accept an item or service from a supplier include a valid Certificate of Conformance (CofC), receiving inspection and over checks of the items, and source verification."

Contrary to the above, as of June 15, 2017, Mirion failed to establish measures to ensure selection and review for suitability of application of materials that are essential to the safety-related functions of the excore detector nuclear instrumentation or assess the effectiveness of the quality control for purchased material from contractors and subcontractors. Mirion verifies the material characteristics of purchased metals using a Niton Alloy Analyzer. However, the analyzer failed to verify all chemical and material properties of the metals. The NRC inspection team identified the following examples:

- Westinghouse Electric Corporation (WEC) Purchase Order (PO) 4500372805 identified design specifications that AP1000 excore nuclear instrument detectors be made of Grade 2 Titanium. Mirion's material testing process failed to ensure the procured titanium was Grade 2.

- Mirion PO 83-660774 ordered raw material to meet American Society of Testing and Materials (ASTM) A276/A276M-15 design specifications having cold finished requirement for tensile strength minimum of 90 ksi and a yield strength minimum of 45 ksi. Mirion's material testing process failed to ensure the material fully met the criteria set forth in procurement documents.

- Mirion PO 83-660603 ordered raw material to ASTM B210-12 design specifications having temper H18 requirement for tensile strength minimum of 22 ksi and a yield strength minimum of 20 ksi. Mirion's material testing process failed to ensure the material fully met criteria established in procurement documents.

- Mirion PO 83-660692 ordered raw material to QQ-A-225/8El design specifications having temper T6 or T651 requirements for tensile strength minimum of 42 ksi and a yield strength minimum of 35 ksi. Mirion's material testing process failed to ensure the material fully met the criteria set forth in procurement documents.

These issues have been identified as Nonconformance 99901478/2017-201-01.

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Quality Assurance Vendor Inspection Branch-1, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each noncompliance: (1) the reason for the noncompliance or, if contested, the basis for disputing the noncompliance; (2) the corrective steps that have been and the results achieved; (3) the corrective steps that will be to avoid further noncompliance; and (4) the date when the corrective action will be completed. Where good cause is shown, the NRC will consider extending the response time.

Because your response 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, which is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information (SGI) so that the NRC can make it available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information.

If you request that such material be withheld, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information would create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards SGI is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this the 31st day of July 2017.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NEW REACTORS
DIVISION OF CONSTRUCTION INSPECTION AND OPERATIONAL PROGRAMS
VENDOR INSPECTION REPORT

Docket No.:	99901478
Report No.:	99901478/2017-201
Vendor:	Mirion Technologies (IST) Corporation 315 Daniel Zenker Drive 300 IST Center Horseheads, NY 14845 (607) 562-4414
Vendor Contact:	Eric P. Brand Quality Manager 315 Daniel Zenker Drive 300 IST Center Horseheads, NY 14845 (607) 562-4414
Nuclear Industry Activity:	Mirion IST manufactures and tests source range, intermediate range and power ranges excore detector nuclear instrumentation for the operating nuclear power plants and AP1000 construction activities. Mirion Technologies (IST) Corporation is located in Horseheads, New York.
Inspection Dates:	June 12-15, 2017
Inspection Team Leader	Aaron Armstrong NRO/DCIP/QVIB-1
Inspectors:	Greg Galletti NRO/DCIP/QVIB-1
Approved by:	Terry W. Jackson, Chief Quality Assurance Vendor Inspection Branch-1 Division of Construction Inspection and Operational Programs Office of New Reactors

EXECUTIVE SUMMARY

Mirion Technologies IST Corporation
99901478/2017-201

The U.S. Nuclear Regulatory Commission (NRC) staff conducted a vendor inspection at the Mirion Technologies (IST) Corporation (hereafter referred to as Mirion) facility in Horseheads, NY, to verify that it had implemented an adequate quality assurance (QA) program that complies with the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." In addition, the NRC inspection team also verified that Mirion implemented a program under 10 CFR Part 21, "Reporting of Defects and Noncompliance," that met the NRC's regulatory requirements.

The NRC inspection team conducted the inspection from June 12 through June 15, 2017. This was the first inspection of the Horseheads, NY facility.

This technically-focused inspection specifically evaluated Mirion's fabrication activities for the AP1000 excore detector nuclear instrumentation. Additionally, this inspection focused on Mirion's implementation of corrective actions, nonconformances and control of purchased materials.

