



Anatomy of an Object Fall from Height Incident Awareness Program TRAINERS Manual

TK Elevator

v3.0 FINAL 25 February 2024



Table of Contents

Preparing for the Workshop	3
Outline and Assessment	4
Welcome	6
Topic 1	7
Topic 2	8
Topic 3	10
Topic 4	12
Topic 5	14
Feedback Form	15
Appendix 1: Case Study – Part 1 ‘correct’ responses	16
Appendix 2: Case Study – Part 2 “correct responses”	17
Appendix 3: Applying the Swiss Cheese model to TKE and this Incident Activity “correct responses”	19
Appendix 4: The Powerful 6 Questions Activity “correct responses”	20



Preparing for the Workshop

Trainer Note: Preparation for the Workshop is not to be shared with the Trainees but to be completed in advance of the workshop with Anthony Duff, National Safety Manager, TKE (or delegate).

In the event of an emergency, the local procedure is to:

The evacuation area / lock down area is:

The potential hazards / risks in the training area and the surrounding area (including travel to and from the workshop room) are (please consider the placement of your bags and personal items):

Logistics / Context:

- Workshop is to be set up as 'open plan' (as much as possible)
- Trainees are to be encouraged to converse / engage and openly discuss.
- Participant Manuals are for writing on / keeping (one per person)
- Handouts / copies may be made available of:
 - o The TK Global Safety Standards
 - o The TK Elevator Lift Shaft Safety Procedure
 - o SWP-08 Working at Height
 - o SWP-10 Working on Top of a Lift Car
- Location of toilet / break areas
- Use of mobile phones prohibited.
- Break times and meals provided.
- Smoking areas
- A request for feedback on this workshop will be made at the end (via QR Code) (this is an Assessment requirement) so mobile phones should be available.
- Attendance to this workshop is a requirement of an Enforceable Undertaking entered into by TK Elevator Australia Pty Ltd with WorkSafe Victoria in August 2023. The Enforceable Undertaking relates to an incident that occurred on 19 May 2020 [NB: Employees that were involved in this incident may be attendees of the Training. Sensitivity will be required].

Outline and Assessment

Trainer Note: The Outline and Assessment is not to be shared with the Trainees. The Outline of the Workshop is:

Time	Topic	Page Numbers	Outcome	Agenda	Activity
10 mins	Welcome	Participant Manual (pg.: 3-4)	Welcome and Introduction	Welcome Safety Story Review of Workshop Outcomes	<i>David Husoy Video</i> <i>Individual Reflection Activity</i>
75 mins	Topic 1	Participant Manual (pg.: 5-8)	Awareness of the incident, the root cause, and contributory factors of the incident and what the existing controls that were in place.	Case Study	<i>Small working group exercise (3-4 people per group)</i> <i>Individual Reflection Activity</i>
10 mins	Topic 1	Participant Manual (pg.: 9)	Reporting back	Reflection	<i>Human Centered Design – Affinity Clustering Technique</i>
20 mins	Break	Break	Break	Break – Stretch and Refresh	Break
70 mins	Topic 2	Participant Manual (pg.: 10-21)	Development of skills and knowledge in the Incident Cause Analysis Method (ICAM) and the 'Swiss Cheese' Model of incident causation.	ICAM and 'Swiss Cheese' Training Material The TK Global Safety Standards TKE Lift Shaft Safety TKE Contractor Management Procedures TKE SWP-08 Working at Height TKE SWP-10 Working on Top of a Lift Car	<i>Applying the Swiss Cheese Model to TKE and this Incident</i>
10 mins	Topic 3	Participant Manual (pg.: 16-17)	Confidence in the TKE safety standards that are set and in the role that Trainees 'play' in their 'take' of The Powerful 6 Questions	Powerful 6 Questions	<i>Powerful 6 Questions Activity</i>
20 mins	Topic 4	Participant manual (pg.: 18)	Confidence in the role that Trainees 'play' in maturing the TKE organisational safety culture.	Five stages of organisational safety culture Training Material	<i>None</i>

Time	Topic	Page Numbers	Outcome	Agenda	Activity
5 mins	Topic 5	Participant Manual (pg.: 19-20)	Personal growth via the development of an Individual Safety Culture Action Plan (SCAP).	Individual Safety Culture Action Plan Concrete, three next steps Activity	<i>Individual Safety Culture Action Plan (SCAP) Activity</i> <i>Human Centered Design – Visualise the Vote</i>
5 mins	Close	Participant Manual (pg.: 21)	Close	Request for feedback (QR Code)	QR Code

The Assessment of the Workshop is:

1. Completion of the Concrete, Three Next Steps Activity.
2. QR Code Feedback Form completed (at the end of the Workshop).

