Safety Summit
2015 Rio Tinto Kennecott Contractor Leadership
Zero Harm Share - Seatbelt Safety

Agenda

• Welcome/Introductions/Housekeeping - 5 min
• Zero Harm Share - 10 min.
• Senior Leadership Comments - 15 min.
• Rio Tinto Kennecott’s Priorities - 10 min.
• Current Safety Performance - 10 min.
• What is Going Well/Not Going Well Feedback - 15 min.
• Partnering
  o Reducing Injuries - Hand Safety - 10 min
  o What Can We Continue to Do or Stop Doing to Improve Safety? - 30 min.
  o Fatality Elimination - Critical Risk Management - 20 min.
  o Catastrophic Event Prevention - Process Safety Management - 25 min
  o What is Going Well/Not Going Well Wrap-up - 10 min.
  o RTK Expectations - 10 min.
• Question & Answer Session - 10 min.
Senior Leadership Comments

Welcome
- Thank you for being our partners

Successes
- Reducing Injuries
- Implementation of Critical Risk Management (CRM)
- Continued development of Process Safety Management program
- Geotech at the Mine

Concerns
- Recent hand injuries and potential fatal incidents
- Fatal and catastrophic risk
Kennecott’s Priorities
Rio Tinto Safety Strategy

Improving safety performance: A balanced approach

Everyone goes home safe and healthy every day

- Fatality elimination
  - Leverage SPIs
  - Embed critical controls
  - Human performance

- Reducing injuries
  - Contractor safety
  - Hazard and risk awareness
  - Severity focus
  - Workplace conditions

- Catastrophic event prevention
  - Aviation
  - Underground
  - Process safety
  - Geotech
  - HSEC in design

Hand safety

PSM
FORGING OUR FUTURE TOGETHER
IT'S IN OUR HANDS. AND IT'S UP TO US TO MAKE IT HAPPEN

KENNECOTT'S PRIORITIES

ZERO HARM
Safety is a core value in everything we do. We strive for everyone to go home safe at the end of the day.

ENGAGED, CARING & TRUSTING CULTURE
To achieve our goals, we need to value each person’s unique perspective, abilities and experience, and support one another to reach our full potential.

FREE CASH FLOW & DIVIDEND
Our shareholders have shown their confidence in us by investing in our operations. In return, we aim to deliver our contribution to the Rio Tinto dividend.

FIRST QUARTILE COST POSITION
We continue to focus on becoming a more efficient and productive operation to compete in global commodity markets. We aspire to be a first quartile producer so we can be profitable, even in periods when copper prices are low.

OUR PRODUCTS
GOLD | SILVER | COPPER | MOLYBDENUM

CONCENTRATOR, TAILINGS & WATER SERVICES
Process ore and deliver quality concentrate to the smelter while maximizing copper recovery, manage water resources and minimize dust at tailings.

MINE
Optimize resources to safely move material to meet reliable concentrator ore supply and quality requirements.

REFINERY AND UPP
Co-ordinate with the smelter on anode quality to produce cathodes and precious metals to customer requirements. Manage power to meet value stream needs.

SMELTER
Optimize chemistry through blending to convert concentrate into high-quality anodes for the refinery.

SUPPORT FUNCTIONS
Partner with operations to optimize performance and maximize value in the short and long term.
What are we measuring

Zero Harm
- AIFR/LTI
- CRM verifications
- PSM incidents
- Geotech

Engaged, caring & trusting culture
- Progress on GEES actions
- Employee engagement pulse survey

Free cash flow & dividend
- Production targets
- Free cash flow
- Working capital
- Cash generation

First quartile cost position
- Unit cost
- Copper price
- G&S spend
Current Safety Performance
Safety Performance
How Are We Doing?

