# Incident Investigation

# Housekeeping

- First aid kits
- Fire extinguishers
- Washrooms
- Evacuation route, muster point
- Cell phones
- Breaks
- Course length

# Course Objectives

- To gain the knowledge and skills required to conduct an effective incident investigation

- Remember:
  - All incidents must be reported and investigated.
  - If we find out why and how an incident happened, we can prevent it in the future.
  - **All incidents are preventable!**

# Intro Video

- 13 minute video
- Introduction to the subject of investigation

# Secret Weapon

- Distribute *Handout 1: Blank Incident Investigation Form*
- This is the tool we use at NTPC to conduct investigations
- Structured in a way that enables a systematic and standardized approach to incident investigation

# Course Contents

1. Introduction
2. Incident Reporting
3. Investigation Basics
4. Investigation Team
5. Gather Evidence
6. Witnesses
7. Organize Evidence
8. Determine Causes
9. Corrective Actions
10. Complete Report

# 1. INTRODUCTION

- Do accidents just happen?
- What are incidents?
- Why do they matter?
- Why report them?
- Why investigate them?

# Do accidents just happen?

**NO!**

- Accidents result from hazardous conditions and unsafe behaviours that have been ignored or tolerated for weeks, months, or years.

There really are no accidents...

# Do accidents just happen?

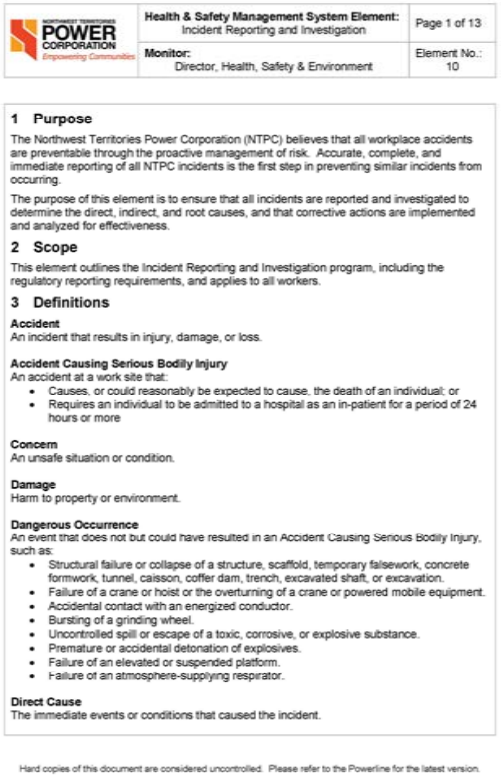
**Company attitude**

- Some companies decide to take the risk and have the attitude that:
  - *“Accidents just happen; there's nothing we can do about them."*
- Other companies (like NTPC) understand one of the key fundamentals of safety:
  - *“All incidents are preventable.”*

# Element 10: Incident Reporting & Investigation

## Purpose

- To ensure all incidents are reported and investigated to determine the root cause; and
- To ensure corrective actions are identified, implemented, and analyzed for effectiveness.
- NTPC investigates **ALL** incidents.
- Get to know the element!



| POWER CORPORATION | Health & Safety Management System Element: Incident Reporting and Investigation | Page 1 of 13 |
|---|---|---|
| | Monitor: Director, Health, Safety & Environment | Element No.: 10 |

**1 Purpose**

The Northwest Territories Power Corporation (NTPC) believes that all workplace accidents are preventable through the proactive management of risk. Accurate, complete, and immediate reporting of all NTPC incidents is the first step in preventing similar incidents from occurring.

The purpose of this element is to ensure that all incidents are reported and investigated to determine the direct, indirect, and root causes, and that corrective actions are implemented and analyzed for effectiveness.

**2 Scope**

This element outlines the Incident Reporting and Investigation program, including the regulatory reporting requirements, and applies to all workers.

**3 Definitions**

**Accident**
An incident that results in injury, damage, or loss.

**Accident Causing Serious Bodily Injury**
An accident at a work site that:
- Causes, or could reasonably be expected to cause, the death of an individual; or
- Requires an individual to be admitted to a hospital as an in-patient for a period of 24 hours or more

**Concern**
An unsafe situation or condition.

**Damage**
Harm to property or environment.

**Dangerous Occurrence**
An event that does not but could have resulted in an Accident Causing Serious Bodily Injury, such as:
- Structural failure or collapse of a structure, scaffold, temporary falsework, concrete formwork, tunnel, caisson, coffer dam, trench, excavated shaft, or excavation.
- Failure of a crane or hoist or the overturning of a crane or powered mobile equipment.
- Accidental contact with an energized conductor.
- Bursting of a grinding wheel.
- Uncontrolled spill or escape of a toxic, corrosive, or explosive substance.
- Premature or accidental detonation of explosives.
- Failure of an elevated or suspended platform.
- Failure of an atmosphere-supplying respirator.

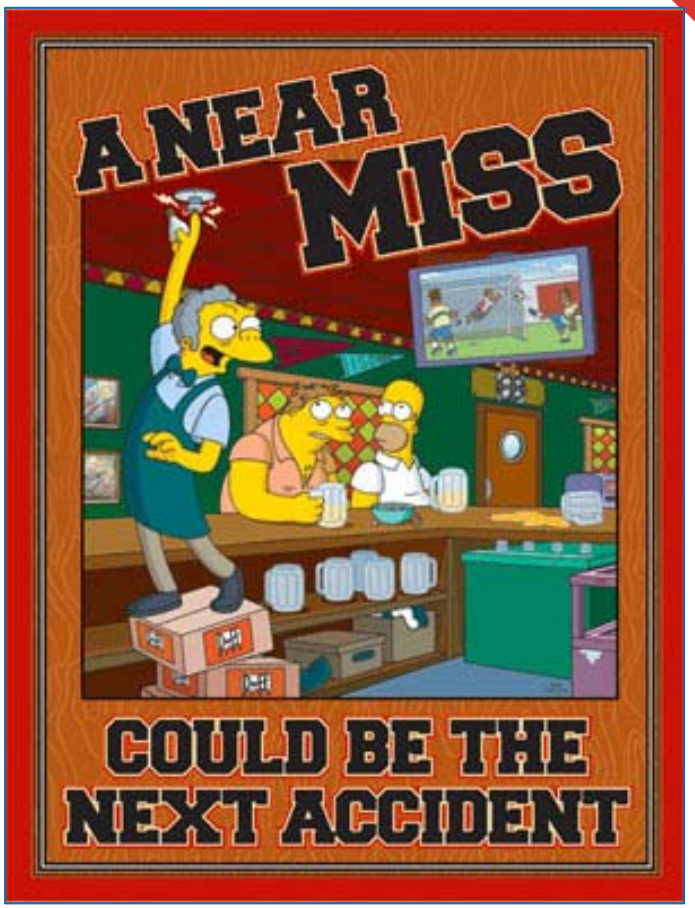
**Direct Cause**
The immediate events or conditions that caused the incident.

Hard copies of this document are considered uncontrolled. Please refer to the Powerline for the latest version.

# Definitions

**Incident**

- *An unplanned, undesired event that caused or could have caused injury, damage, or loss (either an Accident or a Near Miss).*
  - **Accident**
    - *An incident that <u>results in</u> injury, damage, or loss.*
  - **Near Miss**
    - *An incident that, under slightly different circumstances, <u>could have resulted in</u> injury, damage, or loss.*



# Definitions

**Injury**

- *Harm to a person.*

**Damage**

- *Harm to property or environment.*


**Loss**

- *Avoidable waste of any resource (e.g., equipment, materials, process, time).*

# Exercise 1: Why Report Incidents

**Why report? Why not?**

- Break into groups of 3-4
- 5-10 minutes to discuss (record your answers):
  - Why report incidents?
  - Why are some people reluctant to report?
  - Why investigate incidents?
- Reconvene class
- Have each group read out their reasons
- Discuss as required

# 10 Big Reasons People Don't Report Incidents

1. Fear of blame or discipline
2. Concern about the safety record
3. Fear for personal reputation
4. Concern about attitudes of others
5. Fear of medical treatment
6. Dislike of medical personnel
7. Desire to avoid work interruption
8. Desire to keep personal record clear
9. Avoidance of "red tape"
10. Poor understanding of importance of reporting

# Why report incidents?

**To prevent further incidents!**

- Incidents should be reported to prevent similar re-occurrences

- By understanding the causes of minor incidents, major accidents may be prevented

# Why report incidents?

**To identify trends**

- Incidents should be reported in order to identify trends

- If we see a trend, we can find ways to prevent those types of incidents

# Why report incidents?

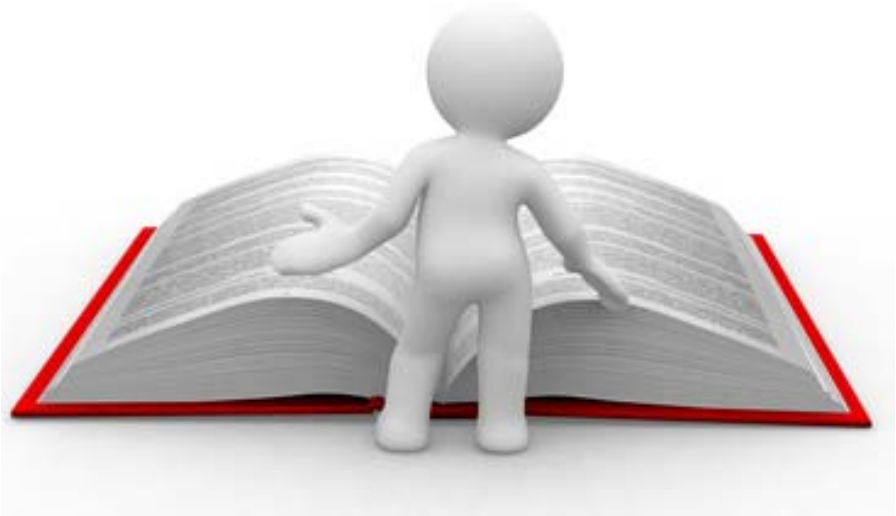
**Because it's the law.**

- Reporting incidents is a legal requirement

- Certain incidents must be reported to WSCC by the Health & Safety Dept. (e.g., medical treatment injuries)

# Why investigate incidents?

- The primary goal of incident investigation is not to place blame but to determine the causes and fix them.



# Why investigate incidents?

- To find out the causes
- Make recommendations to correct any:
  - Hazardous conditions
  - Hazardous behaviors
  - Safety management system weaknesses
- Follow up to ensure changes are made!

# Exercise 2: Incident Definitions

**Definitions**

- Discuss as a class
- 5 minutes
  - Explain the difference between:
    - Near miss
    - Accident
    - Incident
  - Provide examples of each.

