



CASE STUDY

OISD/CS/2025-26/PL/08

Dt.: 11/07/2025

INTRODUCTION

Title: Fatal incident during Parking of fire tender in reverse.

Location: Crude Oil Terminal.

Loss/ Outcome: One Fatality.

BRIEF OF INCIDENT

On 30th May 2025 at around 1240 Hrs., a fatal incident happened at Crude Oil Terminal (COT). Incident happened while reversing the fire tender into the fire station vehicle parking bay. A fireman who was helping in reversing and parking of the fire tender inside the fire station, got stuck between side wall and fire tender. The fireman succumbed to the injuries at Hospital. The fireman was engaged by the organization through a contractor, who was awarded the contract for providing services related to the firefighting activities.

Observations/Lapses

Basis site visit, CCTV review, interaction with officials, contract staff and checking of documents, following observations were made:

1. Fire tender parking was carried out in *reverse* direction inside the fire station parking bay by the driver with the help of one of the fireman. The parking was carried out as per the existing practice and approved SOP for "*Parking of Fire Tender*". As per SOP for reverse parking, it is stated that "*Driver shall work in coordination with One Fire operator who guides him from back of Tender*". However, in this case the fireman was on the side of fire tender in place of backside of the tender.
2. CCTV recording of the incident was available and was captured from two CCTVs installed inside the fire station parking bays. CCTV recording of the incident was reviewed and based on the same, following are observed:
 - a. It was evident that Driver could not properly align the Fire tender with the parking bay initially and to offset the wrong alignment, fire tender moved towards the wall. This misalignment of fire tender while driving the tender in reverse reduces the area between tender and adjoining wall. The fireman got stuck between fire tender and side wall. Driver was probably looking on the opposite side rear view mirror and was not looking at the fireman side mirror.
 - b. It may be inferred that the driver was not confident/experienced enough in parking the fire tender in reverse.
 - c. Fireman who was helping in reversing the fire tender, was moving along with the fire tender and looking in the opposite direction of tender. Thus, the fireman could not see the improper/misaligned movement of tender and was stuck between fire

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tender and side wall. This can be inferred as casual approach from the fireman himself.

3. It was observed that Fire Tender was being parked in reverse in the parking bay, even though the facility/provision of drive-through parking was available from the back side of the parking. It was informed that due to non-availability of sufficient number of parking spaces, one parking bay is being used for parking two vehicles (one fire tender/foam nurser and one small vehicle fire marshal jeep/ambulance). The same was also evident from the CCTV recording.
4. The Driver cum Pump operator and Fireman, both were engaged by the same contractor, who has been awarded the contract for providing services related to the firefighting services. Details pertaining to these contract workmen are as under:
 - a. The Driver cum pump operator (DCPO) was recently promoted to the post of Driver cum Pump Operator in the month of March 2025 from the post of fireman and was under 3-month probation period. The driver was in possession of transport vehicle licence from 01.10.2020.
 - b. As per the contract's Qualification & Experience criteria, person with "*minimum of Four years of driving experience in petroleum refining/petrochemical sector or in a similar large process industry*" can be considered as DCPO. However, in this case four years of driving experience as per contract requirement could not be established.
 - c. As per records provided by the contractor, assessment of Driver cum Pump operator was carried out at its head office in the month of August 2024 before promotion. Based on the test, he was recommended for the promotion to the owner organization, which was duly accepted. However, record regarding the recommendation & acceptance by owner organization was not available.
 - d. The Fireman (deceased) started working as fireman at site from March 2025 under the contract. Before joining at site, fireman had worked at various other industries under different contractors.
5. The fire tender was procured by the organization in April 2023 (manufactured in September 2022). However, Fire tender was not provided with any kind of reverse parking sensors or reverse parking camera or any audible alarm for reverse parking. As per the 'Automotive Industry Standard' AIS-145 pertaining to "*Additional Safety features for Category M & N Vehicles*" released in May 2018 and The Central Motor Vehicles Rules, 1989 amended vide Gazette of India notification dated 20.12.2018, all vehicles manufactured on or after 01.04.2020 shall be fitted with vehicle reverse parking alert system. The subject fire tender was not meeting the said requirement.

Root Causes

Based on investigation, team has identified the following root causes of incident:

- a) Negligent/Lack of coordination between fire tender driver & Fireman while reversing of vehicle inside parking bay
- b) Inadequate driving skill of the driver cum pump operator
- c) Casual behaviour of deceased fireman during guiding the fire tender in parking
- d) Non-availability of reverse parking sensors as mandated by The Central Motor Vehicle rules, 1989 and its amendments.

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Recommendations

1. Reverse parking of fire tender/other heavy vehicles, especially in enclosed areas, to be avoided. Facility of drive through of vehicles in parking bay i.e. entry of vehicle from back side and exit from front side, is to be implemented to the extent possible.
2. SOP available for "Parking of Fire Tender" did not cover all the hazards with reverse parking of the tender and positioning of fireman assisting the reverse parking. SOP needs review w.r.t positioning of the person guiding the tender and he should stand beyond the length of tender and should be visible in the rear-view mirror during parking.
3. Heavy vehicles like Fire tenders, foam nursers, Mobile Oil Spill Recovery Unit (MOSRU's) etc. have a lot of blind spots during reverse parking and doing the same only with the help of side view mirrors is a challenging proposition. Thus, inline with 'Automotive Industry Standard' AIS-145 and The Central Motor Vehicles Rules, 1989 amended vide Gazette of India notification dated 20.12.2018, all the vehicles are to be fitted with Reverse Parking sensors. It is also suggested that rear view camera may be included in specification, while procuring the heavy vehicles, for providing clear visibility during reversing of vehicles.
4. Awareness & training on SOPs are to be provided to all individuals engaged in all respective works. Training on various aspects to all officials and workmen are also to be provided inline with the requirements as stated in OISD-GDN-228 & OISD-STD-154.
5. Proper markings are to be carried out inside the parking bays for clear demarcations of parking locations and guiding the drivers. Further, installation of side/lateral barrier for guided parking of vehicles may also be explored.
6. Review of the driving skill of drivers specially those are on probation is to be carried out based on CCTV recording. Use of CCTV cameras at installation should also be done for monitoring of high-risk activities, unsafe acts, unsafe condition etc. inline with the clause no. 7.6.8 (d) of OISD-GDN-206.
7. Selection of drivers to be carried out based on the requisite experience and requirements as defined in the contract agreement.
8. All statutory requirements should be incorporated in tenders for procurement of vehicle & to be checked before accepting delivery.

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