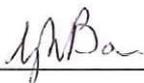


Note: If hardcopy, check electronic system for latest revision
 Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

Transnet Capital Projects Health and Safety Management Occurrence Reporting and Investigation HAS-P-0002

Prepared by:  19 March 2008
 V. Narsai Date

Reviewed by:  19 March 2008
 N. Steyn Date

Approved by:  19 March 2008
 G. Bam Date

0	19 March 2008	ISSUED FOR USE
Rev No	Date	Revision Details

Note: If hardcopy, check electronic system for latest revision
Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Table of Contents

1. Purpose	1
2. Scope	1
3. References	3
4. Definitions	3
5. Responsibilities	8
6. Procedure	8
6.1 Incident Scene	8
6.2 Investigation Assistance.....	9
6.3 Reporting and Recording of Incidents	9
6.3.1 Incident/Injury Classification Levels.....	10
6.3.2 Occurrence Notification Responsibility Matrix.....	10
6.3.3 Investigation Level	11
6.4 The Investigation	11
6.5 Analysis of Findings	12
6.5.1 Corrective and Improvement Action Planning	14
6.5.2 Compile Final Report	14
6.6 Implement Action Plan.....	14
7. Associated Forms	15
8. Records	15
9. Annexures	15
Annexure A – Sample Occurrence Flash Report	16
Annexure B – Classification Levels of Occurrences/ Incidents	17
Annexure C – Witness Interviewing Guidelines	20
Closing the Interview	23
Annexure D - Incident Cause Analysis Worksheet and Guide to Identification of Root Causes	24
Annexure E – Incident Investigation Report Example	26

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

1. Purpose

This procedure provides the standardized criteria for the Reporting and Management of all work related occurrences involving Transnet Capital Projects Staff, Transnet Capital Projects Managed Contractors and/or Transnet Capital Projects controlled Work Sites.

The aim of this procedure is also to ensure and facilitate the effective reporting, recording and investigation of all work-related incidents, including those involving contractors and members of the public.

Incident Management leads to the containment of dangerous situations, effective caring for any injured persons, identification of corrective actions, and the recording of learning for the future.

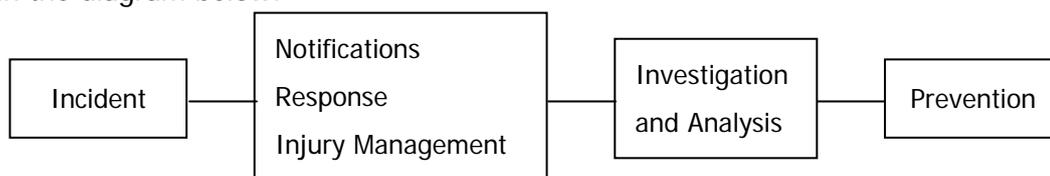
This procedure also assists Transnet Capital Projects fulfil its legal obligation to report certain levels of incidents to the relevant Statutory Authority.

2. Scope

Incident Management involves:

- Response
- Making the area safe
- Caring for any injured person
- Containing any environmental and/or plant damage
- Notification
- Investigation
- Analysis
- Prevention
- Reporting

The overall Incident Management Program in Transnet Capital Projects is illustrated in the diagram below:



A summary of the Transnet Capital Projects Incident Management Process is shown in Figure 1

Note: If hardcopy, check electronic system for latest revision
 Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