# 2. INCIDENT REPORTING

- Reasonable Potential for Harm
- How to report
- When to report
- Responsibilities

# Incident Reporting

## Reasonable Potential for Harm (RPH)

- Rating applied to all incidents to help prioritize them
- *"In slightly different circumstances, what could have been the reasonable outcome?"*
  - **Low**: potential to have resulted in a First Aid Injury or minor property/environmental damage or production loss
  - **Medium**: … Medical Treatment Injury or medium …
  - **High**: … Serious Injury or Fatality or major …

| **Section E – Incident Ranking** (Reasonable Potential for Harm) | | |
|---|---|---|
| ☐ Low (potential First Aid Injury, minor property/environmental damage or production loss) | ☐ Medium (potential Medical Treatment Injury, medium property/environmental damage or production loss) | ☐ High (potential Serious Injury or Fatality, major property/environmental damage or production loss) |

# Incident Reporting

**Worker**

- Immediately reports incident to manager (verbally)
- Completes page 1 of *Form 10.1: Incident Report*
  - Be as detailed as possible
  - Assigns RPH from his/her perspective
  - Sends report to manager

# Incident Reporting

**Manager**

- Ensures injured workers receive any required medical attention
- Speaks with worker to review page 1 and get an understanding of the incident
- Completes page 2
  - Assigns RPH from his/her perspective
  - Lists actions taken immediately after incident
  - List any further actions required
- Sends to HSE Director **within 24 hours of incident**

# Incident Reporting

**HSE Director**

- Reviews incident report
- May adjust the RPH – has the final say
- Determines level of investigation required (1, 2, 3)
- Requests manager (usually) to lead investigation
- Sends all incident reports to JOHSC and Senior Management for review at their meetings

# Incident Reporting

**When a contractor has an incident**

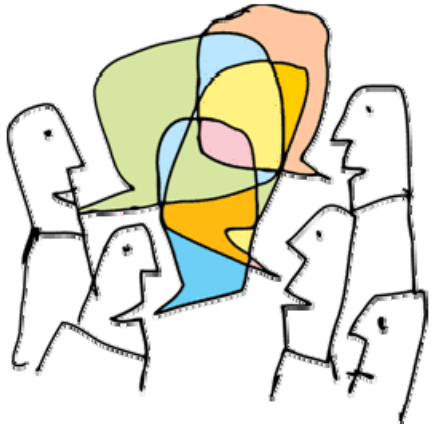
## Contractors

- The supervisor of the contractor ensures an incident report is completed and sent to the Project Manager
- Project Manager forwards it to the HSE Director
- Contractors must complete an investigation if medium or high RPH and send to NTPC

# Exercise 3: Incident Reports

**Reporting an Incident** (10-15 minute class discussion)

- Distribute *Handout 2: Sample Incident Report*
- Discuss the following questions:
  - What is RPH?
  - Who completes the form?
  - Who does it go to?
  - When is it due?
  - Why is it important to be thorough?



- Review the sample Incident Report on the following page

# Exercise 3

- Worker completes page 1
- Includes as many details as possible
- Sends to Manager

| NORTHWEST TERRITORIES POWER CORPORATION *Empowering Communities* | **Health & Safety Management System Form:** Incident Report | Page 1 of 2 |
|---|---|---|
| | **Monitor:** Director, Health, Safety & Environment | Form #: 10.1 |

*Sections A-E to be completed by worker.*

| **Section A – Incident Details** | | | |
|---|---|---|---|
| Date & time of incident: | Date: Oct. 29, 2018<br>Time: 10:15 am | Date & time reported: | Date: Oct. 29, 2018<br>Time: 11:30 am |
| Reported by: | Name: B. Jones<br>Position: Plant Superintendent | Reported to Manager: | Name: R. Pendragon<br>Position: Manager, Plant Operations |
| Incident location: | On walkway outside of Paulatuk Plant | | |
| Incident description (attach sketch if necessary): | After walking out of the plant to work in the yard I slipped on some ice on the walkway and fell. I landed on my right knee and right elbow (both painful) and when I got up I had a sore back. I went to the health centre. It was about -25°C with a bit of snow on the ground. I was wearing my winter steel toed work boots. | | |

| **Section B – Type of Incident** | | |
|---|---|---|
| ☒ Injury<br>☐ Illness | ☐ Property Damage<br>☐ Environmental | ☐ Production Loss<br>☐ Near Miss |

| **Section C – Injury** | | | |
|---|---|---|---|
| Injured party: | Name: B. Jones<br>Position: Plant Superintendent | Phone: 580-3141<br>Email: bjones@ntpc.com | ☒ NTPC employee<br>☐ Contractor<br>☐ Member of the public |
| Address: | 123 Slippery Way, Paulatuk NT, X0E 1N0 | | First aid provided: ☒Y ☐N<br>Medical treatment provided: ☐Y ☐N |
| Description of injury: | Bruised right knee and right elbow, sore back | | |

| **Section D – Property/Environmental Damage** | |
|---|---|
| Description of damage: | |

| **Section E – Incident Ranking** (Reasonable Potential for Harm) | | |
|---|---|---|
| ☒ Low (potential First Aid Injury, minor property or environmental damage) | ☐ Medium (potential Medical Treatment Injury, medium property or environmental damage) | ☐ High (potential Serious Injury or Fatality, major property or environmental damage) |

Send completed form to your manager and to the HSE Director by email or fax (1-888-458-4627).

# Exercise 3

- Manager completes page 2
- Sends to their Director and to HSE Director
- Manager follows up to ensure action items completed

| NORTHWEST TERRITORIES POWER CORPORATION *Empowering Communities* | **Health & Safety Management System Form:** Incident Report | Page 2 of 2 |
|---|---|---|
| | **Monitor:** Director, Health, Safety & Environment | Form #: 10.1 |

*Sections F- I to be completed by manager.*

| **Section F – Incident Ranking** (Reasonable Potential for Harm) | | |
|---|---|---|
| ☒ Low (potential First Aid Injury, minor property or environmental damage) | ☐ Medium (potential Medical Treatment Injury, medium property or environmental damage) | ☐ High (potential Serious Injury or Fatality, major property or environmental damage) |

**Section G – Immediate Actions Taken**

*Hierarchy of Controls: 1) Elimination 2) Substitution 3) Engineering 4) Administration 5) PPE*

| Action | Responsible Party | Date Completed |
|---|---|---|
| Went to nursing centre | B. Jones | 10-29-18 |
| | | |
| | | |
| | | |
| | | |

**Section H – Further Corrective Actions**

| | Action | Responsible Party | Due Date | * Date Completed |
|---|---|---|---|---|
| 1 | Use salt and sand on icy walkway daily | B. Jones | 10-29-18 | 10-29-18 |
| 2 | Wear YakTrax when working outside in winter | B. Jones | 10-29-18 | |
| 3 | Discuss winter slips and falls at next safety meeting | R. Pendragon | 10-31-18 | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |

**Section I – Management Review**

| Name: R. Pendragon | Position: Manager, Plant Ops | Review date: 10-29-18 |
|---|---|---|

Comments: Bobby has filled out Worker's Report of Injury. Nurse has provided clearance to return to full duties.

**Section J – Health & Safety Department Review**

| Name: M. Maxwell | Position: Thermal H&S Coord. | Review date: 10-30-18 |
|---|---|---|

Comments: I will send a presentation on winter slips and falls to you for your health & safety meeting.

* Inform HSE Director of corrective action completion dates.

# 3. INVESTIGATION BASICS

- Process
- Tools
- Responsibilities
- Methods

# Investigation Basics

**Purpose of Incident Investigation**

- To identify the root, direct, and indirect causes of incidents…
- … so that controls can be put in place to prevent future incidents.


**Important:**

- Investigations seek facts in order to improve workplace health & safety, not to find fault or lay blame.
- Entirely separate from any potential disciplinary procedures.

# Investigation Basics

**NTPC's goal is to:**

- Determine what happened
- Identify any unsafe conditions, acts, or procedures
- Determine the:
  - Direct causes
  - Indirect causes
  - Root causes


- Identify practical corrective actions
- Improve the Health & Safety Management System

# Investigation Basics

**3 Step Process**

1. Gather information
2. Analyze the facts
3. Implement the solutions

**Important**

- Always investigate as soon as possible!

# Investigation Basics

**Why investigate as soon as possible?**

- Accuracy of the evidence:
  - The longer you wait to investigate, the more likely the accuracy of the evidence may suffer
  - Memories can fade over time, especially with traumatic events
  - Emotions and conversations with others can distort what people believe they saw and heard

- Material evidence:
  - Somehow tools, equipment, and sometimes people just seem to move or disappear from the scene

# Investigation Basics

**Tools required for investigation**

- Investigation Kit
  - Camera
  - Voice recorder
  - Tape measure
  - Paper, pen
  - PPE
  - Witness Interview forms
  - Investigation form
  - What else???

# Investigation Basics

**Don’t fall into investigation traps**

- Put emotions aside!
  - Don’t let your feelings interfere; stick to the facts
  - Don’t pre-judge what happened and why
  - Find out what really happened
  - Don’t let your beliefs cloud the facts
  - Don’t record witness opinions as facts, but as opinions

# Investigation Basics

**Investigation Steps**

1. Assemble the Investigation Team
2. Survey the Scene and Gather Evidence
3. Interview Witnesses
4. Organize the Evidence
5. Analyze all Information
6. Recommend Corrective Actions

# 4. INVESTIGATION TEAM

- Determine investigation level
- Request investigation
- Responsibilities
- Level 1, 2, 3 requirements

# Investigation Team Basics

**Teamwork is the key – it is essential**

- Investigation team assembled as requested by HSE
- Team meets to coordinate the investigation
- Together the team investigates:
  - Scene survey
  - Witness interviews
  - Document review

- Identifies unsafe conditions, acts, procedures
- Determines causes (direct, indirect, root)
- Recommends corrective actions

# Investigation Level

- HSE Director
  - Determines investigation level based on Reasonable Potential for Harm (RPH)

| Level | RPH | Investigated By | Form Used | Timeline |
|---|---|---|---|---|
| 1 | Low | Manager | Incident Report | 1 day |
| 2 | Medium | Small team (2-4) | Incident Investigation | 2 days |
| 3 | High | Large team (min 2) | Incident Investigation | 5 days |

# Request Investigation


- HSE Director requests the investigation:
  - Asks Manager to lead the investigation
  - Asks JOHSC and HSE to provide team members
- Team Lead may add other workers/managers as needed
  - Workers with relevant experience in the field of the incident
  - External specialists with appropriate technical knowledge
- JOHSC participates in **ALL** investigations, either:
  - As investigators; or
  - By reviewing investigations and making recommendations

