





Date

◆ January 31, 1998

◆ 5:30 pm



Facility

- ◆ Mobile Emulsion Plant #2
- ◆ Austin's main Mobile Emulsion Plant for three years prior to being moved to a different location.
- ◆ At the time of the incident Austin had more than 10-years and millions of pounds of experience in production of Bulk Hydromite Emulsions.

Mobile Plant #2 - Before





Incident

- ◆ 2 – 3 kg (estimated) of Hydromite 1100 in Allweiler SNP 380.2 discharge pump and attached piping exploded.
- ◆ Undetermined whether a “deflagration” or “detonation” occurred.
- ◆ Extensive damage to the discharge pump, product piping, truck body, and interior of plant occurred.
- ◆ All associates were outside of plant at the time of incident, no injuries or fatalities.

Mobile Plant #2 - After





Cause

- ◆ Operating of Allweiler discharge pump in a Dry Run Condition.
- ◆ Undetermined amount of time pump ran in dry condition.
- ◆ Industry experience and test data suggest a dry run time longer than a few minutes for this to occur.

Plant Interior



Piping



Discharge Pump



Discharge Pump





Root Cause

- ◆ Mechanical / hydraulic problems with Allweiler premix pump.
- ◆ Unable to get premix flowing consistently from premix tank to blender. Each time the premix pump was started, the blender and discharge pump were also started.
- ◆ Production crew was focused on Premix pump problem, which compromised their attention to the lack of product flowing in or out of blender. Allowed blender to be pumped dry.



Root Cause

- ◆ Allweiler premix and discharge pumps (progressive cavity) were only protected for high pressure conditions.
- ◆ 175-psi high limit pressure switch and 200-psi rupture disc.



Corrective Actions

- ◆ All progressive cavity emulsion pumps are protected with a pump safety system.
- ◆ Components of Pump Safety System
 1. Flow / No Flow Switch
 2. Low Pressure Switch
 3. High Pressure Switch
 4. Rupture Disc

Pump Safety



Mobile #2



Mobile #3





Corrective Actions

- ◆ Regular testing of pump safety system.
- ◆ Operator training / education in the importance of emulsion pump safety.
- ◆ Scheduled pump Inspections and preventative maintenance