10 INDUSTRIAL ACCIDENTS WHERE POOR SHIFT HANDOVER WAS A CONTRIBUTORY FACTOR

If shift handovers are not processed properly 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. Here are 10 industrial accidents where poor shift handover was a contributory factor.

1. DUPONT LAPORTE TOXIC CHEMICAL LEAK (2014)

A U.S. Chemical Safety and Hazard Identification Board investigation found a series of shift communication mistakes – that began five days before the incident – 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.

2. KIWIRAIL TRAIN DERAILMENT (2013)

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.

3. BP DEEPWATER HORIZON OIL SPILL (2010)

According to a report regarding the causes of the Macondo well blowout by the BOEMRE and the United States Coast Guard, BP made a series of decisions during the days leading up to the blowout without having appropriately analyzed all available information. They did not share critical information that was generated by their onshore staff and reports from their drilling partner Halliburton to the rig crew onboard the Deepwater Horizon. Eleven men died and over the next 87 days, almost five million barrels of oil were discharged into the Gulf of Mexico.

4. KLEEN ENERGY NATURAL GAS EXPLOSION (2010)

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

5. BP TEXAS CITY REFINERY EXPLOSION (2005)

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.


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. Large batches of unleaded fuel were being received at site from both the Finaline and the UKOP South line. This confusion arose because of deficiencies in the shift handover procedures and the overlapping screens on the ATG 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 after the fire.


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.


The accident of Continental Express Flight 2574 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 between outgoing and incoming shifts been followed.


The Piper Alpha Public Inquiry concluded that one of the many factors that contributed to the Piper Alpha disaster was 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 during the shift handover. An explosion and the resulting oil and gas fires destroyed the oil 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.

10. Sellafield Beach Incident (1983)

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

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