केस स्टडी / CASE STUDY

OISD/CS/2024-25/MOLPG/10 **Dt.: 27/09/2024**

INTRODUCTION

Title: Major accident during activity of putting soap solution to the chain conveyer soap tray.
Location: LPG Bottling Plant
Result/ outcome: Amputation of contract worker's right hand.

BRIEF OF INCIDENT

For lubrication of chain conveyor, plant has dedicated service water line with quick shut off valve at tray of each Drive Unit. Soap solution is put into the tray manually by bucket-mug arrangement and mixed with water by opening the valve to create soap lather for lubrication.

A contract workman was assigned the task of putting soap solution and topping up of soap solution tray by opening the water pipe gate valve for chain lubrication. Instead of going to the other side of the chain conveyor where the tap of water line was located, workman attempted to operate the water tap through the available space beyond the sprocket beneath the chain conveyor. He extended his right hand under the conveyor belt, very close to the sprocket of Drive Unit. He was wearing rubber gloves that covered his hand up to the elbow. This action caused his glove to come into contact with the sprocket and further his hand near elbow also got trapped in the sprocket resulting in the amputation of his right hand.

OBSERVATIONS/ SHORTCOMINGS

The observations are as follows: -

1. IP (Injured person) operated the water tap from the incorrect side of the conveyor belt indicating casual approach by him violating standard practice.
2. The water tap near the soap trays is positioned too close to the running sprockets.
3. The loading area lacks a safe passage for movement between the Hot Air Sealing unit and the conveyor belts. Crossover is not available for the conveyor loop.
4. There is no protection around the sprockets.
5. Rubber hand glove being used by the personnel on soap duty is having loose open ends extended up to the elbow, making it prone for easily getting trapped in the moving parts.
6. It appears that similar shortcuts are being taken during topping up of soap solution tray however the same gone unidentified because the culture of identifying unsafe act & condition was missing.

PROBABLE REASON OF FAILURE/ROOT CAUSE:

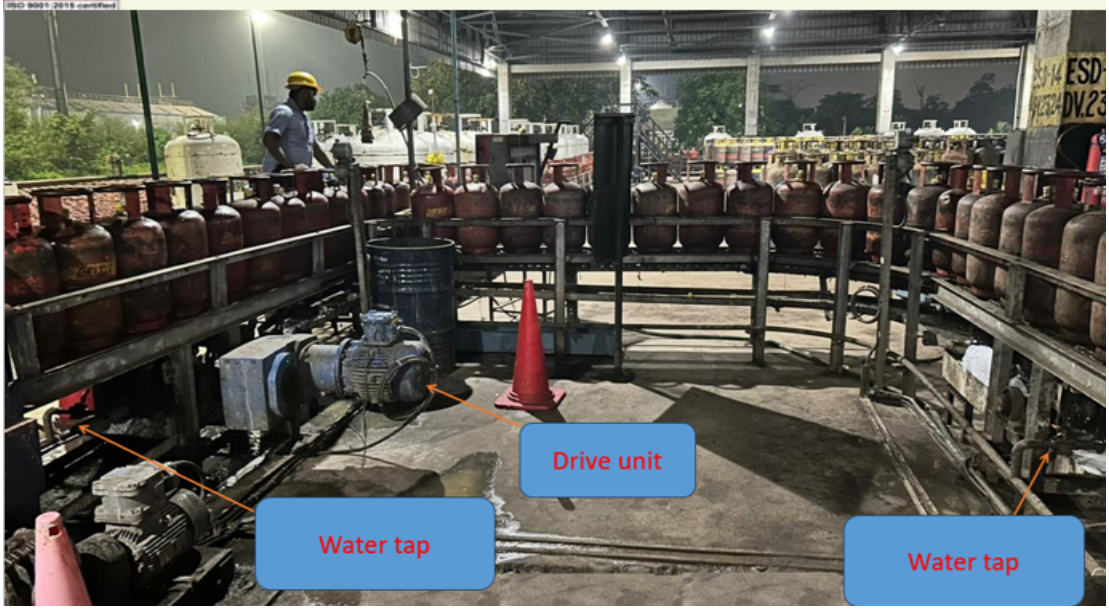
The root cause of the subject incident is negligent act by contract workman by extending hand below the running conveyor without stopping it and operating valve from the wrong side.