# Investigation Team

- The Investigation Team should:
  - Have technical and investigative skills
  - Have expertise in areas related to the incident
  - Come from various backgrounds

- The Team Lead must:
  - Be trained and competent in the investigation process
  - Facilitate rather than dominate
  - Liaise between Senior Management and the Team

# Level 1 Investigation

- Incidents with a **Low RPH: Level 1**
- Documented on page 2 of *Form 10.1: Incident Report*
- Investigated by Manager:
  - Discusses incident with the worker to understand what happened and why
  - Records the immediate actions taken after incident
  - Records further actions required to prevent a similar incident from happening, assigns accountable parties and due dates
- To be completed within 1 working day of the incident

# Level 2 Investigation

- Incidents with a **Medium RPH: Level 2**
- Documented on *Form 10.2: Incident Investigation*
- Investigation team:
  - Team Lead is typically the manager
  - Team size is from 2 to 4 members
- Must be started within 24 hours of the incident
- To be completed within 2 working days of the incident

# Level 3 Investigation

- Incidents with a **High RPH: Level 3**
- Documented on *Form 10.2: Incident Investigation*
- Investigation team:
  - May be led by a member of the H&S Department
  - Same team composition as for Level 2, except there can be as many team members as the Team Lead sees fit


- Must be started within 24 hours of the incident
- Preliminary report to HSE within 2 working days of the incident
- Final report completed within 5 working days of the incident

# Exceptions

- Manager (or other workers) shall be excluded from the investigation team when directly involved:
  - In a Medium or High RPH incident; or
  - In the project/job relating to the incident.
- Investigation timelines or team composition may be adjusted with approval from the HSE Director

# Investigation Team

**In preparation**

- Meet as a team to go over the:
  - Investigation boundaries
  - Authority and responsibilities of the Team Lead and members
  - Safety requirements (e.g., PPE, emergency plan)
  - Any site specific procedures (e.g., notification requirements)
  - Timeline for report completion
  - Legal privilege requirements
  - Incident report

# Investigation Team

**In preparation**

- To prepare for the investigation:
  - Select an investigation headquarters with a private area available for interviewing witnesses
  - Prepare interview questions:
    - General questions for all witnesses
    - Specific questions for specific witnesses
    - Use *Form 10.3: Witness Interview*
  - Plan and schedule site visits, data gathering, and interviews
  - Allocate tasks and time frames to team members

# 5. GATHER EVIDENCE

- Visit the scene
- Document the scene
- Gather evidence
- Gather documents

# Visit the Scene

- Site visits
  - It may not always be necessary to visit the scene
  - It may not always be possible to visit the scene
  - But in some cases it is absolutely necessary to visit the scene
- Secure the scene
  - Barricade the area if necessary
  - Preserve evidence
  - Control access to the area

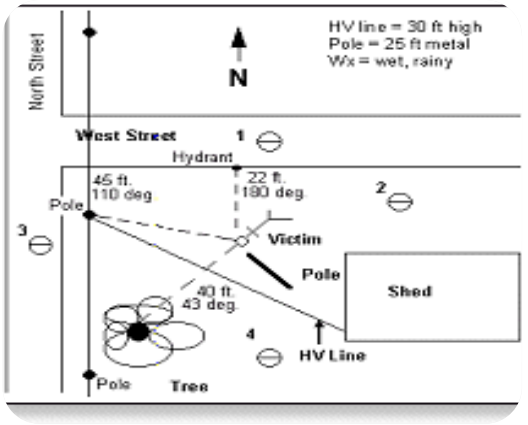
# Scene Survey

**While on site**

- Survey the scene:
  - Identify and notify potential witnesses
  - Document the scene
    - Sketches and measurements
    - Photos and videos
    - Notes
    - Voice recordings
  - Record preliminary observations

# Gather Evidence

- Sketching the incident scene
  - Note date, time, location, identity of objects, victims
  - Note spatial relationships, take measurements
  - Make notes on sketches when interviewing witnesses
  - Mark where people were standing
  - Be as precise as possible
  - Show where photos were taken



# Gather Evidence

- Challenges
  - It's challenging to determine:
    - What is relevant to what happened
    - Why it happened
    - How it happened
  - An effective strategy:
    - Try to involve all the senses
    - Document as much as possible, even if you question relevance
    - Consider all items at the scene important and potentially relevant

# Gather Evidence

**Fill in the gaps**

- When gathering evidence:
  - Identify the final event of the incident
  - Gather data that fills in the complete picture of what happened from the beginning to the end of the incident
  - Ensure the evidence is factual about actions that were seen, heard, or done
  - Document and gather foreign objects or broken pieces of equipment
  - Take samples of substances/fluids

# Gather Evidence

## Documentation

- Documentation review may shed light on factors that contributed to the incident:
  - Training records
  - Quality of Tailboard meeting and hazard assessment
  - Use of Safe Work Practices and Safe Job Procedures
  - Equipment inspection & maintenance records
  - Work Protection in place
  - PPE used

# Gather Evidence

## Documentation

- Documentation review will show:
  - Whether proper documentation is taking place, and whether it is being done correctly. For example:
    - Crane logs
    - Monthly inspection reports
    - Equipment inspections
    - Tailboard meetings
  - Review of documents can often lead to corrective actions that will improve the way we do work

# Gather Evidence

**Gather all pertinent documentation** (see Investigation Form)

| Section D – Supporting Evidence | | | | | |
|---|---|---|---|---|---|
| **Item** | **Available** | **Attached** | **Item** | **Available** | **Attached** |
| Safety orientation: | ☐Yes ☐No | ☐Yes ☐No | Site orientation: | ☐Yes ☐No | ☐Yes ☐No |
| Tailboard meetings: | ☐Yes ☐No | ☐Yes ☐No | Project safety plan: | ☐Yes ☐No | ☐Yes ☐No |
| Photographs: | ☐Yes ☐No | ☐Yes ☐No | Diagram of incident: | ☐Yes ☐No | ☐Yes ☐No |
| Audio recording: | ☐Yes ☐No | ☐Yes ☐No | Video recording: | ☐Yes ☐No | ☐Yes ☐No |
| Safe Work Practices: | ☐Yes ☐No | ☐Yes ☐No | Safe Job Procedures: | ☐Yes ☐No | ☐Yes ☐No |
| Training records: | ☐Yes ☐No | ☐Yes ☐No | Maintenance records: | ☐Yes ☐No | ☐Yes ☐No |
| Work Protection: | ☐Yes ☐No | ☐Yes ☐No | Worksite visits: | ☐Yes ☐No | ☐Yes ☐No |
| Contract documents: | ☐Yes ☐No | ☐Yes ☐No | RFP/tender: | ☐Yes ☐No | ☐Yes ☐No |
| Daily meetings: | ☐Yes ☐No | ☐Yes ☐No | Safety meetings: | ☐Yes ☐No | ☐Yes ☐No |
| Emergency plan: | ☐Yes ☐No | ☐Yes ☐No | Logbook entries: | ☐Yes ☐No | ☐Yes ☐No |
| H&S Program: | ☐Yes ☐No | ☐Yes ☐No | Contractor qualification: | ☐Yes ☐No | ☐Yes ☐No |

# Gather Evidence

**Make observations**

- Housekeeping
- Climate conditions
- Weather conditions
- Lighting levels
- Noise levels
- Positions of injured workers
- Evidence of wildlife/insects
- Equipment being used
- Materials being used
- Safety devices in use
- Position of appropriate guards
- Position of machinery control
- Damage to equipment
- Slip/trip hazards

- Distribute *Handout 3: Scene Survey Guide*, review

# 6. WITNESSES

- Purpose of interviews
- Tips
- Voice recording
- Question styles

# Interview Witnesses

## Purpose of interviews

- Confirm and explain what has happened
- Corroborate other witness accounts of the incident
- Get suggestions on how the incident could have been prevented

# Interview Witnesses

**3 types of witnesses**

1. Those who saw the events leading up to the incident
2. Those who actually witnessed the incident or were involved
3. Those who arrived after the incident

# Exercise 4: Who to Interview

**Who should be interviewed?**

- Class discussion
- 5-10 minutes to discuss
  - List the people an investigator might wish to interview
  - Consider people who may have knowledge of:
    - The incident;
    - The people involved; and/or
    - The response.

# Interview Witnesses

## People to consider interviewing

- The victim
- Co-workers
- Direct supervisor
- Manager
- Training department
- HSE department
- Maintenance personnel
- Emergency responders
- Medical personnel
- Victim's spouse, family
- Other interested persons

# Interview Witnesses

## Interviewing tips

- Interview witnesses individually, not together
- Consider and respect expertise of witness
- Assess credibility
- Record the interview using a voice recorder
- Follow-up and ask more questions if necessary

# Interview Witnesses

## General principles

- Preparation
  - … is everything!
- Timeliness of interview
  - Memories are perishable, risk of memory contamination
- Location
  - Set witness at ease, use environmental cues to aid recall
- Build rapport
  - Put at ease; being questioned and recorded is uncomfortable

# Interview Witnesses

## General principles

- Status
  - De-emphasize rank or status
- Language
  - Avoid overly technical terms, jargon, and acronyms
- Emotional state
  - Allow for anxiety, stress, confusion

# Interview Witnesses

## Commencing the interview

- Set the right tone for cooperation
  - Introduce yourself
  - Non-threatening environment
  - Establish a rapport with the witness
  - Describe the purpose of the interview
- Describe your role in the investigation:
  - To find out the causes of the incident
  - To prevent the same thing from happening again

# Interview Witnesses

## Voice Recording

- Using a voice recorder
  - Capture interviews with a voice recorder wherever possible
  - Much more efficient and thorough than writing notes
- Obtain permission
  - Explain why you're using a recorder
  - Obtain the witness' permission to record the interview before recording
  - If the witness refuses, note that they refused

# Interview Witnesses

## Voice Recording

- Record the following:
  - Name of the interviewers
  - Date of interview
  - Name of witness
  - Subject of interview

