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Nova Machine Products

US Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Date: August 9, 2017

SUBJECT: 10 CFR WRITTEN NOTIFICATION FOR HEX HEAD CAP SCREWS NOVA MACHINE PRODUCTS PART NUMBERS: BPRT.008227.30, BPRT.008468.30, AND BPRT.008342.30.

FOLLOW-UP TO INITIAL NOTIFICATION DATED JULY 13, 2017.

Pursuant to 10CFR21.21(d)(4) Nova Machine Products is providing the required written notification and final report of the identification of a defect in Nova Machine Fastener P/N BPRT.008227.30, BPRT.008468.30, and BPRT.008342.30.

On the basis of an evaluation conducted by both Nova Machine and Exelon it has been determined that the subject condition, if left uncorrected, has a potential to create substantial safety hazard.

The enclosure to this letter provides the information required by 10CFR21.21 (d) (4). This letter also serves as the final report regarding the subject parts.

If there are any questions pertaining to this communication, please contact Tad Gray, General Manager, at 216-898-8374 or Frank Furfari, Sr. Quality Assurance Manager at 216-898-8394.

Sincerely,

Tad Gray
General Manager – Nova & AP Services

Attachment 1: 10CFR21 Written Notification

IE 19
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Written Report
Attachment 1

(i) Name and address of the individual or individuals informing the Commission.

Tad Gray
General Manager
Curtiss-Wright – Nuclear Division
Nova Machine Products
18001 Sheldon Road
Middleburg Heights Ohio 44130

(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:

Hex Head Cap Screw Nova Machine Products part numbers: BPRT.008227.30, BPRT.008468.30, and BPRT.008342.30.
All 3 part numbers manufactured from the same forged blank size-same manufacturing run – same Heat Number.

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

Curtiss-Wright – Nuclear Division
Nova Machine Products
18001 Sheldon Road
Middleburg Heights Ohio 44130

(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:

Pre-existing cracks found in screws supplied to Exelon may cause premature failure. Fasteners were all produced from one heat of material, which was used to forge one blank size, which was then used to produce three hex head cap screw sizes. These fasteners are isolated to one heat of material and one manufacturing run.

These fasteners were only supplied to Exelon TMI and Exelon Peach Bottom. TMI had not installed any of the subject bolts and have already returned the subject screws back to Nova Machine.

Nova has been in constant communication with Exelon-Peach Bottom. Some bolts had been installed in emergency diesel generators and Peach Bottom has evaluated the safety significance.

All but six screws have already been replaced. These six are on schedule to be replaced by Exelon in the very near future.

(v) **The date on which the information of such defect or failure to comply was obtained:**
July 12, 2017.

(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:**

Nova Part#	Customer	Quantity Shipped (EA)	Quantity returned or being returned
BPRT.008227.30	Exelon-TMI	23	23 (6 given to Peach Bottom)
BPRT.008227.30	Exelon-Peach	14	14
BPRT.008227.30	Exelon-Peach	6	6
BPRT.008468.30	Exelon-Peach	8	8
BPRT.008342.30	Exelon-Peach	11	11

(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:**

Exelon-TMI and Exelon-Peach Bottom were the only two locations supplied with this heat of material. Nova Machine initiated a return of all subject fasteners from Exelon which were produced from this specific heat. TMI did not install any of the suspect screws and all the screws from TMI have been returned to Nova Machine with the exception of six pieces which TMI had sent to Peach Bottom.

The fasteners in question were all machined from the same blank forging, which was produced from the same heat of material. The forgings were produced by Nova Machine's approved sub-supplier.

The starting material was UNS S41600 stainless steel. This type of stainless is more susceptible to cracking when cooled rapidly from the forging temperature.

The root cause of the defect (small cracks) in the fastener was attributed to the rapid quenching (water quench) of the blanks immediately following the forging step. The water quenching after forging was limited to this heat of material and one manufacturing run only.

Review of Quality records for this condition indicate that prior and post manufacturing runs were not water quenched. Water quenching was limited to one manufacturing run only.

Finished parts are supplied to ASTM F 593 type 416 Condition H.

Corrective actions are documented in Nova CAR #300 and include but are not limited to elimination of water quenching after forging and implementation of Non-destructive examination on the finished product.

- (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.**

Both Nova Machine and Exelon Peach Bottom have been in constant communication on the issue. Exelon Peach Bottom is the only site with remaining subject screws. They are in the process of returning any remaining screws back to Nova Machine Products.

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

Not Applicable.