RTK Contractor vs. Employee AIFR
2002 – 2015 YTD

- 3 recordable injuries from 3 different companies
- Contractor AIFR has dropped 70% compared to 2014

Fatalities 2003 & 2008
### Injury Per Body Part

<table>
<thead>
<tr>
<th>Injury Type</th>
<th>Number</th>
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<tr>
<td>LDI</td>
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</tr>
<tr>
<td>MTCI</td>
<td>6</td>
</tr>
<tr>
<td>RWDI</td>
<td>1</td>
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<table>
<thead>
<tr>
<th>Body Part</th>
<th>Number</th>
<th>%</th>
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<tr>
<td>Hands</td>
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<tr>
<td>Arm</td>
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<td>0%</td>
</tr>
<tr>
<td>Leg</td>
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<tr>
<td>Face</td>
<td>4</td>
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<td>Feet</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Body</td>
<td>1</td>
<td>10%</td>
</tr>
</tbody>
</table>
Preventing Injuries
- Hand Safety
Darn Good Question:
Hand injuries have one of the highest frequencies in our industry. How do we maintain a strong focus with our teams to reduce or eliminate hand injuries?
Copper & Coal hand safety in H1 2015

51 hand injuries were reported in the first half of 2015. That's a hand injury every 3 days.
## Injury types in 2015

<table>
<thead>
<tr>
<th>Injury Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>Lacerations</td>
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</tr>
<tr>
<td>Hidden injuries</td>
<td>![Hidden Injury Icon]</td>
</tr>
<tr>
<td>Contusions</td>
<td>![Contusion Icon]</td>
</tr>
<tr>
<td>Closed fractures</td>
<td>![Closed Fracture Icon]</td>
</tr>
<tr>
<td>Open fractures</td>
<td>![Open Fracture Icon]</td>
</tr>
<tr>
<td>Crush injuries</td>
<td>![Crush Injury Icon]</td>
</tr>
<tr>
<td>Foreign bodies</td>
<td>![Foreign Body Icon]</td>
</tr>
<tr>
<td>Amputations</td>
<td>![Amputation Icon]</td>
</tr>
</tbody>
</table>

*injuries reported in H1 2015*
Hierarchy of controls

- Elimination (remove hazard)
- Substitution (use safer material or tool)
- Engineering (provide guarding)
- Administration (training, signs, procedures, remove jewelry)
- PPE (wear gloves)
What you can do

The key to prevention is **you**

- Keep **eyes on hands** at all times
- Use **safety guards** properly
- Wear the **correct gloves** for the task
- Communicate **unsafe conditions**

**ZERO HARM**
What is Going Well/What is not Going Well Feedback

Use post it notes to stick on board:

- What is going well
- What is not going well

With a focus on zero harm

We will collate and review at the end of the session.
Exercise: What Can We Continue to Do or Stop Doing to Improve Safety?

Individual Exercise (5 min)
- Write down at least 3 items to stop or continue to do to improve safety

Table Discussion (10 min)
- Nominate a scribe and spokesperson
- Write down your ideas on a flip chart

Feedback (15 Min)
- Inform the group of your table’s ideas
Fatality Elimination
- Critical Risk Management
Is anyone going to get killed at Kennecott today?

• I hope not
• It could happen
• Based on where I work I am surprised it didn’t happen last year
• Not on my team I work with professionals
• We continue to have Potentially Fatal Incidents (PFIs) –
  1. Operator fell of dozer deck,
  2. Haul truck rolled into another haul truck,
  3. Improper lock out on an electrical panel,
  4. Code 25 dump failure,
  5. Sprayer hose was caught in a rotary dryer,
  6. Un-authorized access to mine site,
  7. Contractor drove through a loaded blast patterns,
  8. Derail of two anode rail cars
  9. Anode operator exposed to rail traffic, de-rail not locked out
  10. Single acid car rolled down grade and hit acid another acid car
  11. Shovel hit dozer, dozer’s boarding ladder penetrated the dozer’s cab
Rio Tinto 83 Fatalities: 1999 – 2015
All but two covered by our safety standards
A critical step toward zero fatality

CRM provides a means to verify that critical controls are well designed, understood, in place and working at the front line – where the risk exists.

**CRM involves:**

<table>
<thead>
<tr>
<th>Every Rio Tinto operation</th>
<th>Every critical risk</th>
<th>Every operational person</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Map of Rio Tinto operations" /></td>
<td><img src="image" alt="List of safety symbols" /></td>
<td>General manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manager / superintendent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supervisor / crew leader</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Operator/maintainer/contractors</td>
</tr>
</tbody>
</table>

Ensuring like never before that work STOPS if it’s not safe
Critical Risk Management

“What are our 22 most common Critical Risks?”