- Appendix B to 10 CFR Part 50
- 10 CFR Part 21

During the course of this inspection, the NRC inspection team implemented Inspection Procedure (IP) 43002, "Routine Inspections of Nuclear Vendors," dated January 27, 2017, IP 43004, "Inspection of Commercial-Grade Dedication Programs," dated January 1, 2017, and IP 36100, "Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance," dated February 13, 2012.

The NRC inspection team concluded that Mirion's QA policies and procedures comply with the applicable requirements of Appendix B to 10 CFR Part 50 and 10 CFR Part 21, and that Mirion personnel are implementing these policies and procedures effectively, with one exception. The NRC inspection team concluded that Mirion failed to adequately assure that procured materials conformed to procurement documents for the excore nuclear detector instrumentation.

Part 21

The NRC inspection team determined that Mirion's 10 CFR Part 21 program meets the regulatory requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Mirion is implementing its policies and procedures associated with the 10 CFR Part 21 program. No findings of significance were identified.

Design Control

The NRC inspection team determined that Mirion's design control programs meet the regulatory requirements of Criterion III, "Design Control." Based on the limited sample of documents reviewed, the NRC inspection team also determined that Mirion is implementing its policies and procedures associated with the Design Control program. No findings of significance were identified.

Oversight of Contracted Activities

The NRC inspection team identified four examples of Nonconformance 99901478/2017-201-01 in association with Mirion's failure to implement the regulatory requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. Nonconformance 99901478/2017-201-01 cites Mirion for failure to establish measures to ensure that purchased material conformed to procurement documents. Specifically, Mirion's Positive Material Identification (PMI) with a Niton Alloy Analyzer failed to adequately verify all mechanical and chemical properties of purchased metals materials.

Nonconforming Materials, Parts, or Components and Corrective Action

The NRC inspection team determined that Mirion's Nonconformance and Corrective Action programs meet the regulatory requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Mirion is implementing its policies and procedures associated with the Nonconformance and Corrective Action programs. No findings of significance were identified.

Commercial Grade Dedication (CGD) Program Review

The NRC inspection team concluded, based on the limited sample of documents reviewed, that Mirion is implementing its CGD activities in accordance Criterion III, "Design Control," and Criterion VII, "Control of Purchased Material, Equipment, and Services," with the regulatory requirements of Appendix B to 10 CFR Part 50. No findings of significance were identified.

REPORT DETAILS

1. 10 CFR Part 21 Program

   a. Inspection Scope

   The NRC inspection team reviewed Mirion Technologies IST's (hereafter referred to as Mirion's) policies and implementing procedures that govern Mirion's 10 CFR Part 21, "Reporting of Defects and Noncompliance," program to verify compliance with regulatory requirements. In addition, the NRC inspection team evaluated a sample of Mirion's purchase orders (POs) for compliance with the requirements of 10 CFR 21.21, "Notification of Failure to Comply or Existence of a Defect and its Evaluation," and 10 CFR 21.31, "Procurement Documents." The NRC inspection team also verified that Mirion's nonconformance and corrective action procedures provide a link to the 10 CFR Part 21 program.

   The NRC inspection team also discussed the 10 CFR Part 21 program with Mirion's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

   b. Observations and Findings

   No findings of significance were identified.

   c. Conclusion

   The NRC inspection team concluded that Mirion is implementing its 10 CFR Part 21 program in accordance with the regulatory requirements of 10 CFR Part 21. Based on the limited sample of documents reviewed, the NRC inspection team also determined that Mirion is implementing its policies and procedures associated with the 10 CFR Part 21 program. No findings of significance were identified.

2. Design Control

   a. Inspection Scope

   The NRC inspection team reviewed excore detector nuclear instrumentation (NI) design specifications associated with PO number 4500372805, "Unit 2 & 3 NIS Detectors," Revision 1, dated January 6, 2011, and selected a sample of technical requirements for source range, intermediate range and power range NI to verify that those requirements were consistent with the respective information in the PO and to verify the vendor's processes for translation, configuration, and implementation of technical requirements were performed consistent with the vendors quality assurance (QA) program and the associated established plans and procedures. Specifically, the NRC inspection team reviewed the Source Range detector requirements for integral cabling characteristic impedance, maximum diameter and that all detector assembly exposed material [--------].

   The NRC inspection team also reviewed the Intermediate Range (IR) detector requirements for the integral cable minimum insulation resistance, detector moderator thickness, and the detector assembly material [--------]. In addition the NRC inspection team reviewed the Power Range detector requirements [--------].

The NRC inspection team verified the selected requirements were adequately identified, incorporated, and controlled in design and fabrication records and drawings; inspected and tested through in-process inspection and testing activities governed by formal fabrication instructions; and the results documented in accordance with record control requirements.

