Workshop 4 – Prestart-up Safety Reviews

Incident overview;

* Prestart safety review was made which include low level interlock
* 5 years later pump tank explode
* No fatalities

What was missed;

* Prestart up inspection procedure was in place but implementation not stressed on final check of all critical items
* Only low interlock check
* Should be placed 3 inches above pump casing as specified in the design
* Found to be on the same level

Our analysis and suggestion for improvements

Human factor

* lack of knowledge on PHA; e.g. material characteristics (amine nitrate= highly explosive, heat and friction sensitive)
* lack of communication; end user and engineer not communicating
* lack of design review after installation
* Poor material of construction – need review.
* Incomplete safety checklist / audit
* Safety manual

Process/design error

* Failure to install interlock according to specification
* Incomplete pre-inspection check

Suggestion for improvements

* Redesign the interlock
* Comprehensive scenario analysis to design and select equipment
* 3rd party inspection / site acceptance test (SAT)
* Additional safety failure check – heat/pressure sensors, high interlock
* Preventive maintenance on appropriate level
* Increase supervision