- Aircraft transport
- Confined spaces
- Contact with electricity
- Contact with molten material
- Drowning
- Entanglement and crushing
- Exposure to hazardous substances
- Fall from height
- Falling objects
- Lifting operations
- Rail collision
- Rail impact on person
- Slope failure
- Uncontrolled release of energy
- Underground fire
- Underground hazardous atmosphere
- Underground hoisting
- Underground inrush
- Underground rock fall
- Unplanned initiation of explosives
- Vehicle collision or rollover
- Vehicle impact on person
Critical Risk Management

“What are Critical Risks?”

You are expected to record your Critical Risk in your daily TRACK
What does a checklist look like?

**PATIENT**
- Patient identity confirmed
- Procedure confirmed
- Blood type, antibodies confirmed
- Allergies checked
- Blood bank number confirmed
- Medical record number confirmed
- Chart reviewed

**STERILITY/CLEANLINESS**
- Components checked for package integrity/expiration
- Equipment clean
- Heat exchanger(s) leak-tested

**PUMP**
- Occlusion(s) set
- Speed controls operational
- Flow meter in correct direction and calibration
- Flow rate indicator correct for patient and/or tubing size
- Rollers rotate freely
- Pump head rotation smooth and quiet
- Holders secure
- Servoregulated connections tested

**ELECTRICAL**
- Power cord(s) connection(s) secure
- Servoregulation connections secure
- Batteries charged and operational

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**PREBYPASS/PRIMING A/V LOOP**
- Power cords securely connected in proper Circuit
- Gas supply lines connected from wall to oxygenator
- Oxygen analyzer calibrated
- Flowmeter/blender set and functional
- Gas exhaust unobstructed and vented
- Cardiomyectomy Reservoir vented
- Heat exchanger leak tested
- Hand cranks available & emergency light tested
- Inhalant vaporizer off/level adequate & Cap Tightened
- System CO2 purged
- Solutions available
- Priming drugs added
- Occlusions Set
- Tubing direction traced & correct/no kinks Noted
- Pump speed controls operational
- Roller heads smooth and quiet
- Flowmeter in correct direction and calibrated
- Connections secure
- Debubble/leak free

**MICROPLEGIA PRIMING**
- Potassium added
- Adenosine/Magnesium/Lidocaine added
- Cardioplegia bubble detector operational & engaged
- System primed and debubbled/leak free
- Cardioplegia ratio set to blood
- Arrest & Additive settings correct
- Water Bath Temperature Set
- Verify H2O flow

**PATIENT CANNULATION & DATA**
- Present for Timeout
- Correct cannulation equipment available
- Chart reviewed, Allergies Y_N
- Pt. Height and Weight verified
- Perfusion record prepared
- Baseline I-STATS performed & recorded
- Temperature probes:
- Blood available _____ units

**WHEN ASSISTED VENOUS RETURN USED**
- N/A
- Cardiomyectomy positive press, Relief valve functional
## Critical Risk: Contact with Electricity

### Operator / Maintainer Critical Control Checklist (CCC)

<table>
<thead>
<tr>
<th>Date:</th>
<th>Shift: Day / Night</th>
<th>Duration:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Team:</td>
<td>Operation:</td>
<td>Task:</td>
</tr>
</tbody>
</table>

### Access Control
- Are the doors or gates on MCC (Motor Control Centers) and substations closed and locked? [☐ ☐ ☐]
- Is a tool (cutter, screwdriver, key, etc.) required to open electrical enclosures? [☐ ☐ ☐]
- Are 'Close Proximity Permits' being utilized as required? [☐ ☐ ☐]
- Are the panels clear and accessible? Note: Is there 3 feet of clearance in front of the panels? [☐ ☐ ☐]

### Electrical Isolation and Lockout
- Has an approved Isolation Matrix/Procedure been executed? [☐ ☐ ☐]
- Have all energy sources associated with the equipment been isolated, de-energized, and locked out as required by the Isolation Matrix/Procedure? [☐ ☐ ☐]
- Has the Test Step for the operability of equipment been conducted as required by the Isolation Standard? [☐ ☐ ☐]
- Have you locked and tagged out and verified the isolation prior to work commencing? [☐ ☐ ☐]
- Has the 'Test Step' for the "Absence of Voltage" been completed? [☐ ☐ ☐]

