LEARNING FROM ACCIDENTS
OSHI SEMINAR 2017

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Investigations (Construction)
Overview

- Case studies of fatal accidents
  - Synopsis of accident
  - Investigation findings
  - Lessons learnt

1. MEWP-related fall from height
2. Struck by collapsing object
3. Struck by moving vehicle
Case Study 1

MEWP-related Fall from Height

Worker died after being tossed out of MEWP
Synopsis of Accident

- The Deceased together with another worker, operated the MEWP (boom lift) to take measurements of a column.

- While the Deceased operated the MEWP to descent, the MEWP got entangled with the bracing. He continued operating the MEWP to descend, and it was released suddenly but with a lot of jerking up and down.

- The Deceased was tossed out of the MEWP and landed on the ground below. He was pronounced dead at the scene.
Synopsis of Accident

The newly constructed shed
The existing shed occupied by owner’s production area
The boom lift involved in the accident
Deceased landed on the ground
Synopsis of Accident
Investigation Findings

- The Deceased went up to take measurements for his work.
- It was not necessary for the Deceased to go up to the location using the MEWP to complete his work.
- The Deceased was neither trained nor authorised to operate the MEWP in the worksite.
- The Deceased had not donned a safety harness.
- No key control system to prevent unauthorized access to MEWP.
- Physical barricades previously around the MEWP were not there.
Investigation Findings
Investigation Findings

The Deceased was taking some measurement from this column prior to the accident.

Blue paint marks were found on the 3rd horizontal bracing.
Investigation Findings

The boom lift’s bucket was found to have deformed inwards due to its impact against the 3rd horizontal bracing.
### Lessons Learnt

| Risk Assessment | • RA should consider hazards posed by location or structures in work area (entanglement of MEWP’s platform with structures)  
| | • RA should consider possible presence of other persons at the workplace |
| Safe Work Procedures | • Ensure effective control measures to prevent unauthorised access or use  
| | • Implement key control system |
| Awareness | • Strictly enforce that equipment and tools should not be used by untrained or unauthorised persons |
| Equipment | • Ensure that proper PPE is donned before working at height |
Case Study 2

Struck by collapsing object

Worker died after being struck on head by collapsing wall panel
Synopsis of Accident

- The Deceased and two co-workers were installing wall panels for the external boundary wall of terrace house units.

- The Deceased was applying plaster at the base of one of the wall panels when the newly installed wall panels collapsed. One of the collapsed panels struck the Deceased on the head.

- The Deceased was conveyed to hospital where he succumbed to his injuries.
Synopsis of Accident

Panel No. 1

Panel No. 2

Panel No. 4

Location where the Deceased was found

Panel No. 3

Panel No. 5
Investigation Findings

- Wall panel Supplier had a method statement for installation of wall panels for interior boundary walls, but Employer did not have the method statement.

- The method used on-site was devised by the employer of the Deceased, but it was not a proper step-by-step method and was not documented.

- The method was inherently unsafe as all panels were not adequately supported during the installation process.

- Only the first three panels were secured with U-bars. There were no U-bars connecting the fourth and fifth panels.

- Only the first panel was supported by a retractable prop. The second to fifth panels were not supported by any props.

- The panels were placed on the spacer blocks and not anchored at the base as starter bars which provide anchorage to the low retaining wall were not installed for the wall panels.
Investigation Findings

Panel No. 1
Retractable prop
Retaining wall
Cement bucket used by Deceased
Investigation Findings

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Investigation Findings

No starter bars inserted

No starter bars inserted

Spacer blocks
### Lessons Learnt

<table>
<thead>
<tr>
<th>Category</th>
<th>Recommendations</th>
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<tbody>
<tr>
<td><strong>Risk Assessment</strong></td>
<td>• Ensure control measures are effective</td>
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<tr>
<td></td>
<td>• Implement control measures set out in RA</td>
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<tr>
<td><strong>Safe Work Procedures</strong></td>
<td>• Consult and involve supplier and workers to review the method of work</td>
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<td>• Ensure that method statement and safe work procedures are documented clearly</td>
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<tr>
<td><strong>Site Management</strong></td>
<td>• Ensure adequate supervision</td>
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<tr>
<td><strong>Equipment and Tools</strong></td>
<td>• Provide proper and adequate temporary support structures</td>
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Case Study 3

Struck by moving vehicle

Worker died after being run over by reversing truck
Synopsis of Accident

- The Deceased was performing duties as a banksman and directing trucks to unload soil at the worksite when he was run over by a reversing truck.

- The Deceased was pronounced dead at the scene.
Synopsis of Accident
Investigation Findings

- No measures to ensure the safety of workers performing banksman duties.

- No proper procedure for drivers to stop to wait for instructions from the banksmen.

- No engineering controls to clearly demarcate the stop zone for trucks to wait.

- No engineering controls to clearly demarcate and separate the Deceased’s working zone from moving trucks in the open area.

- No procedure to control the number of trucks entering the dumping area.
Investigation Findings

The dumping point

The Deceased

Accident truck (X) beginning to reverse towards the dumping point

Truck Y reversing towards the dumping point
Investigation Findings

Pile of soil dumped by truck

Position of the Deceased
## Lessons Learnt

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
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<tbody>
<tr>
<td><strong>Risk Assessment</strong></td>
<td>• Include all work activities in RA including ancillary activities (eg. traffic control)</td>
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<td>• Apply hierarchy of hazard control (engineering controls)</td>
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<td><strong>Site Management</strong></td>
<td>• Clear demarcation of zones</td>
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<td>• Separate human and vehicular traffic</td>
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<td>• Control the number of trucks entering the dumping area</td>
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<td><strong>Safe Work Procedures</strong></td>
<td>• Implement proper procedures for drivers to stop to wait for instructions from banksmen before proceeding towards the turning point to reverse</td>
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<td><strong>Equipment and Tools</strong></td>
<td>• Install physical barricades to demarcate traffic flow and separate zones to protect banksmen while directing traffic</td>
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Summary

- **R**isk Assessment should not be creating a false feeling of safety
- **I**mplement effective controls
- **S**tart right with risk identification
- **K**now the common Risk Assessment mistakes
Thank You for your Time