The attachment to this inspection report lists the documents reviewed and the personnel interviewed by the NRC inspection team

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Mirion is implementing its design control program in accordance with the regulatory requirements of Criterion III, "Design Control," of Appendix B to 10 CFR Part 50.

3. Oversight of Contracted Activities

a. Inspection Scope

The NRC inspection team reviewed Mirion's policies and implementing procedures that govern the implementation of its control of purchased material, equipment, and services program to verify compliance with the requirements of requirements in Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50.

The NRC inspection team also discussed the oversight of contracted activities and with Mirion's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

AP1000 Detectors

The NRC inspection team reviewed Westinghouse PO 4500372805, Revision 1, dated January 2017 which required that the AP1000 detectors be manufactured to the following specifications: APP-JE-92-001, "AP1000 Excore Source Range detectors Design Specification," Revision 4, dated January 8, 2016; APP-JE-92-002, "AP1000 Excore Intermediate Range Detectors Design Specification," Revision 6, dated January 8, 2016; and APP-JE-92-003, "AP1000 Excore Power Range Detectors Design Specification," Revision 4, dated January 8, 2016. [--------]. The excore detectors' sub-assembly drawings identified Mirion's Raw Material Ordering Specification (RMOS) 923-1005, "Unalloyed Titanium Round Bar Grade 2," be ordered to American Society of Testing and Materials (ASTM) B348-13 standard requirements. Mirion purchased the Grade 2 titanium in PO 83-660286, dated May 5, 2014 from a commercial supplier. Mirion accepted the commercial Certified Material Test Report (CMTR) for the Grade 2 titanium for the mechanical properties, however, no verification of the CMTR is made since verification is performed by Mirion's positive Material Identification (PMI). Mirion

used a Niton Alloy Analyzer to preform PMI and calibrates the alloy analyzer by shooting a sample of Grade 2 titanium that's been verified through chemical analysis. The NRC inspection team reviewed the test results for the Alloy Analyzer and the requirements in ASTM B348-13. The alloy analyzer was unable to detect carbon, oxygen, nitrogen, hydrogen, and the only chemical requirement verified was maximum iron. The NRC inspection team noted the requirements for maximum iron range was the same for Grade 2 and Grade 3 titanium. The NRC inspection team determined the alloy analyzer can determine the family of material, in this case titanium, but lacks the ability to distinguish between the grades of titanium, as required by Westinghouse's design specifications. The NRC inspection team determined that Mirion's PMI with a Niton Alloy Analyzer failed to adequately ensure purchased materials conform to procurement documents. This was identified as the first example of NON 99901478/2017-201-01.

Mirion PO 83-660774

Mirion PO 83-660774,"1.250 round 304" dated May 23, 2017, procured material to Mirion's RMOS 920-1081, "SST 304 Rod- Annealed and Cold Finished," Revision D, dated May 8, 2017, which required material to be ordered to ASTM A276/A276M-15. Mirion received and accepted a CMTR from its commercial supplier but relies on its PMI to verify the appropriate material was received. Mirion performed the PMI with the Niton Alloy Analyzer which is unable to detect carbon, oxygen, sulfur, silicon and phosphorus, but could verify the maximum manganese, chromium and nickel ranges. The NRC inspection team determined the analyzer can determine the family of material but lacks the resolution to distinguish the types of steel: in this case Type 304 stainless steel. The NRC inspection team also noted ASTM A276/A276M-15 cold finished steel has a requirement for tensile strength minimum of 90 ksi and a yield strength minimum of 45 ksi. The NRC inspection team determined that Mirion's Positive Material Identification (PMI) with a Niton Alloy Analyzer failed to adequately ensure purchased material conform to procurement documents. This was identified as the second example of NON 99901478/2017-201-01.

Mirion PO 83-660603

Mirion PO 83-660603, "Aluminum TBG 1100 H18," Revision C, procured material to Mirion's RMOS 901-6015, "Aluminum Tubing 1100 - H18," dated October 28, 2015, which required material to be ordered to ASTM B210-12. Mirion received and accepted a commercial CMTR from its supplier, however, it was not verified. Mirion performed the PMI with the Niton Alloy Analyzer and was able to detect copper and iron minimum ranges, but was unable to detect other chemical composition limits of the material being tested. The NRC inspection team determined the analyzer can determine the family of material, in this case aluminum, but lacks the resolution to distinguish the alloy of aluminum. The NRC inspection team also noted that 1100 aluminum alloy has a temper H18 requirement for tensile strength minimum of 22 ksi and a yield strength minimum of 20 ksi. The NRC inspection team determined that Mirion's PMI with a Niton Alloy Analyzer failed to adequately ensure purchased materials conform to procurement documents. This was identified as the third example of NON 99901478/2017-201-01.

