SAFETY ALERT-SOIL COLLAPSE

INCIDENT-I in March. 2019: At around 03:30 hrs., when the earth consisting of loose soil caved-in and fell on the contract worker, who was carrying out grinding on newly laid pipeline in ROU. The contract worker was inside the pit of 2.5 m depth along with 01 helper while 10 other workmen were available outside the pit. Helper and other workmen removed the soil and took the person to the hospital where doctors declared the person as “brought dead”.

OBSERVATIONS: (1) Clear access to the site was available. The excavated trench was barricaded by red tape. Excavated pit was of size 40 meter in length, 1-meter wide and 2.5 meter in depth (2) Excavated earth was observed dumped on one side of the trench. (3) The excavated trench was not provided with any shoring or shuttering. (4) No entry/exit were provided in the trench. (5) Work was in progress in the night without supervision. (6) The normal requirement of trench depth for 12” dia pipeline is 1.5 meter, however, the permission from MIDC was to lay the pipeline below the existing water and effluent pipelines and hence the depth of the trench was 2.5 meter. (7) Water was observed below the pipeline due to leakage from the adjacent drain. (8) The trench was approximately uniform in width for the entire depth. However, at the place where welding was undertaken the trench was widened to create space for working.

ROOT CAUSE: (1) The main cause of the incident was the collapse of loose soil from the side wall of the excavated trench and the time taken to remove the earth from top of the buried grinder and pull him out of the debris. Presence of water due to leakage from the adjacent drain had weakened the stability of the soil and resulted in collapse of soil into the pit. The pipeline trench was more than 2.5 meter in depth without shoring/strutting. Extra width in pit was made from bottom of pipeline to mid depth of pit instead of complete in depth. Secondly excavated soil was stacked adjacent to the pit. Further, supervision should have been done at such sites due to presence of multiple risk factors. (2) Non-compliance of Work Procedure: As the pit was more than 1.5 meter depth, creating confined space hazards and no preparedness was there w.r.t. standby personnel, rescue mechanism, tagline etc.
RECOMMENDATIONS: (1) "Activity Specific" hazard analysis is to be done by considering site difficulties. Also the same to be reassessed in case of change in site conditions due to weather/rain, etc. to reinforce with additional precautions. (2) Excavation job above 1.5 Meters depth should be taken up with proper work permit system and supervision by safety personnel. (3) Excavation should be done as per clause no 6.1 of OISD-GDN-192 by providing shoring and strutting and maintaining angle of repose for ensuring the structural stability of the pit. No excess earth to be kept close to the edge of the pit within 1 meter from edge of trench. (4) Other requirements as per clause 6.1 of OISD-GDN-192 and OISD-GDN-207 should be followed during excavation work. (5) Proper PPE (Personal Protective Equipment) should be used while carrying out any job.

WORTH MENTION: Similar Incident-2

January, 2018: A trench was dug for taking up rectification of OFC cable on the main pipeline. Four contract employees were carrying out OFC repair job when loose adjacent earth fell on them. One of the contract employee who was sitting in pit at the time of incident got unconscious due to sudden collapse of excavated soil on him. He was taken out & rushed to nearby hospital and was declared brought dead by hospital.

WORTH MENTION: Similar Incident-3

August, 2019: A trench was dug for constructing new pipe rack. Total 25 pits were dug for the job. One contract worker got trapped up to the chest height in the pit while removing shuttering metal plate from pile cap at new pipe rack site. Other workers rushed to the location and rescued the person and sent him to hospital. While undergoing treatment, he succumbed to his injuries. It is important to mention here that soil got wet due to rain in the previous day which affected the stability of the soil.

Root cause of above incidents: Non-adherence to clause 6.1 of OISD-GDN-192 and guidelines of OISD-GDN-207 during excavation work.

Lessons Learnt: Proper work procedure should be made in line with OISD-GDN-192 & OISD-GDN-207 and ensured while carrying out filed activities. Job safety analysis should be done for jobs involving excavation exceeding 1.5-meter depth or near to risk areas like drains. Further, excavation should also be avoided in case of moist soil conditions during rainy weather.