RECOMMENDATIONS:

The recommendations are as follows: -

1 Standard operating Procedure: - SOP for soap solution pouring work to be prepared, approved and displayed at work. Proper training and adherence to established procedures to be ensured.
2 Relocation of Water Tap: - Possibilities may be explored to position the water tap suitably. Additionally, water taps may be installed on both sides of the tray for easier access and safer operation.
3 Sprocket Guard Installation: - Possibility to be explored to Install suitable safety guards on both sides of the sprockets to prevent accidental contact and ensure additional safety.
4 Behaviour based safety culture to be implemented.
7. Suitable hand gloves should be used so that loose open ends can be avoided.
8. Normalization of deviation if any to be noticed and reported as unsafe act and unsafe condition.
9. Cross-Over Installation: - Cross-over to be provided for ease of personnel movements so that people don't get trapped inside any conveyor loop.

Accident Spot Photographs



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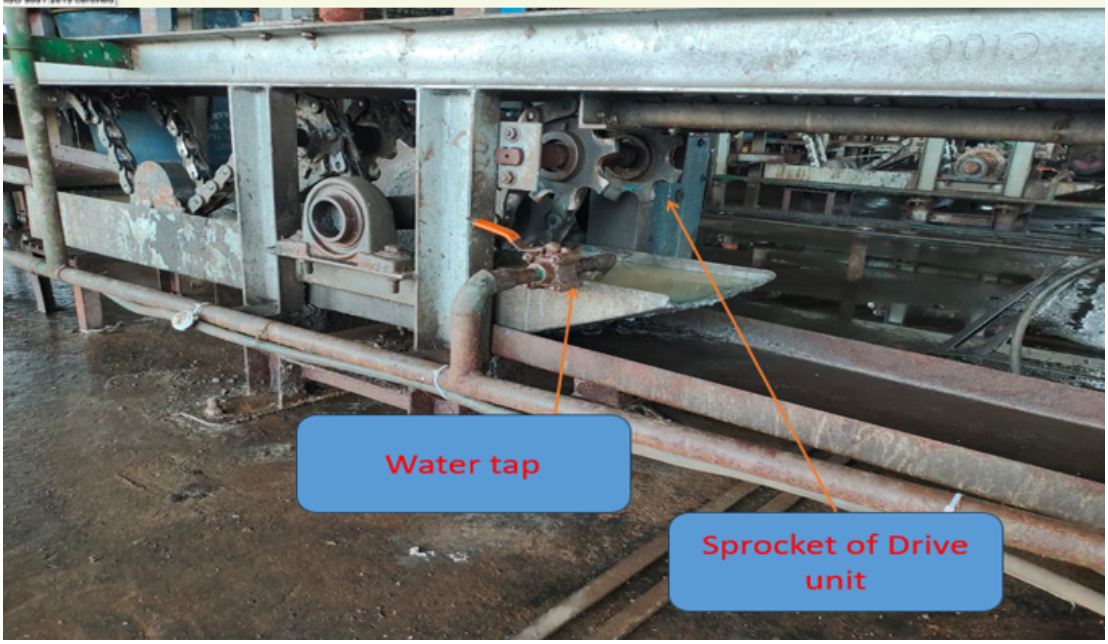

Provided for information purpose only. This information should be evaluated to determine if it is applicable in your operations, to avoid recurrence of such incidents.

Simulation of accident

During opening of water tap from opposite side accident happened

Hand Gloves Used

This hand gloves used

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