1972 Type #7 Incident #2

H. Waltemate — Cleveland

J. W. Gressler — Pedricktown — 11-20-72

NEAR MISS - REPETITIVE #7 "EXPLODING BOOBY TRAP" - PEDRICKTOWN

On Tuesday, October 10, 1972, at approximately 3:30 p.m. a Repetitive Accident Type #7 "Exploding Booby Trap" was experienced at the Pearl-Paste Polymerization Building (513). An explosion occurred within paste reactor #26. No injuries resulted; however, two roof panels and a roof ventilator above the reactor were dislodged and a wall panel on the pearl side of the building was separated slightly.

A Board of Inquiry was held following the near miss, with the following in attendance:

- - Lead Technician
H. T. Evans - Industrial Relations Manager
J. W. Goetsch - Resin Manager
G. E. Higby - Sr. Electrical Engineer
- Technician
- Technician
- Technician
J. M. Smith - Plant Engineer
A. R. Webber - Plant Manager

Facts Before the Incident

Paste Polymerizer #26 had gone through the normal sequence of events without incident. The reactor was put on transfer at 3:00 p.m. and had finished the transfer and recovery phases by 3:20 p.m. paste technician, opened the manhead and inserted a Crouse-Hinds type EVH 106 drop light into the reactor. He then started flushing the reactor with a D.M. water hose. He had been flushing the reactor for approximately 5 minutes when he noticed water and some small chips setting on the bottom of the reactor. He called to the computer console technician, via the two-way radio, to find out if the sewer valve had been opened. The console technician replied that it had been opened. then went to the first floor to double-check the position of the Yarway valve. While ' was checking the Yarway the explosion took place.

Facts at the Time of the Incident

lead technician, technicians, and a technician trainee, were on the Pearl side of the building when the explosion occurred. : was inside poly #3, cleaning the reactor. All five employees heard the explosion but were not sure of the source. and stood by while got out of poly #3 had the computer technician put the building to "hold."

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Facts at the Time of the Incident (Continued)

ran from the first floor to the second floor, noticed an acrid odor, sounded the gas alarm and put on a Scott Air-Pak. went to their gas alarm stations complaining of a ringing sensation in his ears was sent to the Dispensary. put on a Scott Air-Pak.

wearing Scott Air-Paks, went to poly #26, installed an evacuation hose, disconnected the drop light and checked the area. Both, and , noted the hole in the roof, but saw no other physical damage.

Facts Following the Incident

The roof panels immediately above the poly were dislodged and a hole approximately 4' x 12' was opened in the roof. The roof ventilating fan above poly #26 was pushed upward from its base and the electrical conduit pulled loose. No evidence of a fire or explosive force was noted in the vessel; however some charring was present on the roof beams just above the reactor. The rupture disc, rated at 235 psi, was blown. The drop light fixture was blown out the roof and found 10 feet from the S.E. corner of the building.

An investigation of the incident and a thorough check of the area was conducted by J. W. Goetsch, G. E. Higby, J. M. Smith, David Cawman, and H. T. Evans before the "all clear" was given at 3:45 p.m. The investigation and subsequent board of inquiry drew the following conclusions:

1. Residual vinyl from the previous paste charge was ignited by an electrical spark.
2. The Crouse-Hinds EVH 106 drop light was not equipped with a supporting chain. The light cord was secured at the manhead with the full weight of the light fixture supported by the cord.
3. The trainee, was tested and sustained no damage to his ears.
4. Poly #26 remained out of service until a thorough inspection and hydrostatic tests were conducted.
5. The manual vent line on poly #26 was slightly bent but did not require replacing.
6. Normal operations were resumed in the building at approximately 4:15 p.m.
7. All employees responded to the emergency calmly and efficiently. The employees in the building, especially were most effective.

Additional Facts

1. The cause of the explosion is due to one of three possibilities:

   a. The light separated from the cord causing an arc and the ensuing explosion.

   OR

   b. Water may have been accidentally sprayed on the hot globe causing it to crack thus causing a short and the ensuing explosion.

   OR

   c. The drop light may have slipped hitting the bottom of the reactor causing the globe to break, a short and the ensuing explosion.

2. All drop lights were equipped with supporting chains; however, the particular drop light involved did not have a supporting chain.

3. The drop light was a low voltage, explosion-proof type but was not waterproof.

4. The transformer did not short out and the breaker did not trip. According to the reason for the transformer not shorting or the breaker not tripping is that the cord was found with the wires separated and not touching.

5. Drop lights are inspected quarterly, however this particular drop light was two weeks past due.

6. Mr. W. E. Brodine was contacted and concurred with the inspection and test of the vessel. The vessel was entered, visually inspected and measured. No variations were apparent. The agitator was removed to protect the oil seal during the hydrostatic test. The reactor was filled with water and pressured to 375 psi. The pressure was held for one hour with no noticeable loss of pressure. The vessel was hydrostatically tested according to ASME code.

Corrective Action

1. All drop lights were removed from service immediately.

2. Explosion-proof hand lanterns have been purchased and are in use.

3. Drop lights ordered in the future will be explosion proof and waterproof.

4. The inspection of electrical cords and appliances was re-emphasized.

Corrective Action (Continued)

(5) The incident was reviewed with all employees.

J. W. Gressler

JWG:rp

cc: D. L. Dowell - O. F. Beckmeyer
J. L. Nelson - R. D. Scott
P. D. Terry
E. W. Harrington
W. E. Brodine
G. Pow
R. A. Kelley (Akron)
Area Managers
File

This accident points out the need for explosion proof drop lights that are also water proof or submersible. Each plant is to phase out drop lights that are not.

It also points out the need for routine inspection of drop lights and the need for a supporting chain.

Employees should also be aware of what the drop light is design for — such as low voltage, not waterproof etc.

W. Waltmath

11-28-72

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