

# Tank Replacement Alert

## The Incident

The L3 contractor was placing a tank in a deep excavation.

- While doing this, workers of the L3 were standing underneath the suspended load.
- The slopes of the excavation were not secured with trench supports or alternatively at the correct slope, posing a very high risk of the sides collapsing and the workers being buried alive.
- On the picture it is visible that only on one side ladders were placed for the workers to get in and out the excavation. The rules dictate that on two sides' ladders have to be placed. In case of an emergency the workers would have been trapped.
- On the picture it is visible that on the left side a ground working machine is parked, posing a high load on the top of the slope. The risk of collapse is high.



## What was wrong?

- The JHA did not consider that the slopes would be too steep and that ground reinforcing construction should be used. The site was so small that 1:1 excavation was not possible so the JHA should have included this.
- The Permit did not cover this steep slope. At the time the permit was issued the excavation had not been carried out but it should have been known that 1:1 was not possible. Conclusion is that the work preparation was not sufficient.
- Although the workers knew working under a suspended load is prohibited under the Life Saving Rules, they still worked under it.
- The PM in charge of the project did not issue the permit but a colleague did. This colleague was aware of the conditions but there was no documented hand over.
- There was no excavation or lifting plan.
- LMRA was not used.
- No NMPI was reported.

## What was done?

- Coteba consequence management was applied –
  - Banning workers on the Shell Project for Coteba
  - Suspending the company for the next three tank replacements.
  - Coteba PM's will receive training again to increase the awareness of the risks and HSSE rules.
  - For all sites where we know we will have to excavate we will make excavation plans upfront, starting immediately when the project or program is started.

## Lessons Learnt

- Always follow the Life Saving Rules, no matter what!
- Preparations were too poor. If this work had been prepared well, the slopes of the excavation would have been protected using a soil reinforcing structure. The JHA could have been prepared better, workers better informed, etc, etc, etc. **So prepare all sites upfront.**
- In case of an excavation and slopes can not be 1:1, an excavation plan has to be drawn by an expert. Even if the slopes can be 1:1 it is possible that a ground reinforcing construction has to be placed. In the case of Den Bosch the excavation was kept dry by pump drainage. If this system fails it is possible that the ground water raises so high that slopes can still collapse even with a slope of 1:1.
- Although training is given to the Coteba PM's with respect to HSSE, refreshing the training is absolutely necessary. This has to be done yearly.
- In case another permit issuer than the PM is issuing the permit, a proper hand over has to be done. This must be documented.