Mirion PO 83-660692

Mirion PO 83-660692, "6061-T6 (CF) Aluminum 6.00 in. Dia," Revision 0, procured material to Mirion's RMOS 901-1001, "Aluminum Round Bar 6061-T6," Revision A which

required material to be ordered as QQ-A-225/8E. Mirion's RMOS901-1001 specified the material was to have T6 or T651 temper as identified in QQ-A-225/8E. Mirion accepted the commercial CMTR for the 6061-T6 aluminum for the mechanical properties without verification of the CMTR. Mirion's alloy analyzer was able to detect copper, iron, and zinc minimum ranges, but was unable to detect other chemical composition limits of the material being tested. Mirion performed the PMI with the alloy analyzer and the NRC inspection team determined that alloy analyzer can determine the family of material but lacks the resolution to distinguish the types of aluminum. The NRC inspection team noted the aluminum alloy has temper T6 or T651 with a specific tensile strength minimum of 42 ksi and a yield strength minimum of 35 ksi. The NRC inspection team determined that Mirion's PMI with a Niton Alloy Analyzer failed to adequately ensure purchased materials conform to procurement documents. This was identified as the fourth example of NON 99901478/2017-201-01.

c. Conclusion

The NRC inspection team issued Nonconformance 99901478/2017-201-01 for Mirion's failure to implement the requirements of Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50. Nonconformance 99901478/2017-201-01 cites Mirion for failure to adequately assure that purchased materials conform to procurement documents as they relate to the manufacture of safety-related excore nuclear detector instrumentation.

4. Nonconforming Materials, Parts, or Components and Corrective Action

a. Inspection Scope

The NRC inspection team reviewed Mirion's policies and implementing procedures that govern the control of nonconformances and corrective actions to verify compliance with the requirements of Criterion XV, "Nonconforming Materials, Parts, or Components," and Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50. The NRC inspection team also discussed the nonconformance and corrective action programs with Mirion's management and technical staff. The attachment to this inspection report lists the documents reviewed and personnel interviewed by the NRC inspection team.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded that Mirion is implementing its nonconformance and corrective action programs in accordance with the regulatory requirements of Criterion XV, “Nonconforming Materials, Parts, or Components,” and Criterion XVI, “Corrective Action,” of Appendix B to 10 CFR Part 50. Based on the limited sample of documents reviewed and interviews conducted, the NRC inspection team also determined that Mirion is adequately implementing its policies and procedures associated with its nonconformance and corrective action programs. No findings of significance were identified.

5. Commercial Grade Dedication (CGD) Program Review

a. Inspection Scope

The NRC inspection team reviewed Mirion Procedure SOP 3-10, “Commercial Grade Dedication, “ dated January 16, 2014, to verify the procedural guidance was consistent with regulatory requirements and reviewed a sample of CGD activities to verify that these activities were performed consistent with the vendor’s QA program requirements and the guidance in Procedure SOP 3-10. Specifically, the NRC inspection team reviewed CGD packages which included CGI Safety-Evaluation 35-8990-5, “Triaxial Connector Plug,” dated October 7, 2016 and CGI Safety-Evaluation 35-10414-5, “Detector Holder Assembly,” dated April 26, 2016. The NRC inspection team verified the vendor’s CGD program, as described in Procedure SOP 3-10, has provisions for the identification and documentation of critical characteristics, including the technical evaluation process, identification of acceptance methods, and description of specific required activities necessary for dedication of replacement parts including, but not limited to, record control and disposition of nonconforming conditions. The inspectors verified the sampled dedication packages had the requisite information documented, including objective evidence to support the dedication activities.

b. Observations and Findings

No findings of significance were identified.

c. Conclusion

The NRC inspection team concluded, based on the limited sample of documents reviewed, that Mirion is implementing its CGD activities in accordance Criterion III, “Design Control,” and Criterion VII, “Control of Purchased Material, Equipment, and Services,” with the regulatory requirements of Appendix B to 10 CFR Part 50. No findings of significance were identified.

6. Entrance and Exit Meetings

On June 12, 2017, the NRC inspection team discussed the scope of the inspection with Eric Brand, Quality Assurance Manager and other members of Mirion's management and technical staff. On June 15, 2017, the NRC inspection team presented the inspection results and observations during an exit meeting with Eric Brand, and other members of Mirion's management and technical staff. The attachment to this report lists the attendees of the entrance and exit meetings, as well as those individuals whom the NRC inspection team interviewed.