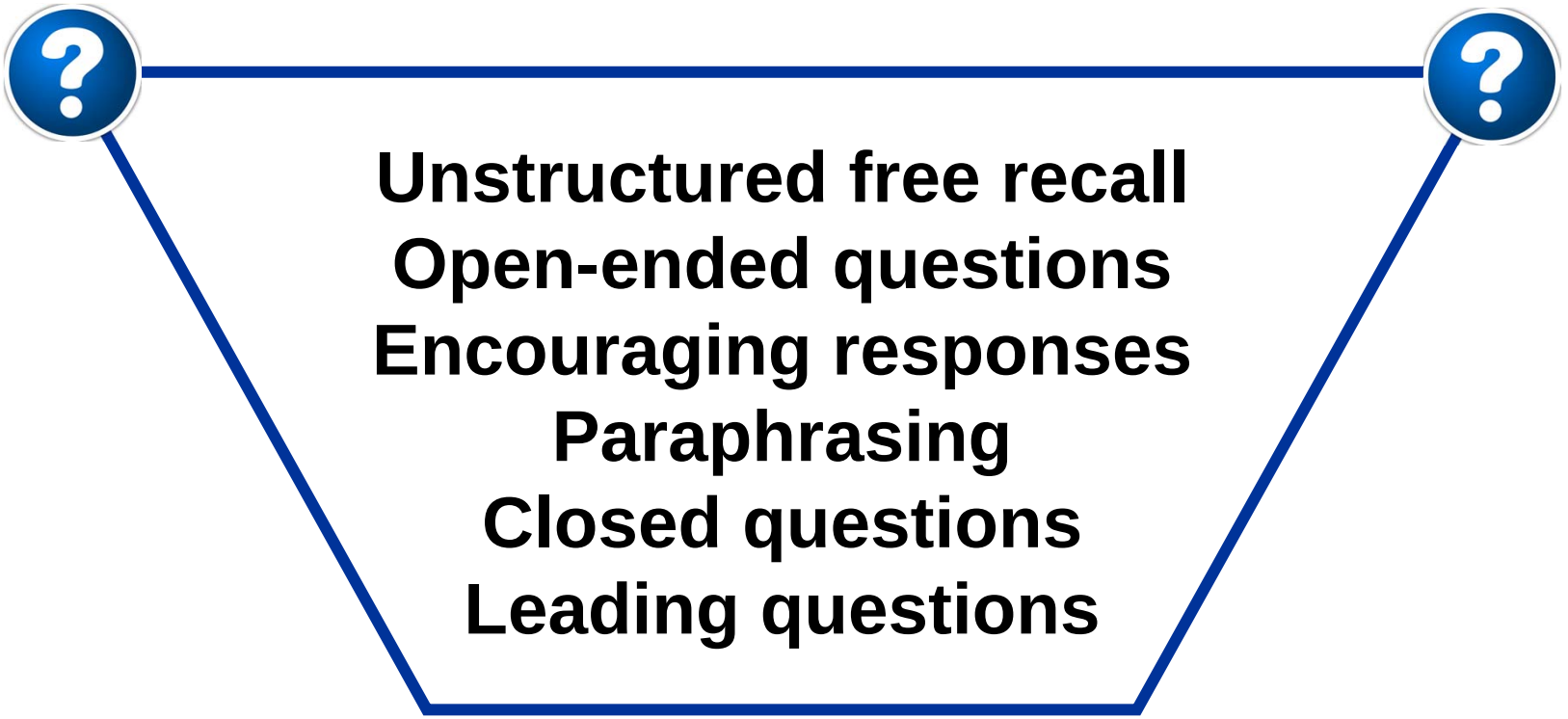
# Interview Witnesses

## Preparing interview questions

- Prepare some questions beforehand to guide the interview
- Distribute *Handout 4 – Witness Interview Form*
- The form already contains some generic questions which can be kept, changed, or removed
- The prepared questions are a starting point – answers will likely prompt more questions as more information surfaces, so keep good notes
- The following slides cover various questioning techniques

# Interview Witnesses

## Hierarchy of Questioning Techniques



# Interview Witnesses

**Unstructured free recall**

- Used to allow the witness to provide a full account of what happened
- Used to gain a general understanding of what occurred, and to identify further lines of questioning
- Examples:
  - Can you tell me about the incident?
  - What happened on March 15?

# Interview Witnesses

**Open-ended questions**

- Used to encourage a broad-ranging, lengthy response to open-up the discussion
- Examples:
  - Tell me again what happened after...?
  - Can you describe what you saw next?
  - What happened then?
  - Can you tell me what he was doing then?
  - Can you tell me about your workload that morning?

# Interview Witnesses

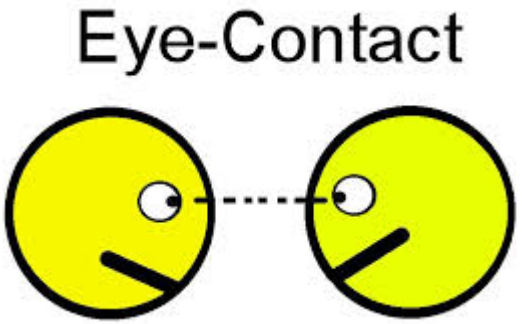
## Encouraging responses

- Any verbal and non-verbal means by which the listener encourages the speaker to continue talking
- Used to:
  - Listen, actively
  - Indicate ‘tracking,’ following and understanding
  - Encourage further comment
  - Indicate support or empathy
  - Avoid influencing the direction of conversation

# Interview Witnesses

**Encouraging responses**

- Examples:
  - Head nods
  - Facial expressions
  - Body language, attentiveness
  - Voice tone, level
  - Minimal speech: ‘uh-huh,’ silence
  - Eye contact
  - Brief repetition of words



# Interview Witnesses

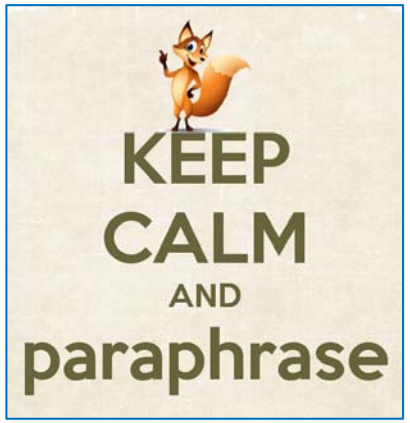
**Paraphrasing**

- Re-stating in summarized form
- Used to:
  - Clarify what has been said
  - Confirm perception: that the message received was the message sent
  - Demonstrate active listening and concern to hear accurately

# Interview Witnesses

## Paraphrasing

- Examples:
  - You saw the truck cross the center line of the road before it swerved to the left and down the embankment?
  - You're saying he was quite upset about failing the exam?
  - You said there was a flash, then a loud noise before the supervisor ran out?
  - If I understand you correctly, his behavior was the same as usual that day?



# Interview Witnesses

**Closed questions** (includes multiple choice)

- Questions that require only a single word or short answer
- Used to:
  - Seek detail
  - Probe for qualification and specifics
  - Encourage precision in recall
  - Obtain factual information
  - Break down a complex response

# Interview Witnesses

**Closed questions** (includes multiple choice)

- Examples:
  - Exactly where were you standing?
  - What direction were you facing?
  - What speed would you say the vehicle was travelling at?
  - How much time did it take you to reach the site?
  - Who did you contact first?
  - Have you taken driver training?

# Interview Witnesses

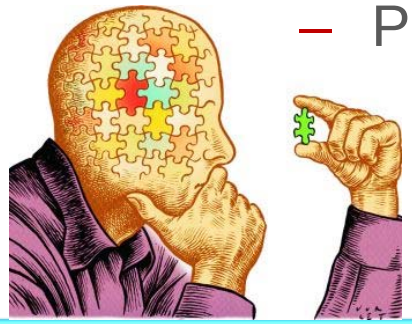
## Leading questions

- Questions which lead the witness to a desired or expected answer
- Examples:
  - Were the sparks still coming from behind the rear wheels?
  - Had the contractors arrived at site in the past without their PPE?
  - Did you actually see the aircraft hit the ground, or is that what other people have said?

# Exercise 5: Questioning

**Use Each Style of Interview Questions and Techniques**

- Groups of 3 (1-on-1 interviews, 1 observer, then switch)
- Spend 5-10 minutes on a subject of your choice
  - Unstructured free recall questions
  - Open-ended questions
  - Closed questions
  - Leading questions
- Listening Techniques
  - Encouraging responses
  - Paraphrasing



# Interview Witnesses

## Experience is key

- Remember, good interviewing is not easy.
- We all have to work hard at it!
- Take the time to prepare well.

# 7. ORGANIZE EVIDENCE

- Fill gaps
- Re-interview

# Organize the Evidence

- Why organize evidence?
  - To help develop a mental picture of what happened
  - To put all the facts together in the order in which they occur
  - Make sure there is enough evidence, no gaps, and that the evidence makes sense

- If you identify gaps in the information, you must re-interview witnesses to answer additional questions and confirm facts
- Ensure all gaps are filled
- Ask the 6 questions: who, what, where, when, why, how

- Distribute *Handout 5: Information Analysis Guide*, review

# Organize the Evidence

**Lay out the sequence of events**

- It must be easy for someone with no prior knowledge of the incident to read the report and understand the chain of events with no steps missed and no assumptions to make
  - Worker #1 returned to work at 12:30 pm after eating lunch to continue laying irrigation pipes
  - At approximately 12:45 pm Worker #1 began dumping accumulated sand from an irrigation mainline pipe
  - Worker #1 oriented the pipe vertically and it contacted a high voltage power line directly over the work area
  - Worker #2 heard a "zap" and turned to see the mainline pipe falling and Worker #1 falling into an irrigation ditch

# 8. DETERMINE CAUSES

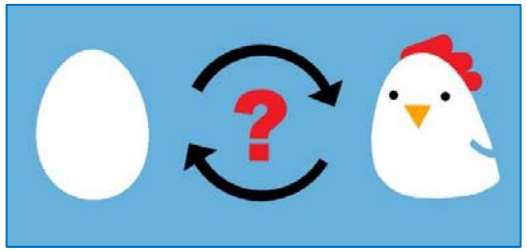
- 3 types of causes
- 5 whys
- Examples

# Definitions

## 3 types of causes

### Direct Cause

- *The immediate events or conditions that caused the incident (i.e., the harmful transfer of energy).*




### Indirect Cause

- *An event or condition that, combined with other indirect causes, increased the likelihood of the incident (but individually did not cause the incident).*

### Root Cause

- *Factors that, if corrected, would prevent recurrence of the same or similar incidents (i.e., personal factors, job factors, supervisory performance, management policy).*

# Identifying Causes

## Direct Causes

- Results of the incident (harm or damage)