Welcome

Time	Topic	Page Numbers	Outcome	Agenda	Activity
10 mins	Welcome	Participant Manual (pg.: 3-4)	Welcome and Introduction	Welcome Safety Story Review of Workshop Outcomes	<i>David Husoy Video Individual Reflection Activity</i>

Trainer Notes:

Thank you for attending this workshop. It is hoped that this workshop will impact you in a couple of ways:

- Firstly, it will make you consider how you perceive your safety whilst working at heights and whilst working within elevator shafts with other people who you may or may not know (such as Contractors).
- Secondly, it will lift your skill in understanding about why and how incidents happen – so that incidents and near-misses can be successfully prevented.
- Lastly, it will help you appreciate what a safety culture is and how your actions can both immediately improve (or diminish) a safety culture and how a commitment to long-term planning can impact on the safety culture of every organisation that you work in for the rest of your life.

An Introduction to the Trainer:

An Introduction to David Husoy, Managing Director:

Activity:

- Trainer to handover / play video of the David Husoy 'safety journey'.
- Trainer to support participant to complete Reflection Activity (Participant Manual page 4).

Topic 1

The outcomes we are aiming for in this workshop are:

1. An awareness of the incident, the root cause and contributory factors of the incident and an analysis into why (existing) controls failed to prevent the incident from occurring.

Time	Topic	Page Numbers	Outcome	Agenda	Activity
75 mins	Topic 1	Participant Manual (pg.: 5-8)	Awareness of the incident, the root cause, and contributory factors of the incident and what the existing controls that were in place.	Case Study	<i>Small working group exercise (3-4 people per group) Individual Reflection Activity</i>
10 mins	Topic 1	Participant Manual (pg.: 9)	Reporting back	Reflection	<i>Human Centered Design – Affinity Clustering Technique</i>

Trainer Notes / Activity:

- Trainer to read Case study – Part 1
- Trainer to discuss photos and make sure that all aware of what occurred.
- Trainer to break up workshop into small working groups (3-4 people per group)
- Trainer to support small groups to complete Case Study – Part 1 (Participant Manual page 5-6). Knowledge of ICAM may be required (see Appendix 1 for 'correct' responses)
- Trainer to read Case study – Part 2
- Trainer to support small groups to complete Case Study – Part 2 (Participant Manual page 7-8). Knowledge of ICAM may be required (see Appendix 2 for 'correct' responses)
- Trainer to support participant to complete Rating Activity (Participant Manual page 9).
- Trainer to discuss with participants the outcomes of the Rating Activity.
- Using whiteboard / post it notes – Trainer to reflect / rate responses that participants have listed (in their Participant Manual) and "cluster" them for trends. Discussion to 'unpack' why participant responses trended the way they did.

Topic 2

The outcomes we are aiming for in this workshop are:

2. Development of skills and knowledge in the Incident Cause Analysis Method (ICAM) and the 'Swiss Cheese' Model of incident causation.

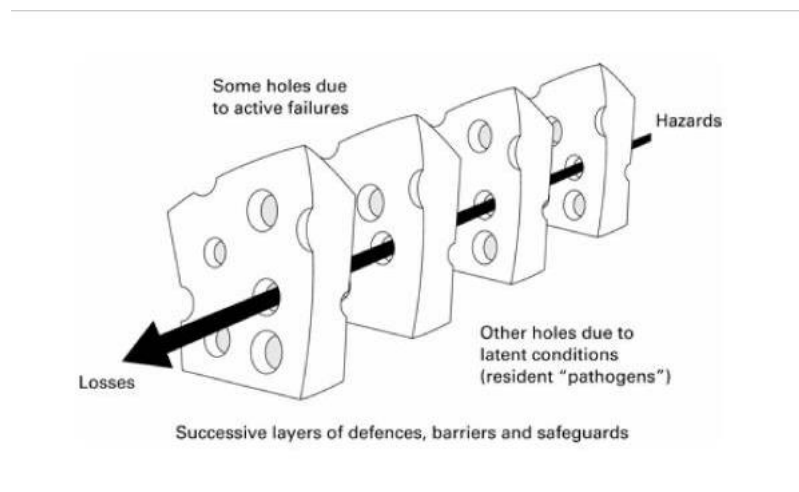
Time	Topic	Page Numbers	Outcome	Agenda	Activity
20 mins	Break	Break	Break	Break – Stretch and Refresh	Break
70 mins	Topic 2	Participant Manual (pg.: 10-21)	Development of skills and knowledge in the Incident Cause Analysis Method (ICAM) and the 'Swiss Cheese' Model of incident causation.	ICAM and 'Swiss Cheese' Training Material The TK Global Safety Standards TKE Lift Shaft Safety Standards TKE Contractor Management Procedures TKE SWP-08 Working at Height TKE SWP-10 Working on Top of a Lift Car	<i>Applying the Swiss Cheese Model to TKE and this Incident Activity</i> <i>Reflection Activities on TKE Safety Standards and Systems</i>