ATTACHMENT

1. ENTRANCE/EXIT MEETING ATTENDEES

Name	Title	Affiliation	Entrance	Exit	Interviewed
Aaron Armstrong	Inspection Team Leader	NRC	X	X	
Greg Galletti	Inspector	NRC	X	X	
Tim Pelot	Director horseheads Op	MIRION	X	X	X
Eric Brand	Quality Manager	MIRION	*X*	*X*	X
Brandon Simmons	Engineer	MIRION	X	X	X
Kurt DeWalt	SR. Engineer	MIRION	X	X	X
Mathew Hoobler	Quality Engineer	MIRION	X	X	X
Kevin Emmons	Engineer Manager	MIRION	X	X	X
Scott Krazinski	MFG Supervisor	MIRION		X	X
David Seely	QA Tech	MIRION		X	
Cathy Johnston	Cont. Admin / FSO	MIRION		X	

2. INSPECTION PROCEDURES USED

Inspection Procedure (IP) 36100, “Inspection of 10 CFR Part 21 and Programs for Reporting Defects and Noncompliance,” dated February 13, 2012.

IP 43002, “Routine Inspections of Nuclear Vendors,” dated June 25, 2011.

IP 43004, “Inspection of Commercial-Grade Dedication Programs,” dated June 25, 2011.

3. LIST OF ITEMS OPENED

Item Number	Status	Type	Description
99901478/2017-201-01	Open	NON	Criterion VII

4. DOCUMENTS REVIEWED

- Mirion Quality Assurance Manual, Revision 10, Dated May 3, 2017
- APP-JE92-Z0-001, “Excore Source Range Detector Design Specification,” Revision 4, dated October 2016
- APP-JE92-Z0-003, “Excore Power Range Detector Design Specification,” Revision 4, dated October 2016
- APP-JE92-Z0-002, “Excore Intermediate Range Detector Design Specification,” Revision 6, dated October 2016
- E-4196 Revision G – AP1000 Source Range Assembly NY-10865, dated May 28, 2010
- E-4179 Revision G – AP1000 Power Range Assembly NY-10864, dated May 28, 2010
- E-4195 Revision J – AP1000 Intermediate Range Assembly NY-10866, dated May 28, 2010
- Purchase Order 4500372805, “Unit 2 & 3 NIS Detectors,”Revision 1, dated January 6, 2011
- Certificate of Conformance, “Triax Connectors,” dated October 11, 2016
- CGI Safety-Evaluation 35-8990-5, “Triaxial Connector Plug,” dated October 7, 2016
- CGI Safety-Evaluation 35-10414-5, “Detector Holder Assembly,” dated April 26, 2016
- Mirion Tech Spec No. QA-35-8990, “Triax Connector Plug,”
- SOP 16-2, “Corrective Action.” Revision 14, dated January 1, 2014
- SOP 16-3, “Problem Resolution Root Cause Analysis,” Revsion 3, dated January 16, 2014
- SOP 3-10, “Commercial Grade Dedication,” dated January 16, 2014
- CGD Safety-Evaluation 35-8990-5, “Triaxial Connector Plug,” dated October 7, 2016
  CGD Safety-Evaluation 35-10414-5, “Detector Holder Assembly,” dated April 26, 2016
- CAR 17-009, dated June 14, 2017
- CAR 17-001, dated January 13, 2017
- DWG 150-10866, “Final Inspection IR Assembly,” Revsion A, dated August 2015
- DWG 148-10866, “Temporary Assembly of IR” Revision B, February 22, 2017
- RMOS 923-1005, “Unalloyed Titanium Round Bar Grade 2,” Revision F, dated March 14, 2014

- PO 83-660286, dated May 5, 2014
- PO 83-660774, “1.250 round 304” dated May 23, 2017
- RMOS 920-1081, “SST 304 Rod- Annealed and Cold Finished,” Revision D, dated May 8, 2017
- PO 83-660603, “Aluminum TBG 1100 H18,” Revision C
- RMOS 901-6015, “Aluminum Tubing 1100 - H18,” dated October 28, 2015
- PO 83-660692, “6061-T6 (CF) Aluminum 6.00 in. Dia,” Revision 0, June 13, 2016
- RMOS 901-1001, “Aluminum Round Bar 6061-T6,” Revision A,
- RMOS 908-1072, “Iron Nickel, Revision A, dated February 27, 1998

Issued during this inspection

- CAR 17-009, dated June 14, 2017
- CAR 17-007, dated June 14, 2017