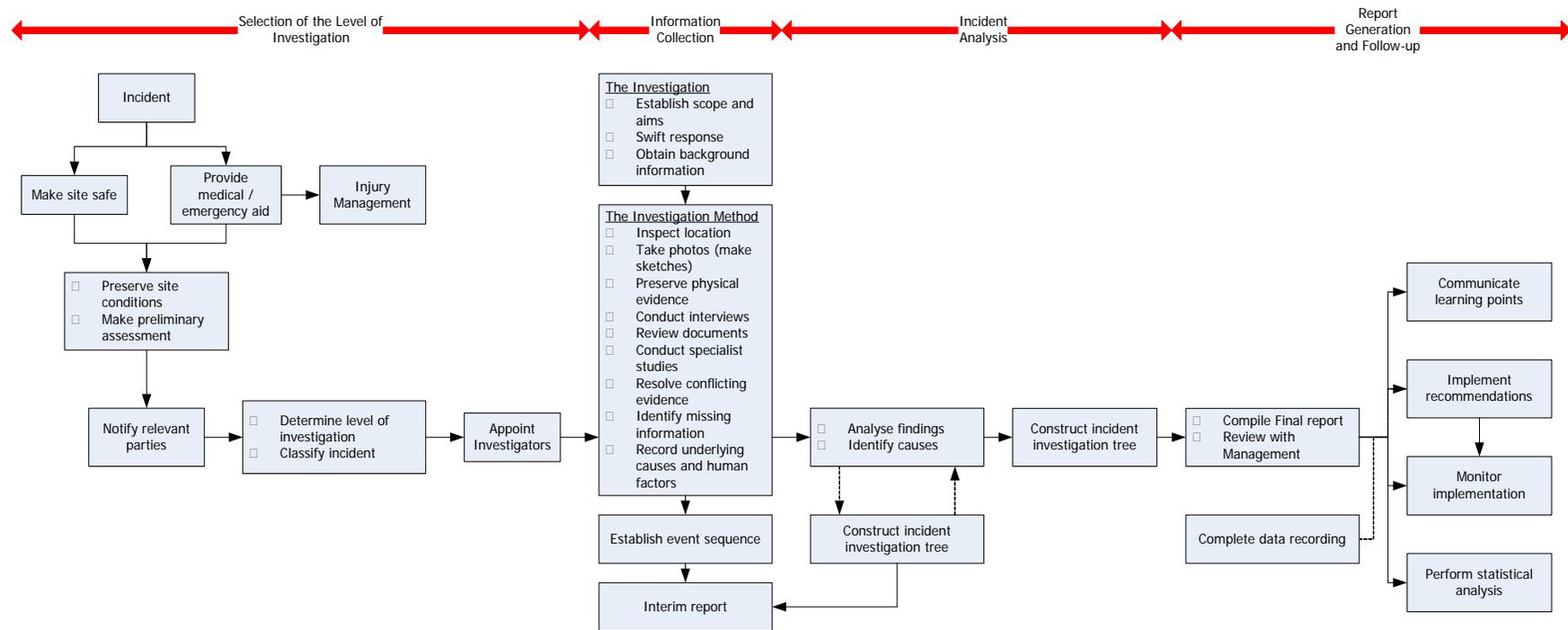


Figure 1 Summary of Incident Management Process

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

3. References

- ISO 9001
- Occupational Health and Safety Act No.85 of 1993 and associated Regulations as amended.
- GRM/SHEQ/STD 010 – Incident Notification and Investigation Standard

4. Definitions

Actual An actual incident/event.

Contractor Any person formally contracted by Transnet Capital Projects for the supply of a product, material or service, for example building a structure. A contractor in terms of construction work refers to an employer, as defined in Section 1 of the Act, who performs construction work, and includes principal contractors. This excludes any construction work performed by Transnet employees (or employees placed by a TES (Temporary Employment Service)).

Employee A person who has entered into or works under a contract of service, apprenticeship or learnership with an employer, whether the contract is express or implied, oral or in writing, whether the remuneration is calculated by time or work done and paid for in cash or in kind, or tactfully (by tacit agreement) and includes where such a person is under the control, instruction and supervision of Transnet Capital Projects, namely:

- a. A casual employee employed for the purpose of the employer's business;
- b. A person who has entered into a contract of service or of apprenticeship or learnership with the employer;
- c. A person provided to Transnet Capital Projects by a TES (Temporary Employment Service) or a Temporary Employment Service and who works under the control, instruction and supervision of a Transnet Capital Projects employee;
- d. A part-time worker;
- e. A temporary worker;
- f. An occasional employee;
- g. An unattached learner;

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

- h. A bursar whilst under the supervision of Transnet Capital Projects;
- i. Any contractor, where no written agreement as required in terms of Section 37(3) of the OHS Act is available; and/or
- j. Any contractor's employees who perform any work under the instruction and/or supervision of a Transnet Capital Projects employee where the instruction given directly resulted in an injury.

First Aid Injury (FA)

A First Aid Injury is any one time treatment and any follow-up visit for observation of minor scratches, cuts, burns, splinters and the like which do not normally require medical care. Such treatment is considered to be First Aid even if administered or supervised by a Medical Practitioner.

First Aid includes any hands on treatment given by a First Aider (e.g. band-aid, washing, cleansing, pain, relief).

