

In the process safety standard, osha placed new requirements on the prime subcont...



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In the Process Safety Standard, OSHA placed new requirements on the prime/subcontractor relationship

In the new requirements that OSHA placed on prime and subcontractors, there are many elements to them. Among these requirements, employers are required to:

Create and maintain written safety information that includes the chemicals, equipment and technology used in each individual process

Perform a workplace hazard estimation of potential disastrous consequences

Keep employees up to date with the hazard evaluations

Create a system of response to the hazard evaluations

Occasionally go over the workplace hazard evaluation system itself

Create and employ written operating procedures for each step of a chemical process

Provide the written safety and operational procedures for employees with emphasis on each hazard and its subsequent safe practice procedure

Assure that prime and subcontractors have the correct information and training for the workplace

Ensure that all employees and contractors are trained in emergency response procedures pursuant to section 126(d) of the Superfund

Amendments and Reauthorization Act

Create a quality assurance procedure that ensures consistency with design specifications of all equipment

Create and employ maintenance procedures, training, inspection and testing of any and all critical process equipment

Perform pre-use safety inspections of all new or modified equipment

Investigate any and all incidents that could have resulted or did result in a major accident, with amendments to said procedure made if needed

OSHA implemented these changes for a variety of reasons, but perhaps one of the most notable is the Bhopal disaster that took place in Bhopal, India on December 2, 1984 at the Union Carbide India Limited (UCIL) pesticide plant. UCIL was built in 1969 to produce pesticide using methyl isocyanate (MIC), with an MIC plant being added on in 1979. Subsequently, on December 2, 1984, water was able to seep into a tank that held 42 tons of MIC, resulting in an exothermic reaction, which in turn raised the temperature and the pressure in the tank. The tank then vented the pressure, which released the toxic gases, which blew over Bhopal. It is unknown how the water was able to seep into the MIC tank, but after the investigation, it was found that UCIL was likely storing MIC in tanks filled beyond recommended levels, poor maintenance with the subsequent failure of several safety systems and these safety systems being turned off. Other factors of this disaster were found to include lack of training, safety management and emergency response plans.

Another notable disaster occurred on October 23, 1989 in Pasadena, Texas at the Phillips 66 Company's Houston Chemical Complex (HCC). This complex produced high-density polyethylene. The cause of this disaster was the release of highly flammable gases that were emitted during a regular maintenance procedure of one of the plant's reactors. The release of these gases encountered an ignition source, thus causing an explosion that registered 3.5 on the Richter Scale. After OSHA investigated this incident, it was found that HCC lacked:

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A process hazard analysis

Did not have fail-safe valves installed

An adequate set of standard operating procedures

Adequate maintenance permitting systems

Gas detection and alarm systems

Lockout/tagout procedures

Ventilation systems for buildings nearby

Adequate fire protection systems

Adequate separation between buildings, reactors and the control room for emergency shut down procedures

OSHA also found that HCC had a presence of ignition sources, which ultimately caused the initial explosion. There are many infractions of OSHA regulations that occur, but these are only two of the most notable and large-scale disasters that occurred spurring OSHA to create and implement the new requirements.

References

Asfahl, C. Ray & Rieske, David W. (2010). Industrial Safety and Health Management. Upper Saddle River, NJ: Prentice Hall.