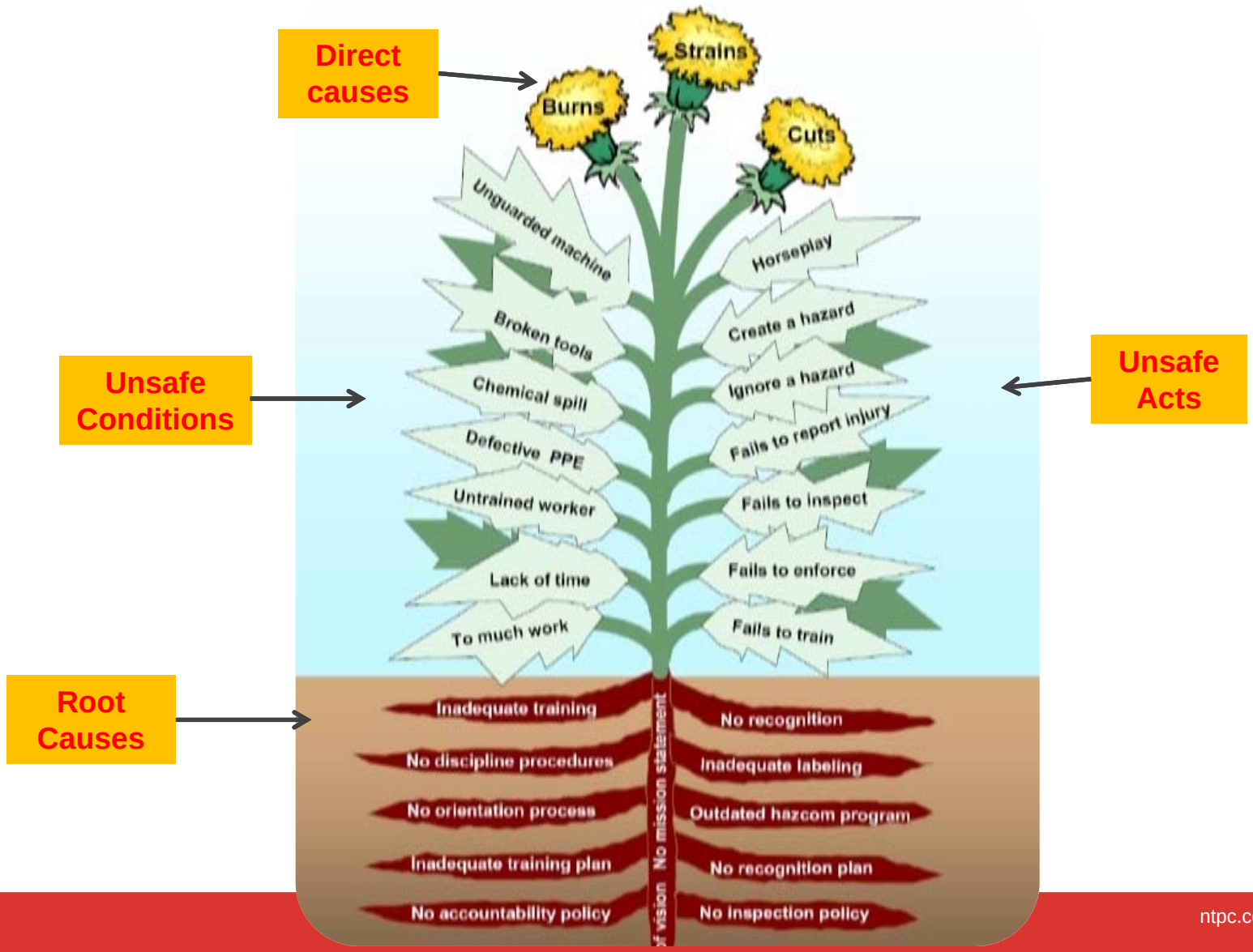
## Indirect Causes

- Contributing causes (symptoms)

## Root Causes

- Basic /Root causes (real problems)

# Causes


Direct causes
Unsafe Conditions
Unsafe Acts
Root Causes
Strains
Burns
Cuts
Unguarded machine
Broken tools
Chemical spill
Defective PPE
Untrained worker
Lack of time
To much work
Horseplay
Create a hazard
Ignore a hazard
Fails to report injury
Fails to inspect
Fails to enforce
Fails to train
Inadequate training
No discipline procedures
No orientation process
Inadequate training plan
No accountability policy
No mission statement
No recognition
Inadequate labeling
Outdated hazcom program
No recognition plan
No inspection policy

# Causes

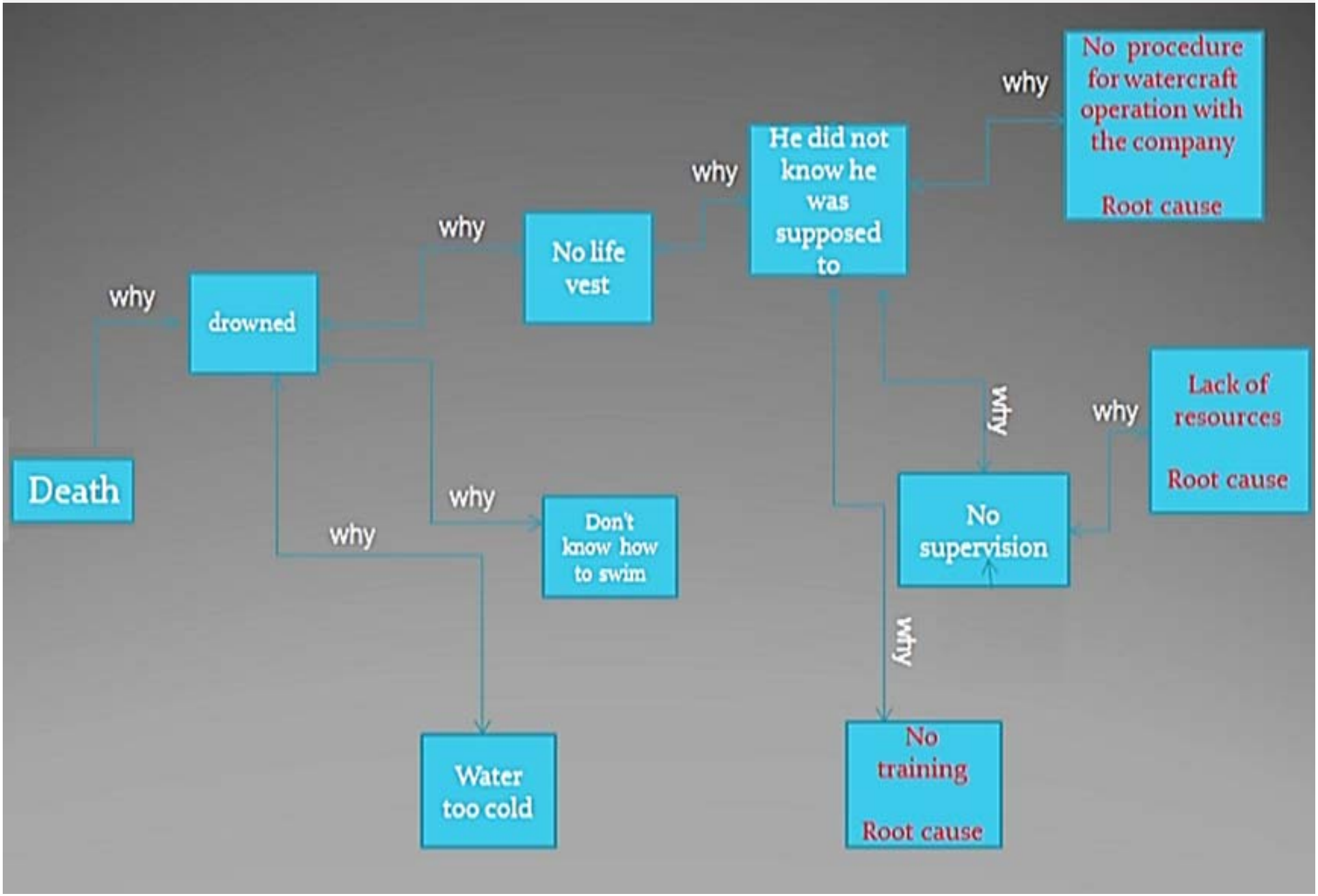

**Root Causes**

# Five Whys

**How do we figure out the causes?**

- The team reviews all evidence and information collected
- Uses the “5 Why” process to determine the direct, indirect, and root causes of the incident
  - Keep asking “Why?” until the root causes are found
- Use the checklists in the *Incident Investigation* form to help determine the causes

# Root Cause Analysis



# Direct Causes

**The Direct Cause of an incident is a transfer of energy**

| Section G – Direct Causes | | | |
|---|---|---|---|
| ☐ Animals or insects<br>☐ Caught in, between<br>☐ Chemical contact<br>☐ Communications<br>☐ Electrical energy<br>☐ Environmental | ☐ Fall from <3m<br>☐ Fall from >3m<br>☐ Fall at same level<br>☐ Fire<br>☐ Maintenance<br>☐ Noise or vibration | ☐ Outage<br>☐ Overexertion<br>☐ Repetitive strain<br>☐ Slip, trip, fall<br>☐ Struck against<br>☐ Struck by | ☐ Temperature extreme<br>☐ Vehicle<br>☐ Violence<br>☐ Work Protection<br>☐ Other |

# Indirect Causes

**These contributed to the incident, but didn't directly cause it**

| Section H – Indirect Causes | |
|---|---|
| **Substandard Practices** | **Substandard Conditions** |
| ☐ Not operating with authority<br>☐ Not using serviceable equipment<br>☐ Not using equipment properly<br>☐ Not using PPE where required<br>☐ Not correct lifting<br>☐ Alcohol & drugs<br>☐ Horseplay<br>☐ No secure equipment or warnings<br>☐ Other procedural non-conformance | ☐ Not effective guards & devices<br>☐ Not serviceable tools & equipment<br>☐ Not adequate warning systems<br>☐ Poor housekeeping<br>☐ Polluted environment<br>☐ No noise management<br>☐ No hazardous substances management<br>☐ Poor illumination & ventilation<br>☐ Other |

# Root Causes

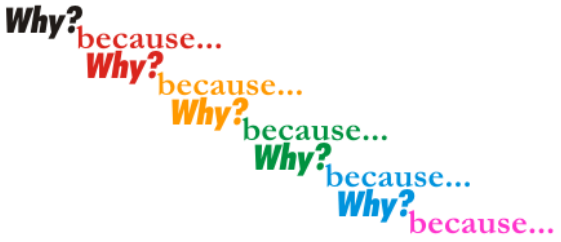
**If these were corrected, the incident would not have happened**

| Section I – Root Causes | | | |
|---|---|---|---|
| **Personal Factors** | **Job Factors** | **Supervisory Performance** | **Management Policy** |
| ☐ Lack of skill or knowledge<br>☐ Improper motivation<br>☐ Physical or mental conditions<br>☐ Literacy or ability<br>☐ Other | ☐ Physical environment<br>☐ Substandard equipment<br>☐ Abnormal usage<br>☐ Wear & tear<br>☐ Design/maintenance<br>☐ Purchasing standards<br>☐ Change introduced<br>☐ Other | ☐ Inadequate instruction<br>☐ Inadequate Job Safety Analysis<br>☐ Rules not enforced<br>☐ Hazards not controlled<br>☐ Devices not provided<br>☐ Other | ☐ Safety Management System Element failure<br>☐ Inadequate Safe Work Practices or Safe Job Procedures<br>☐ Inadequate supervision provided<br>☐ Training programs not provided or inadequate<br>☐ Other |

# Five Whys

**Simplified example: a man slipped and fell, breaking his hip**

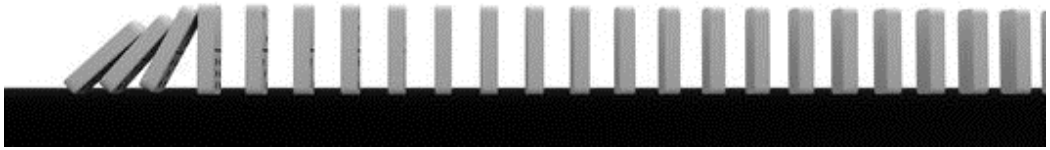
- Keep asking "Why?" until the root causes are found
  - Why did his hip break? Because he landed on the ice. *Direct Cause: Struck against.*
  - Why did he land on the ice? Because he fell.
  - Why did he fall? Because his feet slipped on the ice.
  - Why did his feet slip on the ice? Because he wasn't wearing his YakTrax. *Indirect Cause: Not using PPE when required*.
  - Why wasn't he wearing YakTrax? The company provides them, but doesn't *require* them. *We have a Root Cause: Safety Management System Element Failure*.