Trainer Notes / Activity:

Over 20 years ago, James Reason proposed the image of "Swiss cheese" to explain the occurrence of systems failures such as medical mishaps.

According to the metaphor, in a complex system, hazards are prevented from causing human losses by a series of barriers. Each barrier has unintended weaknesses or holes (hence the similarity with Swiss cheese) and these weaknesses / holes are inconstant (that is, they open and close at random).

When by chance all holes are aligned, the hazard reaches a person and causes harm as per below:





The Swiss cheese model is widely accepted by WHS professionals and has formed the basis of the Incident Causation Analysis Method (ICAM) method of Incident Causation.

The ICAM process is an WHS analysis tool that 'sorts' the findings of an incident into a structured investigation framework. An ICAM investigation clarifies WHY an incident actually happened and identifies all of the factors that contributed to an incident occurring.

The ICAM process is intended to assist in identifying and developing recommendations to prevent a 'repeat' of an incident and to form the key learnings of an incident or "what did we learn that we can share".

The Case Study outlined within this workshop occurred at TKE on 19 May 2020 and is the basis of the Enforceable Undertaking entered into by TK Elevator Australia Pty Ltd with WorkSafe Victoria in August 2023.

In some incidents, a common factor that contributes to their occurrence is a human failure of people not actively managing and "owning" their safety and an overconfidence in elements of their WHS Management System (the procedures and processes in place to prevent things from happening).

- Trainer will require knowledge of 'Swiss cheese' and ICAM investigation methodology.
- Trainer will review and go through all ICAM methodology slides.
- Trainer will require knowledge / allow for reflection of the following:
- TKE Global Safety Standards (Health and Safety: 10 Rules)
- TKE Shaft Safety Standards
- TKE Contractor Management Procedures
- SWP-08 Working at Height and SWP-10 Working on Top of a Lift Car

Topic 3

The outcomes we are aiming for in this workshop are:

3. Confidence in the TKE safety standards that are set and in the role that Trainees 'play' in their 'take' of The Powerful 6 Questions.

Time	Topic	Page Numbers	Outcome	Agenda	Activity
10 mins	Topic 3	Participant Manual (pg.: 21-22).	Confidence in the TKE safety standards that are set and in the role that Trainees 'play' in their 'take' of The Powerful 6 Questions	Powerful 6 Questions	<i>Powerful 6 Questions Activity</i>

Trainer Notes / Activity:

- The Powerful 6 Questions Support the TK Elevator Global Safety Standards and the TKE Vision of all TK Elevator people actively managing and "owning" safety. They are as follows:



- The Powerful 6 Questions are aligned to Positive Due Diligence for ‘Officers’ under the Model WHS Act. Trainer will require knowledge of Positive Due Diligence.
- Trainer to support small groups to complete The Powerful 6 Questions Activity (Participant Manual page 10) (see Appendix 3 for ‘correct’ responses).

Topic 4

The outcomes we are aiming for in this workshop are:

- Confidence in the role that Trainees 'play' in maturing the TKE organisational safety culture.

