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March 22, 2006

(UPS: 301-415-8147)

US Nuclear Regulatory Commission  
Director, Office of Nuclear Material Safety and Safeguards  
Attention: Document Control Desk  
Mail Stop T-8A33, Two White Flint N., 11545 Rockville Pike  
Rockville, MD 20852-2738

Subject: 30-Day Written Follow-up Report to NRC event Number 42377  
Reported 2/28/2006 to NRC Operations Center.  
Docket No. 04003392, License No. SUB-526

Honeywell Chemicals, Specialty Materials, Metropolis Works (MTW) facility reported to the NRC Operation Center as per 10 CFR 21 a basic component, rupture disc and corresponding safety head, failure that could present safety hazards. This letter is a required follow-up report to address specific items required by the regulations.

**Report to the NRC Event Number 42377 Reported on 2/28/2006:**

Honeywell, Metropolis Facility (MTW) mechanics were installing a new BS&B manufactured rupture disc, corresponding safety head, and port reducer on the inlet of the relief valve on the Alternate Primary Cold Trap, E-600. The disc and head were part of an approved change. The safety heads (disc holders) have a port between the disc and relief valve to install a tell-tale indicator. This safety head was for a 1-1/2" disc. The normal port size of 1/2" pipe (normal O.D. = 0.84") was reduced to 1/4" pipe (normal O.D. = 0.54") to allow clearance between the safety head fasteners and the companion flange studs. To facilitate the site requirements of 1/2" pipe size and the clearance needs of the manufacturer, the port reducer was fabricated from a single piece of metal, in this case Monel. MTW had already welded a 1/2" Hex valve to the port and the mechanics had installed the head / disc / port reducer / valve assembly onto the piping. As the tell-tale gauge was installed, the port reducer broke into two pieces. The break was at the machined reduction in the outer diameter.

On inspection a fabrication flaw was found in the port reducer. The large end of the port reducer has an I.D. of 0.55 inches and the small end has an O.D. of 0.54 inches, machined down from the O.D. of 0.84 at the large end. The small O.D. section was specified to be 2.00 inches long. It was improperly machined approximately 2.63 inches long so that the 0.55 I.D. came within a very small distance of the 0.54 O.D. When the gauge was being hand tightened, the port reducer broke at this thin wall point.

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MTW reverted to the previous design and all port reducers were collected for investigation.

The licensee notified NRC Region 2II (J. Pelchat).

**10 CFR 21.21 (d) (4) Written 30-day follow-up report required sections:**

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

James P. Tortorelli, Regulatory Affairs Manager  
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- (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.

The Honeywell facility in Metropolis, IL, conducts chemical conversion of uranium ore concentrates into uranium hexafluoride (UF<sub>6</sub>) as part of the nuclear fuel cycle.

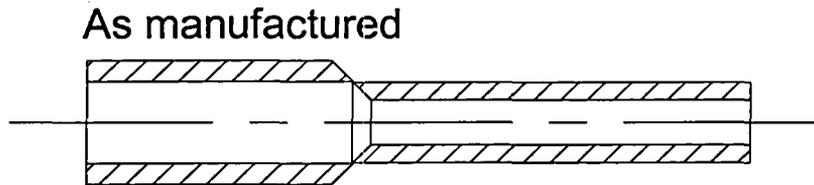
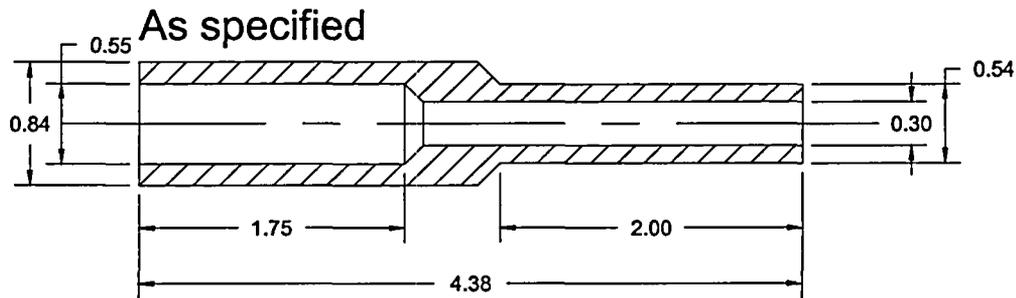
The basic component supplied to this facility which contained a defect was a new rupture disc and corresponding safety head to be installed on the inlet of the relief valve on the Alternate Primary Cold Trap used in UF<sub>6</sub> production process.

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

BS&B Safety Systems, Inc.  
7455 East 46<sup>th</sup> Street  
Tulsa, OK 74145  
(918) 622-5950

- (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.

The supplied component included a port reducer that allowed ¼ inch and ½ inch pipe to be connected to meet plant requirements. This port reducer had to be made of Monel, so it was custom fabricated. The ½ inch end of the reducer had an outside diameter (OD) of 0.84 inches and an inside diameter (ID) of 0.55 inches. The ¼ inch end of the reducer had an OD of 0.54 inches and an ID of 0.30 inches. During machining, the 0.54 inch OD portion of the reducer was made too long and the 0.54 inch outer wall was machined very close to the section with the 0.55 inch ID. See diagram. The component broke under hand pressure while being installed. If this failure occurred coincident with a rupture disc burst during operation, Uranium Hexafluoride would have been released directly to the atmosphere.



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

This failure was identified by MTW and evaluation started was February 22, 2006.

- (vi) In case of a basic component which contains a defect or fails to comply, the number and location of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations in this part.
- New 1-1/2" safety heads were purchased by MTW for nine (9) Primary Cold Traps.
  - New 1" safety heads were purchased for ten (10) Secondary and Tertiary Cold Traps.
  - MTW verified none of the new safety heads were in use when the defect was discovered.
- (vii) The corrective actions which have been, are 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.

Upon identification of the issue, a team was formed to evaluate the situation and define corrective actions. The defect was determined to be a flaw machining of the port. The following actions taken:

- The failed assembly was removed from service.
- MTW verified none of the new assemblies were in service and reverted to the previous design.
- MTW is verifying heads' dimensional information for all related safety heads. Craig Flannery, Project Engineer, is responsible for this action and target completion date is March 31, 2006.
- Five (5) of the heads in question have already had a Hex valve already welded in place as part of the pre-installation assembly. To verify their

integrity, they will be analyzed using X-ray methods. Craig Flannery is also responsible for this action and target completion date is March 31, 2006.

- BS&B has been contacted. Ken Richardson with BS&B is working with MTW on resolution.
- The defective part was returned to BS&B.
- As the new heads pass dimensional or x-ray inspection, they are being installed per the approved design change.

(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 purchaser or licensees.

This report will be shared with BS&B.

Questions regarding this correspondence can be addressed to James Tortorelli, Regulatory Affairs Manager, at (618) 524-6221.

Sincerely,

*David B Edwards / by Rachel D. Eit*

Dave B. Edwards  
Plant Manager

Cc: US Nuclear Regulatory Commission, Region II (UPS: 404-562-4700)  
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J. Tortorelli  
T. Plunkett, Dir. Integrated Supply Chain, MTO