

Part 21 (PAR)

Event # 50253

<b>Rep Org:</b> PREFERRED METAL TECHNOLOGIES, INC.	<b>Notification Date / Time:</b> 07/03/2014 14:29 (EDT)
<b>Supplier:</b> PREFERRED METAL TECHNOLOGIES, INC.	<b>Event Date / Time:</b> 07/03/2014 (CDT)
	<b>Last Modification:</b> 07/30/2014
<b>Region:</b> 3	<b>Docket #:</b>
<b>City:</b> BURR RIDGE	<b>Agreement State:</b> Yes
<b>County:</b>	<b>License #:</b>
<b>State:</b> IL	
<b>NRC Notified by:</b> TIM STEWART	<b>Notifications:</b> JONATHAN BARTLEY R2DO
<b>HQ Ops Officer:</b> DANIEL MILLS	PART 21 GROUP EMAIL
<b>Emergency Class:</b> NON EMERGENCY	AARON MCCRAW R3DO
<b>10 CFR Section:</b>	
21.21(a)(2) INTERIM EVAL OF DEVIATION	

## PART 21 REPORT - INCORRECT INDUSTRIAL IRRADIATOR DOSE

The following was received via fax:

"Preferred Metal Technologies (PMT) was notified by Steris Isomedix Services that the applied radiation dose reported on their Component Irradiation Certificates did not account for all the uncertainties involved (i.e. density of unrelated products in carriers, off-carrier location within the irradiator and Cobalt-60 source decay). This potential defect was originally identified as part of NRC Inspection Report No. 99901445/2014-201.

"After a thorough review of all purchase orders issued to Steris Isomedix Services and PMT Projects that the irradiation test results were utilized on, PMT has determined that there are two projects where the applied radiation dose may have failed to meet the minimum required radiation dose to ensure that the safety related equipment would continue to operate satisfactorily during and after an accident. The details of those two projects are as follows:

"N1839 - Tennessee Valley Authority, Browns Ferry - 6 (Six) Electric Spring Return Actuators - Purchase Order #473351.

"N1893 - Commission Federal de Electricidad, Laguna Verde - 32 (Thirty Two) Damper Assemblies - Purchase Order #700419016.

"Tim Stewart, Vice President Nuclear  
Preferred Metal Technologies, Inc.  
140 East Tower Drive  
Burr Ridge, Illinois 60527"

IE19  
NRR

Preferred Metal Technologies Report Number: 14-01.

\*\*\* UPDATE FROM TIM STEWART TO DONALD NORWOOD AT 1636 EDT ON 7/30/2014 \*\*\*

The following information was received via facsimile:

"In summary, additional radiation exposure testing was performed, post-radiation operability was verified, and it was confirmed that all affected equipment would continue to operate satisfactorily during a design basis event. No equipment upgrades or replacement is required as the supplied equipment was verified to meet the applicable technical requirements."

Notified R2DO (O'Donohue), R3DO (Lipa), and the Part 21 Group.

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# F A C S I M I L E

To: NRC Operations Center

From: Kathy Marrera

Fax: (301) 816-5151

Pages: 6

Phone:

Date: 07/03/2014

Re: Final Report – 10CFR Part 21 Evaluation (PMT Report No. 14-02)

Urgent    For Review    Please Comment    Please Reply

Comments:

This facsimile was sent direct from fax machine 630-887-0770. If you do not receive the pages referenced above, please call the sender immediately at 630-320-7722.



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July 30, 2014

**U.S. NRC Region III**  
2443 Warrenville Road, Suite 210  
Lisle, Illinois 60532-4352

RE: Final Report – Closure for Interim 10CFR Part 21 Report (PMT No. 14-01, NCR  
Event No. / Accession No. ML14192A040)

To whom it may concern,

Attached please find a copy of the above referenced document that was sent to the  
NRC Headquarters via certified mail on July 30, 2014 from Preferred Metal  
Technologies, Inc.

Regards,

Joe Emerson, Quality Assurance Manager  
Preferred Metal Technologies, Inc.



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July 29, 2014

PMT Report No. 14-02

**U.S. Nuclear Regulatory Commission**  
Attn: Document Control Desk  
Washington, DC 20555-0001

**Subject:** Final Report – Closure for Interim 10CFR Part 21 Report (PMT No. 14-01, NCR Event No. / Accession No. ML14192A040).

The purpose of this letter is to provide the NRC a Final Report in general conformity to the requirements of 10CFR Part 21.21 (a)(2).

By letter dated July 3, 2014, Preferred Metal Technologies notified the NRC and respective utilities of a potential safety hazard which was reported to us by our supplier Steris Isomedix Services. The notification pertained to radiation doses as reported within their Component Irradiation Certificates which did not take into account for all the uncertainties involved (i.e. density of unrelated products in the carriers, off-carrier location within the irradiator and Cobalt-60 source decay).

The July 3, 2014 interim report letter stated that the evaluation of this condition was expected to be completed by August 4, 2014. The evaluation described within the interim report has been completed and is documented within this report.

