तेल उद्योग सुरक्षा निदेशालय
Oil Industry Safety Directorate
ISO 9001:2015 certified

# CASE STUDY

OISD/CS/2024-25/PL/07 Dt.: 12/07/2024

## INTRODUCTION

Title: Fatal incident in Pipeline ROW during excavation for TLP cable repair.

Location: Pipeline road crossing.

Loss/ Outcome: One Fatality.

## BRIEF OF INCIDENT

Periodic cathodic protection monitoring of pipeline indicated that at one location test lead point cables from pipeline to test lead point (TLP) box was damaged and PSP reading was not coming. Therefore, new cables were required to be laid from TLP box to pipeline and connected to the pipeline. For this work, pipeline excavation was being carried out for exposing pipeline.

This repair location of the pipeline was on a state highway & pipeline had crossed the road by cased crossing. Alongside this 12" pipeline, another 20" pipeline was laid at an inter distance of 4 meter. ROW width was 18 meters. On one side of ROW, there was a permanent building (just outside on ROW edge). On other side there was a temporary hutment/ structure (inside ROW). Total ROW width between building & temporary hutment/ structure was 30 feet (9.14 meter). Maximum pipeline depth at road crossing was 3.66 meter as per latest CAT survey report. Deep rooted trees and bushes were also present in the ROW. Schematic of site is shown in Figure No. 1. Photograph of site is shown in Figure No. 2.

On 23.05.24, Mainline maintenance contractor was carrying out excavation work for TLP cable installation without informing the pipeline owner. During excavation, one person, engaged in the process fell in trench accidently, and simultaneously the nearby soil collapsed above him. By the time he was taken out, he could not survive. As per postmortem report, cause of death was due to skull injury.

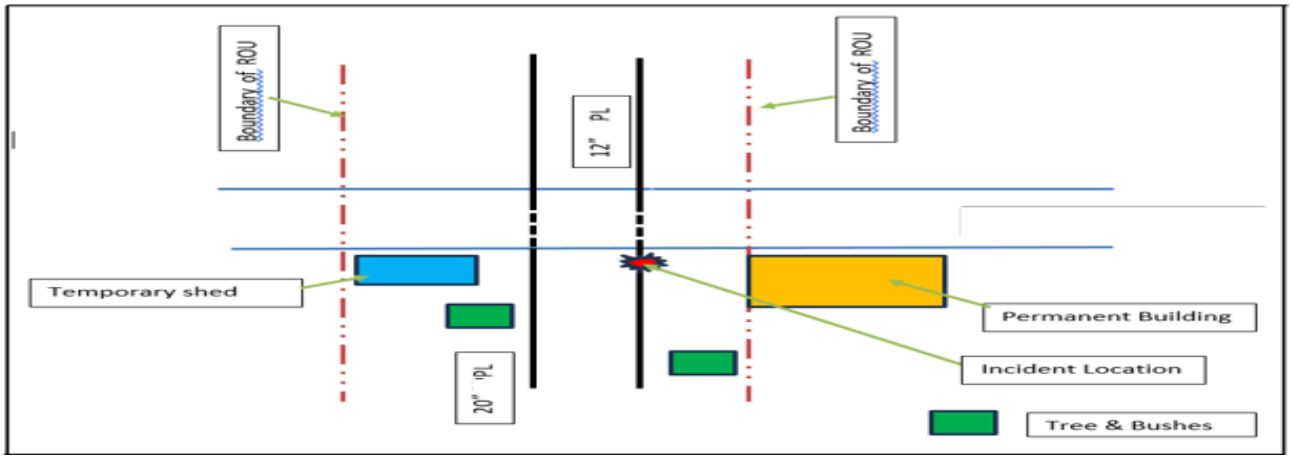


Figure No. 1

*Provided for information purpose only. This information should be evaluated to determine if it is applicable in your operations, to avoid recurrence of such incidents.*