# Exercise 6: Determining Causes

**Categorizing Causes**

- Get into groups of 3
- Use *Handout 1: Blank Incident Investigation*
- 10-15 minutes
- Discuss each of the causes on the next three slides and determine which category they fall into
- Write them onto the Incident Investigation form



# Exercise 6: Determining Causes

## Direct Causes

- Place each cause in the proper category (section G):
  1. Sleeve grabbed by rotating shaft
  2. Truck stuck in snow bank
  3. Back seized up while shovelling snow
  4. Hammer falls from roof, nearly hits worker
  5. Waste oil spilled on ground
  6. Tripped and landed on floor hurting knee

- Write causes as "*Fire: wall scorched by flames*"

# Exercise 6: Determining Causes

## Indirect Causes

- Place each cause in the proper category (section H):
  1. Rotating shaft was not covered
  2. Worker had never driven in snow
  3. Lifted snow with back (not knees)
  4. Area below roof not barricaded
  5. Waste drums not capped
  6. Tripped over boxes in doorway


- Write causes as "*Horseplay: workers were wrestling*"

# Exercise 6: Determining Causes

**Root Causes**

- Place each cause in the proper category (section I):
  1. Shaft guard was removed but not replaced
  2. Worker had no winter driving training
  3. No Safe Work Practice in place for shovelling
  4. Tailboard did not identify need for barrier
  5. Worker forgot waste handling procedures
  6. Boxes left in doorway

- Write causes as "*Wear & tear: too many km on tires*"

# 9. CORRECTIVE ACTIONS

- How to choose effective ones
- Responsible parties
- Due dates

# Corrective Actions

**Now what?**

- So far we've
  - Interviewed witnesses
  - Taken photos and video
  - Sketched the scene
  - Collected documents
  - Taken notes on observations
  - Organized the evidence
  - Determined the direct, indirect, and root causes

- What are we going to do about it?

# Corrective Actions

**Assign corrective actions**

- Assigning the right corrective actions is critical
- Make improvements that will prevent recurrence
- Corrective actions must be effective, but they must also be achievable and reasonable
- Example of corrective actions for a transmission line outage:
  - Bad: "*Connect transmission line to Alberta so no more outages*"
  - Good: "*Install lightning arrestors to help prevent outages*"
- Note: "*Be more careful*" is not an acceptable corrective action

# Corrective Actions

**Corrective actions must be SMART**

- **S**pecific (not general)
  - "*Train electrical staff*" rather than "*train all affected workers*"
- **M**easurable (not ambiguous)
  - "*Replace broken valve*" rather than "*Improve fuel system*"
- **A**chievable (not impossible)
  - "*Repair broken insulators*" rather than "*Replace transmission line*"
- **R**elevant (not unrelated)
  - "*Replace belt that caused breakdown*" rather than "*Put air in tires*"
- **T**imely (specific due date)
  - "*May 31, 2018*" rather than "*When possible*" or "*TBD*"

# Corrective Actions

**Assign corrective actions**

- An incident investigation is a reactive safety process
- However the right corrective actions can transform it into a valuable proactive process:
  - Effective hazard controls
  - Health & Safety Management System improvements
- Though reactive to the incident, they are proactive as they will prevent future incidents

# Corrective Actions

## Assign corrective actions

- Assign a corrective action to each identified cause (see table)
- Assign effective controls to eliminate or reduce the effect of Direct and Indirect Causes
- Recommend improvements to missing or inadequate safety system components (Root Causes)

| Using the slip and fall example from earlier: | | |
|---|---|---|
| **Cause** | | **Corrective Action** |
| Direct Cause | Struck hip against ice | Wear padded snow pants |
| Indirect Cause | Not wearing his YakTrax | Worker to wear YakTrax |
| Root Cause | YakTrak not required by safety system | Create policy requiring them |

# Corrective Actions

## Accountability

- When identifying corrective actions, consider:
  - What the worker needs to do (e.g., receive training, conduct JSA before continuing work, review a SWP, clean up worksite, etc.)
  - What the manager needs to do (e.g., review a procedure with the entire work group, conduct Worksite Visits, replace satellite phone, etc.)
  - Whether anything in the H&S Mgmt. System needs to change (e.g., make a change to a Safe Work Practice or form, adjust training frequency requirement, etc.)

# Corrective Actions

## Accountability

- Assign accountability for each action item
  - Responsible party (specific name)
  - Due date


- Discuss with the responsible party or department before assigning names and dates
  - You want them to be aware of the issue requiring their attention
  - They will help identify a suitable timeline for action

# Exercise 7: Corrective Actions


**Assign Corrective Actions**

- Groups of 3, discuss for 5-10 minutes
- Identify action, responsible person, due date for each cause:
  1. Valve cracked
  2. Valve leaking fuel onto ground
  3. Workers unfamiliar with operation & maintenance of valves
  4. No company requirement to inspect valve
  5. Workers allowed to neglect maintenance for years
  6. This brand of valve has been known to fail shortly after install

# 10. COMPLETE REPORT

- Incident Investigation form
- Tell the whole story
- Review and sign off
- Corrective action completion

# Investigation Report

**Purpose**


- Tells the story of the incident:
  - What happened, how and why it happened
  - What we will do to make sure it can't happen again
- **This is a very important document**
  - Remember, it may be read by many, both internal and external
  - This document is a communication to the rest of NTPC and to WSCC, and could be used as evidence in legal proceedings
  - It needs to be clear, thorough, and correct so that anyone who reads will understand it

# Investigation Report

## Form 10.2: Incident Investigation

| Section | Title | Notes |
|---|---|---|
| A | Incident Details | Taken from incident report |
| B | Investigation Team | List of investigators |
| C | Interviews | Who was interviewed and when |
| D | Supporting Evidence | Checklist of documentation, photos, etc. |
| E | Sequence of Events | As determined through interviews |
| F | Observations | As noted in site visit, documents, interviews |
| G | Direct Causes | Checklist |
| H | Indirect Causes | Checklist |
| I | Root Causes | Checklist |
| J | Corrective Actions | One for each identified cause |
| K, L, M | Director/HSE/JOHSC Review | Many people have input |

# Investigation Report

## Section A: transcribe from incident report

| Section A – Incident Details | | | |
|---|---|---|---|
| Incident date: | | Incident location: | |
| Reported by: | | Position: | |
| Incident title: | | | |
| Incident summary: | | | |
| Incident type: | ☐ Near Miss<br>☐ Illness<br>☐ Environmental | ☐ First Aid Injury<br>☐ Medical Treatment Injury<br>☐ Lost Time Injury | ☐ Property Damage<br>☐ Production Loss<br>☐ Dangerous Occurrence |
| Incident rank: | ☐ Low (potential First Aid Injury, minor property or environmental damage) | ☐ Medium (potential Medical Treatment Injury, medium property or environmental damage) | ☐ High (potential Serious Injury or Fatality, major property or environmental damage) |

# Investigation Report

## Sections B & C: lists of investigators and interviews

| Section B – Investigation Team | | |
|---|---|---|
| **Name** | **Position** | **JOHSC** |
| | (Team Lead) | ☐ Yes ☐ No |
| | | ☐ Yes ☐ No |
| | | ☐ Yes ☐ No |
| | | ☐ Yes ☐ No |
| | | ☐ Yes ☐ No |

| Section C – Interviews | | | |
|---|---|---|---|
| **Witness Name** | **Position** | **Date Interviewed** | **Attached** |
| | | | ☐ Yes ☐ No |
| | | | ☐ Yes ☐ No |
| | | | ☐ Yes ☐ No |
| | | | ☐ Yes ☐ No |

# Investigation Report

## Section D: use checklist as a guide – indicate if available & attached

| Section D – Supporting Evidence | | | | | |
|---|---|---|---|---|---|
| **Item** | **Available** | **Attached** | **Item** | **Available** | **Attached** |
| Safety orientation: | ☐Yes ☐No | ☐Yes ☐No | Site orientation: | ☐Yes ☐No | ☐Yes ☐No |
| Tailboard meetings: | ☐Yes ☐No | ☐Yes ☐No | Project safety plan: | ☐Yes ☐No | ☐Yes ☐No |
| Photographs: | ☐Yes ☐No | ☐Yes ☐No | Diagram of incident: | ☐Yes ☐No | ☐Yes ☐No |
| Audio recording: | ☐Yes ☐No | ☐Yes ☐No | Video recording: | ☐Yes ☐No | ☐Yes ☐No |
| Safe Work Practices: | ☐Yes ☐No | ☐Yes ☐No | Safe Job Procedures: | ☐Yes ☐No | ☐Yes ☐No |
| Training records: | ☐Yes ☐No | ☐Yes ☐No | Maintenance records: | ☐Yes ☐No | ☐Yes ☐No |
| Work Protection: | ☐Yes ☐No | ☐Yes ☐No | Worksite visits: | ☐Yes ☐No | ☐Yes ☐No |
| Contract documents: | ☐Yes ☐No | ☐Yes ☐No | RFP/tender: | ☐Yes ☐No | ☐Yes ☐No |
| Daily meetings: | ☐Yes ☐No | ☐Yes ☐No | Safety meetings: | ☐Yes ☐No | ☐Yes ☐No |
| Emergency plan: | ☐Yes ☐No | ☐Yes ☐No | Logbook entries: | ☐Yes ☐No | ☐Yes ☐No |
| H&S Program: | ☐Yes ☐No | ☐Yes ☐No | Contractor qualification: | ☐Yes ☐No | ☐Yes ☐No |