### Electrical PPE
- Have you selected the correct category of Arc Flash PPE for the incident energy level? Note: Check your PPE for the rating. [☐ ☐ ☐]
- Is the Electrical PPE in good condition e.g., free from rips, cuts and damage, free from contaminants such as grease and oil? [☐ ☐ ☐]

### Electrical Protection
- Are insulated rubber gloves being used and are they appropriately rated for the voltage? Note: Electrically insulated gloves are required while working in or around voltages of 50 Volts AC and 110 Volts DC and above. [☐ ☐ ☐]
- Have you conducted an inflation test on your electrical insulated gloves? [☐ ☐ ☐]
- Have the rubber gloves (being used) been electrically tested and stamped within the last 6 months? [☐ ☐ ☐]

### Non-Conductive Tools and Equipment
- Are the electrical tools being used properly rated for voltage present? [☐ ☐ ☐]
- Are the electrical tools in good condition (free from damage, etc.)? [☐ ☐ ☐]

### Verification of Zero Energy
- Has the motor been checked on a known 'live' source before and after the test for the absence of voltage? [☐ ☐ ☐]
- Is the equipment used for the Zero Energy check appropriate and in good working condition? Note: In LOW VOLTAGE situations it is not acceptable to use an induction/non-contact type tester (wiggy, etc.). [☐ ☐ ☐]
- Have you confirmed with Isolation Officer that the Absence of Voltage 'Test Step' has been performed? [☐ ☐ ☐]
Where and when do workers perform CCCs

Why is this different from a TRACK?

- Work order SWI
- Permits
- CCC For the Critical Risks
- TRACK
- The Work

How much time has elapsed since I received my work instructions?

What is the task? What do I need to complete the task safely? Who's signature do I need?

How do I refocus on the task? Did I put the controls in place for the Critical Risks? What else might Hurt me?
Tools for each layer linked to a real time portal

General managers also complete CCVS in the field

Manager / superintendent

Supervisor / crew leader

Operator / maintainer / contractor

CCVS (Formerly CCMP)

CCFV
Supervisor field verification

CCC
Checklist and frontline documentation

CCVS – Critical control verification standard
CCFV – Critical control field verification
CCC – Critical control checklist
CRM ‘essentials’ for each role

- **General manager**
  - Owns the risk and evaluates the controls via the bow-ties and critical control verification standards (CCVS)

- **Manager / superintendent**
  - Owns and evaluates controls via scheduled verifications (desk-top & field) using critical control verification standard (CCVS)

- **Supervisor / crew leader**
  - Verifies controls via regular field verification using checklist (in their area)

- **Operator / maintainer / contractor**
  - Implements controls field verification using checklists each time a task involves a critical risk (on each shift)

- **Onboarding materials**
- **Technology overview**
- **Training materials**
- **Role definitions**
- **In field practice**
Catastrophic Event Prevention - Process Safety Management
PSM Video

The following video describes a Process Safety Incident involving hot work to an agitator support structure mounted on top of a process tank.

The incident resulted in the death of the welder and serious burns to his supervisor, who was standing nearby. The top lid of the tank was completely blown off. As you will see, this event was entirely preventable.

https://youtu.be/PqskpvPejeU
Exercise: What is Process Safety Management?

Individual Exercise (5 min)
- What did you learn from the video?
- How could this incident have been prevented?
- What are the process safety hazards and risks that you and your team encounter?
- How is process safety management different than normal behavior based safety?

Table Discussion (10 min)
- Share what you individually wrote with your table group

Group Discussion (5 Min)
- Share any comments on the exercise and your learnings?
Zero Harm - What is Going Well/What Can We Improve?

- Brief Feedback from Post-it Note Exercise
RTK EXPECTATIONS FOR CONTRACTORS

• Safety Leadership at all Levels
  ➢ Active leadership in Critical Risk Management
  ➢ Knowledge of Process Safety Management (PSM) and actively lead team to manage PSM impacts
  ➢ Participate in Leadership in the Field
  ➢ Stop a job if it is not safe
  ➢ Hold employees accountable

• Employees are Fit For Duty

• Follow Contractor Management Process
Questions?
Contractor Safety Summits Attendance

- ## companies
- ## contractor leaders attended
- Senior Leader comments –
What is Going Well?
What is Going Not Going Well?
What are we going to stop or continue to do to improve safety – Feedback
What are we going to stop or continue to do to improve safety – Feedback
What are we going to stop or continue to do to improve safety – Actions
What are we going to stop or continue to do to improve safety – Actions
What happened:
• The operator of a Haul Truck, was finalizing a pre-operational inspection and noticed a box of cleaning supplies behind the seat that needed to be adjusted. As the operator reached to adjust the box, the operator's right ring finger caught on an exposed bolt screw resulting in a laceration.