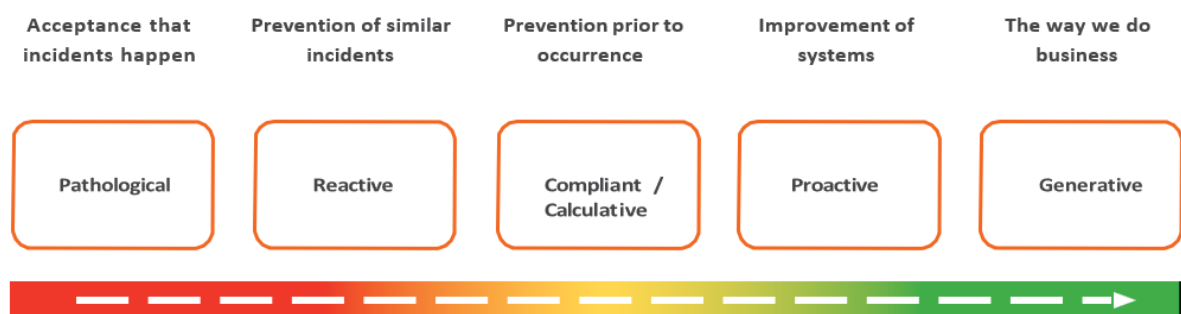
Time	Topic	Page Numbers	Outcome	Agenda	Activity
20 mins	Topic 4	Participant manual (pg.: 23)	Confidence in the role that Trainees 'play' in maturing the TKE organisational safety culture.	Five stages of organisational safety culture Training Material	<i>Reflection Activity</i>

Trainer Notes / Activity:

As TKE Employees, we make an impact on the organisational safety culture or “the way we do things around here.” We influence the safe behaviours of the team and of the subcontractors that we work with and alongside.

As TKE Employees we aim to produce safety and wellbeing outcomes that change the quality and the effectiveness of TKE and, if done well, will lead to more satisfied customers and an increase in the strength of our brand and reputation across the Construction Industry.

Explaining Organizational safety culture is best explained by sharing the Hudson Safety Culture Maturity Model:



Progress from one level of maturity is an outcome if:

- Leaders are increasingly informed.
- With increasing trust/accountability

- Trainer will require knowledge of Hudson Safety Culture Maturity Model.
- Trainer will facilitate a discussion to the Reflection Question (note there is no written activity here):

Rate where you believe you, your team and your organisation 'are' currently to the Hudson Safety Culture Maturity Model.

Using your knowledge of ICAM – consider:

- Why? What can be done about it?
- What can we learn and what can we share to 'move up' the Safety Culture Maturity Model over time?

Topic 5

The outcomes we are aiming for in this workshop are:

5. Personal growth via the development of an Individual Safety Culture Action Plan (SCAP).

Time	Topic	Page Numbers	Outcome	Agenda	Activity
5 mins	Topic 5	Participant Manual (pg.: 24-25)	Personal growth via the development of an Individual Safety Culture Action Plan (SCAP).	Individual Safety Culture Action Plan Concrete, three next steps Activity	<i>Individual Safety Culture Action Plan (SCAP) Activity Human Centered Design – Visualise the Vote</i>

Trainer Notes / Activity:

Personal growth is often realised by establishing a proactive Individual Safety Culture Action Plan (SCAP).

But first what attitudes, values and beliefs exist for you?

- Trainer to support participant to complete Individual Safety Culture Action Plan Activity (Participant Manual page 18). This activity may be difficult so Trainers should prepare their own Individual Safety Culture Action Plan responses in advance of the session (share as an example).
- There is no requirement for the SCAP to be shared / completed. If time is N/A, it can be set aside as a Professional Development Opportunity
- Trainer to reach an agreement on what all workshop participants will deliver via completion of a “next step” Activity (Participant Manual page 19).
- Using whiteboard / post it notes – all Trainees are to ‘vote’ on what “next steps” they all collectively agree to complete. The top three will be reported back to Anthony Duff, National Safety Manager on completion (this is an Assessment Requirement).

Feedback Form

An Assessment Requirement is completion of the Feedback Form (QR Code attached below).

Time	Topic	Page Numbers	Outcome	Agenda	Activity
5 mins	Close	Participant Manual (pg.: 26)	Close	Request for feedback (QR Code)	QR Code



Trainer Notes / Activity:

- Trainer to support participant to complete the Feedback Form (via QR Code) on their mobiles.
- Trainer to thank all Trainees for their attendance and dismiss Trainees.
- Trainer to reassemble Workshop room in preparation for next Workshop.

Appendix 1: Case Study – Part 1 'correct' responses.

What happened?

An object fell from height from the top of a lift car while a technician was working / present in the lift pit below.

What was the consequence?

Personnel were working above and below each other in the lift shaft.

