

Increase the Frequency of Inspections during Shut Down

Many plants have periods where production is suspended and maintenance activities are performed. Many maintenance activities cannot be performed when the facility is running normally so preventative maintenance and upgrades are performed during a specific sometimes hectic period commonly called Shut Down.

Generally, during maintenance operations, for example during plant shutdowns, workers come into much closer contact with production equipment and hazardous (residues of) substances than during normal operations. Enhanced contact with substances may be due to opened machinery, pipes, fittings and valves (sometimes working overhead), and entering confined spaces such as storage tanks, process vessels and silos.

During shutdowns, regularly used tanks and warehouses that have to be maintained will still contain feedstock, intermediates or final products. However, temporary storage facilities may be used as well during shutdowns. It has been observed that in those cases accidents may arise from the fact that incompatible chemicals are stored close to each other, in particular when maintenance work is subcontracted. Substances present in production installations may be residues of final products or intermediates, or catalysts and contaminants that are produced in the course of the production processes.

Certain activities related to maintenance, the preparation of shutdowns, and the subsequent start-up phase, such as emptying vessels, cleaning them, hot work (e.g. welding), assembly and disassembly, and working at defective mountings, are) not work that is normally performed and b) activities associated with increased health and safety risks. For example, maintenance activities may require confined space entries that are not conducted during normal production periods.

Studies have shown that as much as 38% of chemical accidents occur during the relatively short period of plant shut down. Research on incidents that have occurred during maintenance activities has shown that 'unknown chemical reactions' may occur, and that both the company itself and the contractors are not always aware of the contents of production facilities and of possible reactions. Also, about 30% of fatalities are related to maintenance.

Not only should there be specific plans to address these risks during shut down, but the frequency of inspections should be increased. Things change frequently during shutdown. Inspections performed monthly or even weekly will allow many activities to be started and completed before an inspection occurs.

Not only that, but the nature and focus of inspection should change to address the different activities and hazards that are present during shut down. The new focus should include new workers (contractors brought in for shut down), chemical storage, chemical interactions, confined space, ladders/scaffolds, asbestos, fall protection and noise. This is not a complete list but the typical additional hazards that arise or increase during shut down and maintenance activities.