Immediate actions:
• Employee called supervisor, who arranged for on-site medical attention.
• Employee transferred to local clinic and received 9 sutures and tetanus shot.
• The employee was cleared to return to work without restrictions immediately after treatment.

Preliminary causes:
• Failure to maintain awareness of surroundings

Immediate learnings and application:
• Reinforcement of focus and cultural shift required for hand safety, eyes on hands.
• When unsure about a work area/task, STOP and ask for help.
What happened:
A contractor drilling crew was performing a survey of a horizontal drain hole with a survey tool mounted to tubing. Two contractors were at the front of the rig pulling the spooled survey tubing from a reel and pushing it into the horizontal hole, while a third contractor was near the back of the rig watching the reel. The third contractor was trying to control the spin of the reel with his gloved, left hand as the other two contractors pulled tubing out of the spool. The reel accelerated and contractor attempted to slow it with his hand to prevent excessive unwinding of tubing. Contractor's hand was pulled up into a pinch point between the reel and a steel support mounted to the rig. The tip of the contractors thumb was pinched causing an open tuft fracture and laceration which required three sutures.

Immediate actions:
- Work was stopped and incident reported
- The contractor drill team was stood down and hole surveying has stopped until a controlled and safe work method is developed

Preliminary causes:
- Incorrect Workplace design
  - Improper method for controlling reel (no engineered solution)
  - Reel positioning created a pinch point
  - No design for mounting equipment
- Use of new equipment without a risk assessment

Immediate learnings and application:
- Complete risk assessment and establish safe method for task
- Prevent exposure of hands to moving components
- Identify pinch points and put controls in pace to mitigate them
- Stop and make safe work process modifications as necessary
Kennecott HSE alert - red

**Operation/Project:** Bingham Canyon Mine  
**Location:** Copperfield Shop  
**Date:** 9/24/2015  
**Preliminary classification:** Medical Treatment Case  
**Contact:** Christopher.Yeates@riotinto.com 801-201-5638

**What happened:**
- September 24, 2015 a Craftsman inspecting a sun gear on the wheel motor on the Komatsu 420 haul truck at the Copperfield Truck Shop was in the process of removing the inspection cover when the cover slipped (the cover weighed approx. 25 lbs.) out of his hands. His reaction was to catch it, which caught the tip of his index finger between the thrust washer cover and the wheel hub.

**Immediate actions:**
- Craftsman was evaluated by ERT members and it was determined that he needed additional medical attention. He was transported to the hospital. While there he received 8 sutures to his finger nail and a splint for the broken bone in the tip of his finger. Craftsman was released back to work.

**Preliminary causes:**
- Gravity and falling objects. Taproot to follow.

**Immediate learnings and application:**
- Importance of keeping focus on energy sources that can hurt your hands.
What happened:
- On October 15th, 2015 at approximately 7:30 p.m. a craftsman was working on resealing a track adjuster on the 1601 D11 Track dozer. The craftsman removed the retaining cover bolts and proceeded to remove the cover. During this process, residual oil exited the cavity and ran down his arm. The craftsman pushed the cover back into position to clean up the oil. As he was wiping up the oil, the 45lb cover plate fell approximately 3 feet and pinched the craftsman’s left hand between the concrete floor and plate.
- As a result of the impact, the ring finger on his left hand was partially amputated, and the middle finger on his left hand was fractured.

Immediate actions:
- Mayday was called
- Supervisor was made aware of the incident
- Craftsman was transported to hospital
- Job suspended
- Safety Stand-down within all of Asset Management

Preliminary causes:
- Retaining plate cover was not secured while working below
- Gravity and falling objects (stored energy)
- Craftsmen was within the line of fire
- Distracted from initial task when oil leaked on his arm

Immediate learnings and application:
- Utilize existing risk assessment tools to help identify and control hazards (CRM, TRACK)