An unsecured object fell from the top of a lift-car narrowly avoiding seriously injuring a technician on a scaffold in the pit below.

What was the potential?

The incident classified as a dangerous occurrence or serious near miss may have resulted in a serious injury or fatality if it had directly hit the Technician below.

What is the first defence that should have prevented the incident?

Hazard Identification –

Identifying the risk of unsecured objects being used on the top of the lift car.

Identifying the risk of an inexperienced or untrained / unskilled Contractor being exposed to a high-risk and unfamiliar environment or non-routine work.

Procedural –

A Safe Work Procedure (SWP) that stipulates that personnel should not work above or below each other in lift shafts.

What is the next defence that should have prevented the incident?

Guards / Barriers / Protection Systems – *A fully enclosed barrier around the top of the car or the tethering of unsecured objects being used on the lift car to stop them falling through the guardrail or falling to the ground or level below if they do fall.*

What is the next defence that should have prevented the incident?

Restriction / Access (Isolation) - *A secure barrier or lockable door to the pit / lower level to prevent access while work was taking place above.*

Appendix 2: Case Study – Part 2

“correct responses”

What barriers / precautions should have been in place to prevent this incident?

- **Communication / Situational Awareness** – Technicians being aware of their locations at all times.
- **Contractor Management Procedures** – clearly defining those types of Contractors approved to work on project sites and in “operational” areas such as lift shafts.
- **Task planning and preparation** – More clearly communicating with the workforce about how testing in the field was to take place especially if Contractor was to attend project sites. Scheduling and planning better the exact location of the work and where the testing was to take place.
- **Contractor selection and engagement** - Identifying contractors approved to work at project sites. Approval and high-risk training being provided to only those Contractors whose work requires them to be in “operational” areas such as the lift shaft, top of car, pit. Should only be those contractors whose work requires them to be in these places because their work involves the installation, servicing, and repair of elevator equipment.
- **SWMS / Competency & Skill** – More comprehensive SWMS that identified the hazards of work at height and the potential for falling objects if the Sub-Contractor is expected to work in these locations. Training to sub-contractor about work at height / object fall from height hazards and controls.
- **Pre-Start Risk Assessment** – conducting pre-start risk assessment (or Take 5) to review SWMS and work activity prior to beginning the task.

What barriers / precautions could have minimised the damage / harm?

- Tethering equipment to stop / arrest the fall.
- A solid or fully enclosed barrier to stop objects going through the guard rail.
- PPE – personal protective equipment (hard hat).
- Warning Signage (Administrative Controls) on the lower or upper level while work is taking place above or below.

What factors contributed to the incident occurring?

Organisational / System

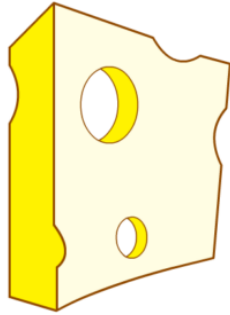
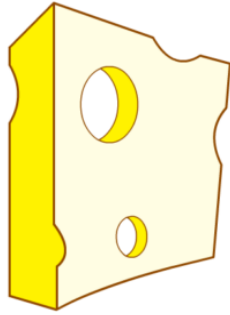
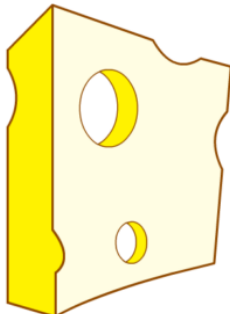
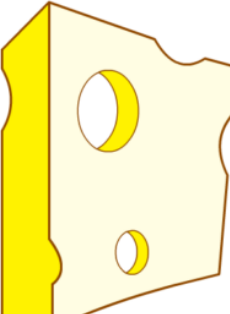
- In the planning process and arranging for the subcontractor to test equipment in the field, the organisation did not clearly communicate to the field teams the location or environment where testing was to be conducted on site.