# Investigation Report

## Sections E & F: be as complete as possible – this tells the story

| Section E – Sequence of Events | |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| **Section F – Observations** | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |

# Investigation Report

**Section G: use checklist to determine cause category, describe each**

- *Environmental: 100 L diesel fuel contacted soil and soaked in*
- *Struck by: falling wrench struck worker's head causing deep cut*

| Section G – Direct Causes | | | |
|---|---|---|---|
| ☐ Animals or insects<br>☐ Caught in, between<br>☐ Chemical contact<br>☐ Communications<br>☐ Electrical energy<br>☐ Environmental | ☐ Fall from <3m<br>☐ Fall from >3m<br>☐ Fall at same level<br>☐ Fire<br>☐ Maintenance<br>☐ Noise or vibration | ☐ Outage<br>☐ Overexertion<br>☐ Repetitive strain<br>☐ Slip, trip, fall<br>☐ Struck against<br>☐ Struck by | ☐ Temperature extreme<br>☐ Vehicle<br>☐ Violence<br>☐ Work Protection<br>☐ Other |

| Description of Direct Causes | |
|---|---|
| 1 | |
| 2 | |
| 3 | |

# Investigation Report

**Section H: use checklist to determine cause category, describe each**

- *Not serviceable equipment: fuel line cracked causing fuel to leak*
- *Not using PPE where required: worker was not wearing hard hat*

| Section H – Indirect Causes | |
|---|---|
| **Substandard Practices** | **Substandard Conditions** |
| ☐ Not operating with authority<br>☐ Not using serviceable equipment<br>☐ Not using equipment properly<br>☐ Not using PPE where required<br>☐ Not correct lifting<br>☐ Alcohol & drugs<br>☐ Horseplay<br>☐ No secure equipment or warnings<br>☐ Other procedural non-conformance | ☐ Not effective guards & devices<br>☐ Not serviceable tools & equipment<br>☐ Not adequate warning systems<br>☐ Poor housekeeping<br>☐ Polluted environment<br>☐ No noise management<br>☐ No hazardous substances management<br>☐ Poor illumination & ventilation<br>☐ Other |
| **Description of Indirect Causes** | |
| 1 | |

# Investigation Report

**Section I: use checklist to determine cause category, describe each**

- *Design/maintenance: fuel lines were not inspected regularly*
- *Rules not enforced: workers allowed for years to not use PPE*

| Section I – Root Causes | | | |
|---|---|---|---|
| **Personal Factors** | **Job Factors** | **Supervisory Performance** | **Management Policy** |
| ☐ Lack of skill or knowledge<br>☐ Improper motivation<br>☐ Physical or mental conditions<br>☐ Literacy or ability<br>☐ Other | ☐ Physical environment<br>☐ Substandard equipment<br>☐ Abnormal usage<br>☐ Wear & tear<br>☐ Design/maintenance<br>☐ Purchasing standards<br>☐ Change introduced<br>☐ Other | ☐ Inadequate instruction<br>☐ Inadequate Job Safety Analysis<br>☐ Rules not enforced<br>☐ Hazards not controlled<br>☐ Devices not provided<br>☐ Other | ☐ Safety Management System Element failure<br>☐ Inadequate Safe Work Practices or Safe Job Procedures<br>☐ Inadequate supervision provided<br>☐ Training programs not provided or inadequate<br>☐ Other |
| **Description of Root Causes** | | | |
| 1 | | | |

# Investigation Report

**Section J: assign a corrective action to address each identified cause**

- *Spill: 1) Clean up impacted soil, 2) replace fuel line, 3) add fuel line inspection to monthly inspection checklist*
- *Head injury: 1) Seek medical attention, 2) Ensure all workers wear hard hats at the site going forward, 3) Post hard hat signs and ensure supervisor enforces this rule*

| Section J – Corrective Actions | | | | |
|---|---|---|---|---|
| *Hierarchy of Controls: 1) Elimination 2) Substitution 3) Engineering 4) Administration 5) PPE* | | | | |
| | **Action** | **Responsible Party** | **Due Date** | *** Date Completed** |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |

# Investigation Report

## Sections K, L, M, N: input from director, HSE, JOHSC

- Section K shows timeline for completion and sign off
- Sections L, M, N allow many people to review and comment (Director, HSE, and JOHSC)

| **Section K – Investigation Team Signoff** | | |
|---|---|---|
| Date started: | Date completed: | |
| Name:<br>Signature: | Name:<br>Signature: | |
| **Section L – Director Review** (accept or deny recommended corrective actions) | | |
| Name: | Position: | Review date: |
| Comments: | | |

# Investigation Report

## Before finalizing

- Send the completed draft investigation in Microsoft Word format to the Health & Safety Department for review
  - Another set of eyes for review
  - We can often help flesh out the sequence of events, organize causes, define corrective actions, etc.
  - We may notice questions that still need answers before it can be finalized
  - The goal is to have the most complete and professional document possible

# Investigation Report

## Versatile document

- The investigation report can be adapted as needed – it is a Word document
  - Need more lines for Witness Interviews? Sequence of Events? Observations? Add some!
  - Need to take out some blank rows so things fit better? Do it!
  - Is more than one Director responsible for corrective actions? Add an extra “Director Review” section for each Director so they can all sign off.

# Investigation Report

## Final report and attachments

- Send the finalized investigation report and all associated documents to the Health & Safety Department
  - Example: photos, sketches, witness interviews, tailboard meetings, Work Permits, training records, etc.
- Include all pertinent photos, sketches, etc. in the report (attach to end of PDF)
- All others associated document will be kept on file and are available if requested
- HSE will file all documents and distribute the report

# Investigation Report

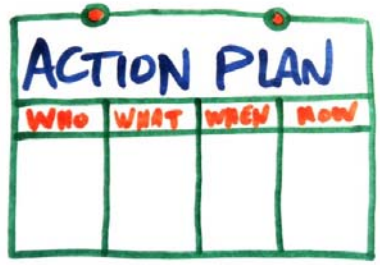
## Confidentiality

- Incident reports and investigations are considered confidential, as they contain sensitive information
- Please do not distribute these documents
- HSE will take care of distribution
- HSE will prepare *Health & Safety Alerts* as required to communicate results of investigations to all staff

# Investigation Report

## Completion of Corrective Actions

- Managers are ultimately responsible to ensure corrective actions are completed by the due date:
  - Take note of what is required and when
  - Track it until completion
- If a due date needs to be adjusted, notify HSE
- When a corrective action is completed, notify HSE



# Exercise 8: Report Completion

## Completing the Investigation Report

- Distribute *Handout 6: Sample Incident Investigation Report*
- Review the sample Investigation Report on the following page
  - Ensure tone of report is fact finding, not blaming
  - Ensure sequence of events and observations tell the whole story (no gaps)
  - List cause category before each cause
  - Ensure corrective actions are specific, measureable, achievable, relevant, and timely (SMART)

# Exercise 8

- Incident title should be as per the title of the incident report document
- Put incident summary in your own words
- Intent of document is to be easily understood by any worker

| NORTHWEST TERRITORIES POWER CORPORATION *Empowering Communities* | **Health & Safety Management System Form:** Incident Investigation | Page 1 of 5 |
|---|---|---|
| | **Monitor:** Director, Health, Safety & Environment | Form #: 10.2 |

| **Section A – Incident Details** | | | |
|---|---|---|---|
| Incident date: | September 19, 2018 | Incident location: | Paulatuk Plant |
| Reported by: | B. Jones | Position: | Plant Superintendent |
| Incident title: | Paulatuk Hammer Falling Near Miss | | |
| Incident summary: | While repairing plant roof, workers knocked hammer from roof. It fell to the ground, narrowly missing a worker. | | |

| | | | |
|---|---|---|---|
| Incident type: | ☒ Near Miss<br>☐ Illness<br>☐ Environmental | ☐ First Aid Injury<br>☐ Medical Treatment Injury<br>☐ Lost Time Injury | ☐ Property Damage<br>☐ Production Loss<br>☐ Dangerous Occurrence |
| Incident rank: | ☐ Low (potential First Aid Injury, minor property or environmental damage) | ☐ Medium (potential Medical Treatment Injury, medium property or environmental damage) | ☒ High (potential Serious Injury or Fatality, major property or environmental damage) |

| **Section B – Investigation Team** | | |
|---|---|---|
| **Name** | **Position** | **JOHSC** |
| R. Pendragon | Manager, Plant Operations (Team Lead) | ☒ Yes ☐ No |
| M. Maxwell | Thermal Health & Safety Coordinator | ☐ Yes ☒ No |
| P. Robinson | Electrician | ☒ Yes ☐ No |
| A. Clefthorn | Civil Engineer in Training | ☐ Yes ☒ No |
| | | ☐ Yes ☐ No |

| **Section C – Interviews** | | | |
|---|---|---|---|
| **Witness Name** | **Position** | **Date Interviewed** | **Attached** |
| B. Jones | Plant Superintendent | 09-20-18 | ☒ Yes ☐ No |
| S. Barnes | Roofing contractor | 09-20-18 | ☒ Yes ☐ No |
| L. Jones | Member of public | 09-21-18 | ☒ Yes ☐ No |
| | | | ☐ Yes ☐ No |
| | | | ☐ Yes ☐ No |
| | | | ☐ Yes ☐ No |
| | | | ☐ Yes ☐ No |
| | | | ☐ Yes ☐ No |