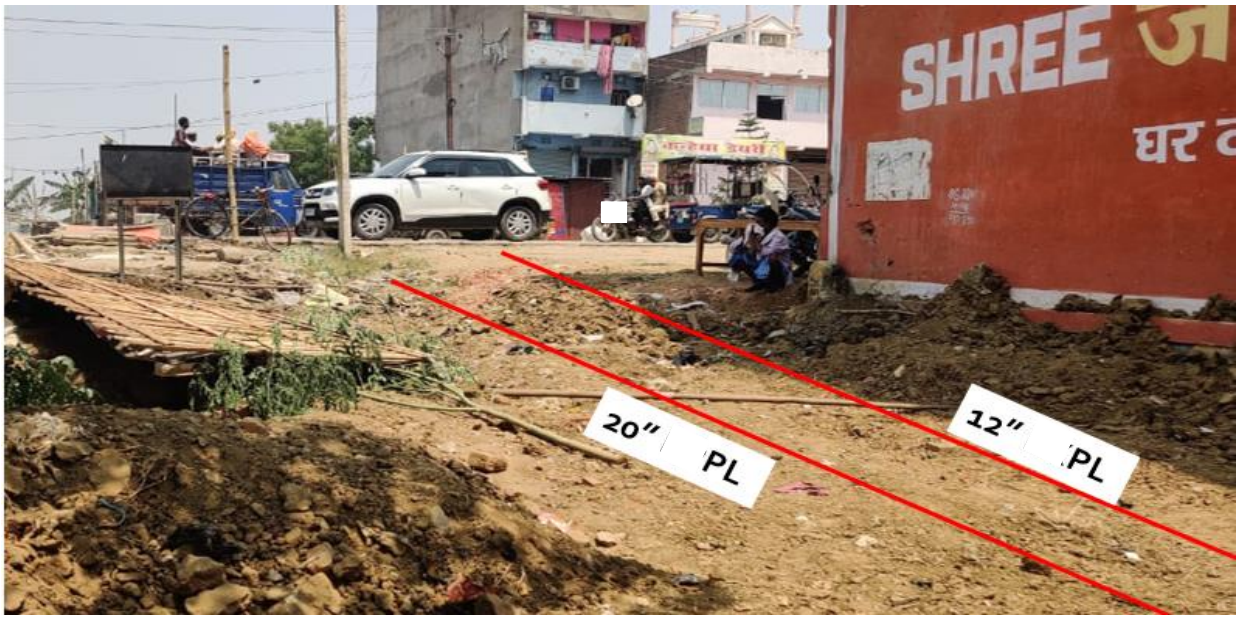


Figure No. 2

## OBSERVATIONS / CONTRADICTIONS

Basis site visit, interaction with officials, contractor and checking of existing systems, procedures and documents various contradictions were observed, which are as below:

1. As per owner, contractor representatives were carrying out work without informing and as per contractor work was not being carried out by him or his team.
2. Five work permits were also issued in May-24 for Mainline repair & maintenance before the incident. But contractor submitted that he had last worked 3-4 months before. Also, in the existing permit system, permits were being received by the Mainline officer, the name of the contractor's authorized supervisor was not being recorded to whom the permit was being issued.
3. As per owner, even though incident happened over their pipeline on a location where warning board with emergency contact number was displayed, police did not call them. Police took the body & sent it for postmortem. Pipeline owner came to know about the incident the next day through a local newspaper.
4. If contractor submission was considered, then an unauthorized mechanized excavation exactly over the pipeline was done at a busy location, pipeline was exposed and subsequently fatality happened. Local people neither called pipeline control room nor pipeline security personnel.
5. Several system failures were observed like not getting information of unauthorized excavation/ information of such fatal incident from security personnel, who was supposed to have good liaison with villagers. Also, coordination with local police regarding intimation of such incident was found missing.

## REASONS OF FAILURE / ROOT CAUSE

The following were the probable cause of the incident:

1. Workman might have slipped and fallen from around 12 feet height on any hard item/ pipeline/ JCB bucket leading to skull injury resulting in death.
2. Incident happened because an unsupervised activity was being carried out without considering & mitigating all probable hazards, like excavation up to 3.7 meter (approximately 12 ft) in restricted condition due to presence of another pipeline, temporary encroachment (temporary shed), deep rooted trees in ROW, permanent building adjacent to ROW.

## RECOMMENDATIONS

As major contradictions were observed between versions of pipeline owner and contractor, therefore it was recommended that pipeline owner to constitute a higher-level committee with the scope as listed below:

i. To investigate the incident thoroughly to bring out the facts.
ii. To find out gaps in contract management with respect to recommendation of Working group report on safety in Indian petroleum sector.
iii. Gaps in the role of HSE in executing mainline related jobs.
iv. Gaps in existing work permit system with respect to OISD-STD-105.
v. Gaps in effectiveness of line walking system, village awareness meets, police meet, existing methodology of recording of ROW encroachments.
vi. Methodology to work in challenging conditions like restricted ROW, common ROW, nearby highway etc.

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