

Case study: Fatal Accident at Tank Wagon Loading Siding.

Narration: Shri US Roy, Joint Director, MO, OISD

The Incident

One full rake BTPN Tank Wagon (TW) consisting of 50 wagons was placed at single spur TW loading siding for loading 9 MS and 41 HSD wagons respectively. An officer, two loading operators, a supervisor and nine contract workmen were deployed for the loading operation. Loading commenced as per plan during the day. Senior officials visited the TW siding after 15 minutes of commencement of loading operation. To their utter surprise, they noted that MS was profusely leaking from the bottom unloading flange of one of the MS tank wagon. Observing the leak, the Location In-charge climbed the TW thru monkey ladder to close the master valve. During the process, he lost balance; fell down on the concrete floor of the siding. He was rushed to nearby hospital where he succumbed to his injuries.

Sequence of events

- Full BTPN rake consisting of 50 tank wagons was placed for loading during midnight in single spur siding.
- Contract workman in the night shift checked fitness of tank wagon which includes opening of dome cover, closing of master valve and closing of bottom audco valve.
- Rake was not loaded during night shift since Railway put restriction on movement of rake for that particular destination; subsequently railway withdrew the restriction at 12:30 hours on the next day.
- Rake loading planned for filling 9 wagons with MS and balance 41 wagons with HSD.
- A group of contract workmen including one supervisor reported at siding in first shift and fixed the loading hose in the TW. As per the practice, contract workmen left loading gantry after inserting the hose and operators took charge of loading operation.
- Loading operation was planned in three segments; loading 25 wagons in first segment, 23 in the second and balance two in third segment.
- A loading operator was entrusted with the charge of loading TW serial no. 1-25 in first segment. TW serial no. 12-20 was earmarked for MS loading and the balance for HSD loading.
- The second loading operator was entrusted for loading wagons in 2nd segment with HSD; TW supervisor and a contract worker took charge for loading the balance 02 wagons with HSD.
- All loading operations commenced simultaneously.
- Loading operator in 1st segment opened the audco valves of MS loading header for filling MS in wagons serial no. 12, 13, 14 and 15.
- The location (I/c) observed that MS was leaking from the bottom flange of the TW serial no. 12. He alerted the TW loading operator & others regarding the leak.
- The loading operator and the senior manager climbed to the top of TW to close the master valve but failed to do so.

- Location in-charge himself climbed up the top of the TW and tried to close the master valve with the help of a rod.
- In the process, he lost balance & toppled from the top of the TW, his helmet was thrown off.
- Loading operation commenced after the master & bottom valves were closed by the TXR staff.
- Later location In-charge succumbed to his injuries at Hospital.

Root Cause

- Commencement of loading without getting the fitness memo from Railway staff.
- Non-availability of proper tools at the site; thus the master valve closing took time.
- Improper checking of TW valves before loading & not following the proper sequence of operation during TW loading.
- The TW siding was not provided with life line hand-railing at the top of the wagon.
- Use of non-standard gasket at TW outlet flange.
- Workmen not properly trained to handle emergency situations.

Learnings

- Loading operation must commence only after receipt of fitness memo of Tank Wagon from the Railway staff.
- Prior to commencement of loading fitness check of the TW must be undertaken by Company's own employees.
- Proper tools must be made available at the designated place in the gantry.
- Use of fall arrester and safety harness must be made mandatory including proper lifeline hand railing at the loading gantry.
- All near-miss incidents must be recorded and learnings, howsoever insignificant, must be shared & recommendations, if any, must be liquidated.
- Mock drills on different scenarios must be regularly conducted.