# Exercise 8

- Includes as many details as possible
- Adjust form as needed to fit info and for pagination

| NORTHWEST TERRITORIES POWER CORPORATION *Empowering Communities* | **Health & Safety Management System Form:** Incident Investigation | Page 2 of 5 |
|---|---|---|
| | **Monitor:** Director, Health, Safety & Environment | Form #: 10.2 |

| **Section D – Supporting Evidence** | | | | | |
|---|---|---|---|---|---|
| **Item** | **Available** | **Attached** | **Item** | **Available** | **Attached** |
| Safety orientation: | ☒Yes ☐No | ☐Yes ☐No | Site orientation: | ☒Yes ☐No | ☐Yes ☒No |
| Tailboard meetings: | ☒Yes ☐No | ☒Yes ☐No | Project safety plan: | ☒Yes ☐No | ☐Yes ☒No |
| Photographs: | ☒Yes ☐No | ☒Yes ☐No | Diagram of incident: | ☐Yes ☒No | ☐Yes ☒No |
| Audio recording: | ☒Yes ☐No | ☐Yes ☐No | Video recording: | ☐Yes ☒No | ☐Yes ☒No |
| Safe Work Practices: | ☒Yes ☐No | ☐Yes ☐No | Safe Job Procedures: | ☐Yes ☒No | ☐Yes ☒No |
| Training records: | ☒Yes ☐No | ☐Yes ☐No | Maintenance records: | ☐Yes ☒No | ☐Yes ☒No |
| Work Protection: | ☐Yes ☒No | ☐Yes ☐No | Worksite visits: | ☐Yes ☒No | ☐Yes ☒No |
| Contract documents: | ☒Yes ☐No | ☐Yes ☐No | RFP/tender: | ☒Yes ☐No | ☐Yes ☒No |
| Daily meetings: | ☐Yes ☒No | ☐Yes ☐No | Safety meetings: | ☐Yes ☒No | ☐Yes ☒No |
| Emergency plan: | ☒Yes ☐No | ☐Yes ☐No | Logbook entries: | ☒Yes ☐No | ☐Yes ☒No |
| H&S Program: | ☐Yes ☒No | ☐Yes ☐No | Contractor qualification: | ☒Yes ☐No | ☐Yes ☒No |

| **Section E – Sequence of Events** | |
|---|---|
| 1 | S. Barnes (roofing contractor) was working on roof to repair leaky spot using hand tools, including a hammer |
| 2 | S. Barnes put hammer down on roof and continued to work |
| 3 | S. Barnes moved his feet pushing the hammer to the edge of the roof and off |
| 4 | Hammer fell 5 meters to the ground |
| 5 | As hammer fell B. Jones walked by below |
| 6 | Hammer missed B. Jones' head and shoulder by 0.25 m |
| 7 | Workers immediately stopped work and reported incident |

| **Section F – Observations** | |
|---|---|
| 1 | Contractor had all required PPE on, including fall protection and was prequalified to work for NTPC |
| 2 | Plant Superintendent was not wearing hard hat at the time of the event |
| 3 | Danger zone beneath work area was not barricaded, no signage |
| 4 | Hammer made deep impression in hard ground – would have been devastating to a person's body |
| 5 | Tailboard meeting held by S. Barnes did not include B. Jones |
| 6 | Emergency Response Plan is out of date and does not cover injury emergencies |
| 7 | The last Worksite Visit done at the site was 6 months ago |

# Exercise 8

- Write the Cause Category before describing the causes
- This helps relate the cause to the category and makes sure nothing is missed

| NORTHWEST TERRITORIES POWER CORPORATION Empowering Communities | **Health & Safety Management System Form:** Incident Investigation | Page 3 of 5 |
|---|---|---|
| | **Monitor:** Director, Health, Safety & Environment | Form #: 10.2 |

**Section G – Direct Causes**

| | | | |
|---|---|---|---|
| ☐ Animals or insects | ☐ Fall from <3m | ☐ Outage | ☐ Temperature extreme |
| ☐ Caught in, between | ☐ Fall from >3m | ☐ Overexertion | ☐ Vehicle |
| ☐ Chemical contact | ☐ Fall at same level | ☐ Repetitive strain | ☐ Violence |
| ☐ Communications | ☐ Fire | ☐ Slip, trip, fall | ☐ Work Protection |
| ☐ Electrical energy | ☐ Maintenance | ☒ Struck against | ☐ Other |
| ☐ Environmental | ☐ Noise or vibration | ☐ Struck by | |

**Description of Direct Causes**

| | |
|---|---|
| 1 | Struck against: Hammer struck ground, narrowly missing worker |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |

**Section H – Indirect Causes**

| Substandard Practices | Substandard Conditions |
|---|---|
| ☐ Not operating with authority | ☒ Not effective guards & devices |
| ☐ Not using serviceable equipment | ☐ Not serviceable tools & equipment |
| ☐ Not using equipment properly | ☐ Not adequate warning systems |
| ☒ Not using PPE where required | ☐ Poor housekeeping |
| ☐ Not correct lifting | ☐ Polluted environment |
| ☐ Alcohol & drugs | ☐ No noise management |
| ☐ Horseplay | ☐ No hazardous substances management |
| ☒ No secure equipment or warnings | ☐ Poor illumination & ventilation |
| ☐ Other procedural non-conformance | ☐ Other |

**Description of Indirect Causes**

| | |
|---|---|
| 1 | Not using PPE where required: B. Jones was not wearing a hard hat at the time of the event |
| 2 | No secure equipment or warnings: area below roof worksite was not barricaded, no signage |
| 3 | Not effective guards & devices: no method in place to prevent tools from falling off roof |
| 4 | |
| 5 | |
| 6 | |

# Exercise 8

- Ensure corrective actions are SMART:
  - Specific
  - Measurable
  - Achievable
  - Relevant
  - Timely
- Send completed draft report (in Word) to HSE Director to review before finalizing

| NORTHWEST TERRITORIES POWER CORPORATION *Empowering Communities* | **Health & Safety Management System Form:** Incident Investigation | Page 4 of 5 |
|---|---|---|
| | **Monitor:** Director, Health, Safety & Environment | Form #: 10.2 |

**Section I – Root Causes**

| Personal Factors | Job Factors | Supervisory Performance | Management Policy |
|---|---|---|---|
| ☐ Lack of skill or knowledge<br>☐ Improper motivation<br>☐ Physical or mental conditions<br>☐ Literacy or ability<br>☐ Other | ☐ Physical environment<br>☐ Substandard equipment<br>☐ Abnormal usage<br>☐ Wear & tear<br>☐ Design/maintenance<br>☐ Purchasing standards<br>☐ Change introduced<br>☐ Other | ☐ Inadequate instruction<br>☒ Inadequate Job Safety Analysis<br>☒ Rules not enforced<br>☒ Hazards not controlled<br>☐ Devices not provided<br>☐ Other | ☐ Safety Management System Element failure<br>☐ Inadequate Safe Work Practices or Safe Job Procedures<br>☐ Inadequate supervision provided<br>☐ Training programs not provided or inadequate<br>☐ Other |

| | Description of Root Causes |
|---|---|
| 1 | Inadequate Job Safety Analysis: Tailboard did not identify need for barrier |
| 2 | Rules not enforced: Lack of Worksite Visits show safety rules not being enforced or coached on as often as they should be |
| 3 | Hazards not controlled: Hammer was not secured as per *SWP 1.17: Hand Tools*: "*When working aloft, tools that are not in use shall be fastened securely to the worker's belt, properly secured, or lowered to the ground on a hand line.*" |

**Section J – Corrective Actions**

*Hierarchy of Controls: 1) Elimination 2) Substitution 3) Engineering 4) Administration 5) PPE*

| | Action | Responsible Party | Due Date | * Date Completed |
|---|---|---|---|---|
| 1 | Manager to meet with B. Jones and all others in the work group to review PPE requirements and *SWP 4.06: Hard Hats* and ensure it is followed going forward | R. Pendragon | 09-23-18 | 09-22-18 |
| 2 | Manager to review *SWP. 1.17: Hand Tools* with all workers in work group, emphasize how to properly work aloft with hand tools | R. Pendragon | 09-23-18 | 09-22-18 |
| 3 | Require contractor to:<br>• Secure unused tools when working aloft to ensure they cannot fall<br>• Barricade danger zone below work area and post signs | R. Pendragon | 09-23-18 | 09-22-18 |
| 4 | Worker to receive refresher on Tailboard Meetings to ensure all hazards are adequately controlled and all workers at site are involved in the Tailboard Meeting | M. Maxwell | 09-29-18 | |
| 5 | Manager to conduct worksite visits at least twice per year in Paulatuk Plant | R. Pendragon | 03-31-19 | |

* Inform HSE Director of corrective action completion dates.

# Exercise 8

- After HSE review, send to Director for review and sign-off
- If more than one Division has corrective actions, send to all responsible Directors for review and sign-off (adjust form accordingly)

| NORTHWEST TERRITORIES POWER CORPORATION Empowering Communities | **Health & Safety Management System Form:** Incident Investigation | Page 5 of 5 |
|---|---|---|
| | **Monitor:** Director, Health, Safety & Environment | Form #: 10.2 |

| **Section K – Investigation Team Signoff** | |
|---|---|
| Date started: 09-21-18 | Date completed: 09-22-18 |
| Name: R. Pendragon<br>Signature: Manager, Plant Operations | Name: M. Maxwell<br>Signature: Thermal Health & Safety Coordinator |

| **Section L – Director Review** (accept or deny recommended corrective actions) | | |
|---|---|---|
| Name: A. Ooyak | Position: Director, Thermal Ops | Review date: 09-23-18 |
| Comments: Agree with course of action. Request that a Health & Safety Alert be prepared by HSE and distributed to all staff. | | |

| **Section M – Health & Safety Department Review** | | |
|---|---|---|
| Name: Z. Ward | Position: Director HSE | Review date: 09-23-18 |
| Comments: Agree with Ms. Chirp. HSE will produce an H&S Alert and distribute by Wednesday, Sept. 28, 2018. This will be added to the list of corrective actions. | | |

| **Section N – JOHSC Review** | | |
|---|---|---|
| Co-chair name: M. Macy | Co-chair name: C. Paktoluk | Review date: 09-29-18 |
| Comments: This investigation is well done. Thermal Committee will review the H&S Alert in a special meeting early in October, as this was a High RPH and could have been a very serious injury. | | |

# Course Summary

| Section | Key Learnings |
|---|---|
| 1 Introduction | Do accidents just happen?<br>What are incidents?<br>Why do they matter?<br>Why report them?  Why investigate them? |
| 2 Incident Reporting | Reasonable Potential for Harm<br>How to report<br>When to report<br>Responsibilities |
| 3 Investigation Basics | Process<br>Tools<br>Responsibilities<br>Methods |

# Course Summary

| Section | Key Learnings |
|---|---|
| 4 Investigation Team | Determine investigation level<br>Request investigation<br>Responsibilities<br>Level 1, 2, 3 requirements |
| 5 Gather Evidence | Visit the scene<br>Document the scene<br>Gather evidence<br>Gather documents |
| 6 Witnesses | Purpose of interviews<br>Tips<br>Voice recording<br>Question styles |

# Course Summary

| Section | Key Learnings |
|---|---|
| 7 Organize Evidence | Fill gaps<br>Re-interview |
| 8 Determine Causes | 3 types of causes<br>5 whys<br>Examples |
| 9 Corrective Actions | How to choose effective ones<br>Responsible parties<br>Due dates |
| 10 Complete Report | Incident Investigation form<br>Tell the whole story<br>Review and sign off<br>Corrective action completion |

# References

- H&S Management System Element 10: Incident Reporting & Investigation
- Pozniak Safety Associates Inc. Accident Investigation Training
- Workers' Safety & Compensation Commission (WSCC)
- Northern Alberta Institute of Technology (NAIT)

# Questions?

# Final Evaluation

- Hand out Final Evaluation
  - 10 minutes to complete
  - Review answers as a group
- Hand out Training Feedback form
- Hand in evaluations and feedback forms before leaving please