- *In the planning process and arranging for the subcontractor to test equipment in the field, the organisation did not adequately consider the risk of potentially exposing an un-qualified and inexperienced subcontractor to a high-risk environment and non-routine task.*
- *In the pre-engagement process, the organisation did not ensure that adequate SWMS were developed by the subcontractor and these did not adequately identify the high-risk hazards (work at height / object fall from height) and suitable controls relevant to the work activity being conducted in the field or on project sites.*

Contributing Factors from the subcontractor or Employees

- *The subcontractor was unfamiliar with the high-risk work environment and working at height and the risk of an unskilled or inexperienced contractor being exposed to unfamiliar high-risk environment and non-routine task was not identified.*
 - *The subcontractor did not adequately secure tools and equipment while working at height and while testing equipment that was tethered to the guardrail to stop it from falling. The risk of unsecured objects (the test meter) being dropped from height was not identified.*
 - *Employees inadvertently working above and below each other in the lift shaft.*
 - *Situational awareness and not communicating with each other and the whereabouts of each group in the lift shaft. The subcontractor and Employee 1 accessing the car top while Employee 2 was in the pit. Employee 2 accessing the lift pit while the subcontractor and Employee 1 were working on the car top.*
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Appendix 3: Applying the Swiss Cheese model to TKE and this Incident Activity “correct responses”

	Barrier / Defence within TK Elevator that could have prevented this incident. TKE 10 Safety Rules – Working at Height GSM Safety Induction – Shaft Safety Rules
	Errors or Issues that impact on delivery of above defence. Training Resources. Not training subcontractors in the TKE GSM Induction and Shaft Safety Rules when they are exposed to high-risk environments including the lift shaft and car top.
	Barrier / Defence within TK Elevator that could have prevented this incident. TKE Contractor Management Procedures
	Errors or Issues that impact on delivery of above defence. Inadequate planning. Exposing inexperienced and unskilled personnel (subcontractors) to a high-risk environment. Not developing adequate SWMS that identify high risk hazards and suitable controls in the subcontractor engagement phase.
	Barrier / Defence within TK Elevator that could have prevented this incident. TKE SWP-08 Working at Height and SWP-10 Working on a Lift Car Top
	Errors or Issues that impact on delivery of above defence These are administrative controls that rely on individual factors including hazard identification (the potential for something to occur), communication, situational awareness and compliance. The result in this incident was that ultimately personnel were working above and below each other in the lift shaft.
	Barrier / Defence within TK Elevator that could have prevented this incident. Equipment and Engineering Controls
	Errors or Issues that impact on delivery of above defence Not recognising the object fall from height risk and securing objects on the car top or preventing them from falling (barriers or tethers). Equipment availability.

Appendix 4: The Powerful 6 Questions Activity “correct responses”

#	Powerful Question	Powerful Response
1	What am I accountable for?	<ul style="list-style-type: none"> • <i>Working safely.</i> • <i>Adhering to safe work procedures to ensure their own safety and that of others they work with.</i> • <i>Stopping work if an unsafe condition (or hazard) exists.</i> • <i>Identifying and reporting hazards and acting to eliminate or minimise these through appropriate controls. Escalating upwards when the risk Cannot be reduced.</i> • <i>Reviewing SWMS to ensure hazards are identified and controls implemented.</i> • <i>Conducting a Pre-Start Risk Assessment (Take 5) before beginning any work activity.</i>
2	What are the key hazards and risks in my area of accountability?	<ul style="list-style-type: none"> • <i>Work at Heights.</i> • <i>Objects Falling from Height.</i> • <i>Electrical work.</i> • <i>Uncontrolled / unintended movement of equipment and machinery.</i>
3	How do I go about maintaining a clear picture of the key risks in my area of accountability?	<ul style="list-style-type: none"> • <i>Reviewing accident reports and safety alerts issued by the business.</i> • <i>Communicating / consulting with employees and sub-contractors.</i> • <i>Conducting / delivering toolbox talks issued across the business.</i> • <i>Conducting workplace inspections.</i>
4	What critical controls can be used to ‘manage’ these risks, by eliminating them and if not reasonably practicable to do so, by controlling them?	<ul style="list-style-type: none"> • <i>The TK Global Safety Standards</i> • <i>TK Elevator Lift Shaft Safety</i> • <i>TKE SWP-08 Working at Height</i> • <i>TKE SWP-10 Working on Top of a Lift Car</i>
5	How do I know these controls are actually in place?	<ul style="list-style-type: none"> • <i>Conducting worksite inspections and observations.</i> • <i>Conducting Pre-Start Risk Assessments.</i>

#	Powerful Question	Powerful Response
		<ul style="list-style-type: none"> • <i>Communicating / consulting with other employees and team members.</i>
6	How do I know these controls are effective in managing the risks?	<ul style="list-style-type: none"> • <i>A safe worksite or project with no injuries, accidents or near miss events.</i>