In summary, additional radiation exposure testing was performed, post-radiation operability was verified, and it was confirmed that all affected equipment would continue to operate satisfactorily during a design basis event. No equipment upgrades or replacement is required as the supplied equipment was verified to meet the applicable technical requirements.

Required information as per 10CFR Part 21.21(d)(4) follows:

- (i) Name and Address of the individual or individuals informing the Commission:

Tim Stewart, Vice President Nuclear  
Preferred Metal Technologies, Inc.  
140 East Tower Drive  
Burr Ridge, Illinois 60527

- (ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect:



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The Radiation Qualification of the following basic components is affected by this discrepancy:

- (a) Electric Spring Return Actuator, PC # T-7360 (PMT Project No. N1839)
- (b) Various non-metallic materials (Gasket PC # T-7621, Bearings PC # T-7597, Seal PC # T-6669 and Adhesive PC # T-7594) utilized as part of a complete damper assembly (PMT Project No. N1893)

Refer to section (vi) of this letter for specific project details.

- (iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect:

Preferred Metal Technologies, Inc.  
140 East Tower Drive  
Burr Ridge, Illinois 60527

- (iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply:

Preferred Metal Technologies (PMT) was notified by Steris Isomedix Services, a 10CFR 50 Appendix B supplier who provides component irradiation services, regarding an evaluation that they performed on the applied radiation dose for items processed in off-carrier locations within their irradiator. This evaluation was performed as a result of an NRC Inspection of the Steris Isomedix Services facility in Whippany, NJ. This evaluation determined that the actual dose delivered may have differed up to  $\pm 5.1\%$  from that value reported on their Component Irradiation Certificate depending on the location within the irradiator where the component was processed. The worse case variability ( $\pm 5.1\%$ ) is based on the density variation, source decay and intercomparison variability. This variance is in addition to the standard uncertainty of the dosimetry system ( $\pm 6.5\%$ ). As a result, there is a potential safety hazard that the basic components supplied by PMT may not be qualified for operation at the postulated radiation levels that may occur during an accident.

- (v) The date on which the information such defect or failure to comply was obtained:

Notification was received on the afternoon of June 23, 2014

- (vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured or being manufactured for one or more facilities or activities subject to the regulations in this Part:



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After a thorough review of all purchase orders issued to Steris Isomedix Services and PMT Projects that the irradiation test results were utilized on, PMT has determined that there are two projects where the applied radiation dose failed to meet the minimum required radiation dose to ensure that the safety related equipment would continue to operate satisfactorily during / after an accident. The details of those two projects are as follows:

PMT Project Number	Owner	Facility	Owner's Purchase Order Number	Quantity and Description of Equipment Supplied
N1839	Tennessee Valley Authority	Browns Ferry	473351	6 (Six) Electric Spring Return Actuators
N1893	Comisión Federal de Electricidad	Laguna Verde	700419016	32 (Thirty Two) Damper Assemblies

- (vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action and the length of time that has been or will be taken to complete the action:

PMT has documented the deficiency per our procedure No. PMT 16.1.G on Corrective Action Report No. 64. Concurrent with this notification, PMT has provided supplemental data to the affected owners. As directed by the corrective action PMT Engineering determined and implemented a supplemental test program to assure that the components supplied meet or exceed the qualification requirements contained within the owners purchase order.

For N1893, CFE, the total required does (including a 10% margin on the accident does as suggested by IEEE 323) is 11.001 MRADS. After performing additional radiation exposure testing, and taking into account the appropriate reductions for variability and uncertainty, the total dose received by the qualification test unit was 11.154 MRADS. After this additional radiation exposure test, the qualification test unit was then subjected to a complete functional / operability test program, which was the same test program it was subjected to after the original radiation exposure test. The qualification test unit successfully passed this test program and was found to be fully functional.

For N1839, TVA, the total required dose (including a 10% margin on the accident dose as suggested by IEEE 323) is 5.523 MRADS. After performing additional radiation exposure testing, and taking into account the appropriate reductions for variability and uncertainty, the total dose received by the qualification test unit was 6.108 MRADS. After the second radiation exposure test, the qualification test unit was then subjected to a complete functional / operability test program, which was the same test program it was subjected to after the original radiation exposure test. The qualification test unit successfully passed this test program and was found to be fully functional.

Closure of Correct Action No. 64 was performed on July 29, 2014.



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(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees:

Each owner / utility will need to review the supplemental test data as provided by PMT for acceptability.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred:

Not Applicable

If you have any questions or wish to discuss this matter or this report, please feel free to contact me.

Sincerely,

Tim Stewart  
Vice President Nuclear

cc: John Berzanskis, Jr., President – Preferred Metal Technologies, Inc.  
Joe Emerson, Quality Assurance Manager – Preferred Metal Technologies, Inc.  
USNRC, Region III, Lisle, IL  
TVA Nuclear, Nuclear Assurance and Licensing, Attn: Manager, Operating Experience  
Comisión Federal De Electricidad, Attn: Ing. Agustin Lozano Laez