SOLUTION SHEET

10 different disasters. 1 common cause.

How shift handover breakdowns led to 10 industrial accidents.

In industrial environments, communication isn't just important—it's everything. When shift handovers fail, the consequences can be devastating.

According to the American Fuel & Petrochemical Manufacturers (AFPM), more than 40% of plant incidents occur during start-up, shutdown and shift handover periods.

The good news? Industrial incidents aren't inevitable. The right tools and processes can close gaps before they cause major problems.

Learn from these 10 industrial accidents where breakdowns in information, communication and processes played a role.

2014 Dupont La Porte toxic chemical leak

The incident: A U.S. Chemical Safety and Hazard Identification Board investigation found a series of shift communication mistakes – that began five days before the incident. This eventually led to the release of nearly 24,000 pounds of methyl mercaptan, a toxic chemical. Four employees were killed after inhaling the fumes from the leak. The Occupational Safety and Health Administration fined the company $273,000 for safety violations at the La Porte plant following the fatal incident and put the company in its Severe Violator Enforcement Program.

2013 KiwiRail train derailment

An overnight shift change led to a Wellington-bound train carriage derailing and injuring four passengers, according to an accident probe by the Transport Accident Investigation Commission in New Zealand. The investigation found that 10 weeks before the derailment, maintenance staff had forgotten to fit split pins to bolts that held the part in place. The employees were not given instructions to follow and did not record their progress, so when an overnight shift change took place, the task of fitting the brake component was omitted.

2010 BP Deepwater Horizon Oil Spill

According to a report regarding the causes of the Macondo well blowout by the Bureau of Ocean Energy Management, Regulation and Enforcement and the United States Coast Guard, BP made a series of decisions during the days leading up to the blowout without appropriately analyzing all available information.

There was no evidence that BP or Halliburton shared the cement stability results or the OptiCem reports – showing gas flow potential – with Transocean personnel on the Deepwater Horizon or in the Houston office. Eleven men died, and over the next 87 days, almost five million barrels of oil were discharged into the Gulf of Mexico.

2010 Kleen Energy Natural Gas Explosion

A U.S. Chemical Safety and Hazard Investigation Board report found that some workers were informed that natural gas blows would occur the day before, while others did not learn about these until they reported to work that morning. Some contractors were instructed to continue working inside the dangerous building during the natural gas blow activities, while other groups were directed to leave. Six workers were killed, and at least 50 others were injured.

2005 BP Texas City Refinery Explosion

A U.S. Chemical Safety and Hazard Investigation Board report found that supervisors and operators poorly communicated critical information regarding the startup procedure during the shift turnover and that BP did not have a shift turnover communication requirement for its operations staff. Explosions and fires killed 15 people and injured another 180, alarmed the community, and resulted in financial losses exceeding $1.5 billion.

2005 Buncefield Fire

According to a Competent Authority Strategic Management Group (CASMG) report, there is evidence to suggest that on the night of the incident, the supervisors were confused as to which pipeline was filling which tank. This confusion arose because of deficiencies in the shift handover procedures and the overlapping screens on the automatic tank gauging system. Shift handovers also only captured information at the end of the shift rather than the recorded incidents that happened during the shift. There were 43 injuries reported.

1998 Esso Longford Gas Explosion

The Longford Royal Commission reported that shift handovers and logbook entries were used ineffectively in the lead-up to the accident, which killed two workers. Also, the implementation of handover requirements seemed to have escaped scrutiny by management.

The events leading up to the accident disclosed several instances where operators failed to adhere to basic operating practices. Some of these practices were written procedures, for example, those for shift handover and operator log entries.

1991 Continental Express Aircraft Crash

The Continental Express Flight 2574 accident in 1991 has become a much-cited example of the dangers of faulty shift handovers. The aircraft crashed near Eagle Lake, Texas, killing all 14 people on board. A row of fasteners for the left horizontal stabilizer leading edge had been removed and not replaced during maintenance the night before the accident. The National Transportation Safety Board (NTSB) found that the error might have been detected had shift handover procedures been followed.

1988 Occidental Piper Alpha Explosion

The Piper Alpha Public Inquiry concluded that one of the many factors that contributed to the disaster was the failure of information transmission at shift handover. Details about the replacement of a pressure safety valve with a blank flange and instructions not to use it failed to be communicated. An explosion and the resulting fires destroyed the platform, killing 167 men, with only 61 survivors. At the time, the accident was the worst offshore oil disaster in terms of lives lost and industry impact.

1983 Sellafield Beach Incident

According to the Health and Safety Executive (HSE), during the Sellafield Beach Incident, highly radioactive waste liquor was accidentally discharged to sea because of a failure of communication between shifts. In this instance, liquid waste is categorized as highly active, medium active, or low-level runoff. Failure to accurately describe the tank's contents and transcription errors made in the written logbook led to a misunderstanding. This error led to a serious environmental hazard, leaving a contaminated beach.

About Octave

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