The following procedures are generally considered First Aid treatment:

- Application of antiseptics
- Application of butterfly adhesive dressing or sterile strips for cuts and lacerations
- Treatment for first degree burns
- Application of bandages during any visit to medical personnel
- Removal of foreign bodies not embedded in the eye if only irrigation is required
- Removal of foreign bodies from a wound if procedure is uncomplicated, for example by tweezers or other simple technique
- Use of non-prescription medications and administration of single dose of prescription medication on first visit for any minor injury or discomfort
- Application of ointments to abrasions to prevent drying or cracking
- Negative x-ray diagnosis
- Administration of tetanus shot(s) or booster(s). However, these shots are often given in conjunction with more serious injuries, consequently injuries requiring these

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

shots may be recordable for other reasons

- Inhalation of toxic or corrosive gas, limited to the removal of the employee to fresh air or the one time administration of oxygen for several minutes

Incident /Occurrence

An undesirable event occurring at work that results in physical harm to a person or death, or damage to environment, plant and/or equipment, and/or loss of production.

An event which causes or could have caused injury, illness, damage to plant, material, or changes in the environment, or public alarm. This definition shall include losses of containment, fire, explosion, non-compliance with environmental regulatory complaints, security breaches, vehicle incidents, off site incidents, and excursions above the accepted occupational hygiene or biological exposure limit

Lost Time Injury (LTI)

Any occurrence that resulted in a permanent disability or time lost from work of one day/shift or more.

If an employee is injured and cannot return to work in the next shift (will ordinarily miss one whole shift), and the department brings the employee in to only receive treatment by the Supervisor/Return to Work Coordinator in that shift, this is still considered an LTI. In any event, an injured employee should be treated with the necessary care and should be registered with the appropriate injury type i.e. Work Injury, Medical Treatment Injury or Lost Time Injury.

Lost Time Injury Frequency Rate (LTIFR)

LTIFR =

The LTIFR is a proportional representation of the occurrence of industrial Lost Time injuries. It is used internationally as an indicator or measure of health and safety performance. The figure 200 000 refers to the average number of hours worked by 100 employees in one year. The LTIFR rate (12 month progressive) reflects a rough estimate of the percentage of the workforce that suffered a lost time in the preceding twelve months.

Medical Treatment Injury (MTI)

A work injury requiring treatment by a Medical Practitioner and which is beyond the scope of normal First Aid including initial treatment given for more serious injuries. The procedure is to be of an invasive nature (e.g. stitches, removal of foreign bodies etc.).

The following procedures are generally considered medical treatment:

- Treatment of infection

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

- Treatment for second or third degree burns
- Application of sutures (stitches)
- Removal of foreign bodies embedded in the eye
- Removal of foreign bodies from the wound by a Physician due to the depth of embedment, size or shape of object or the location wound
- Use of prescription medications (except a single dose administered on first visit for minor injury or discomfort)
- Cutting away dead skin (surgical debridement)
- Positive x-ray diagnosis (fractures, broken bones etc.)
- Loss of consciousness due to an injury or exposure in the work environment
- Reaction to a preventative shot administered because of an occupational injury
- Sprains and strains - series (more than one) of hot and cold soaks, use of whirlpools, diathermy treatment or other professional treatment

Near Miss Incident

Any unplanned incident that occurred at the workplace, which although not resulting in any injury, disease, damage or contamination, had the potential to do so.

Occupational Disease

Any confirmed disease arising out of and in the course of an employee's employment and which is listed in schedule 3 of the Compensation for Occupational Diseases Act. Confirmation must be done by a medical practitioner or, depending on the disease, a specialist (i.e. Ear Nose & Throat, Audiologist, Pathologist or panel established by the Department of Health, (NIOH)).

Occurrence:

See Incident

Potential

A potential incident/event.

Recordable Injuries (RI)

Equals Lost Time Injury, plus fatality plus occupational diseases plus Medical Treatment Injury with Restricted Duties.

Recordable Injury Freq Rate (RIFR)

RIFR =

The RIFR is a proportional representation of the occurrence of Total injuries. The figure 200 000 refers to the average number of hours worked by 100 employees in one year. The RIFR rate (12 month progressive) reflects a rough estimate of the percentage of the

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

workforce that suffered injuries in the preceding twelve months

Restricted Work Day Injuries (RWDI)

Injuries that results in restriction of work or motion for one full shift or more

Restricted Work Case (RWC)

Is an occupational illness or injury which leaves a person, although at work, unable to perform the full duties of his or her regular work on the next calendar day (including weekends and public holidays), after the day of the injury.

This may involve the injured employee being assigned to another job or restricted/alternative duties (any duties/activities carried out that accommodate agreed restrictions and limitations) as a result of the injury; or returned to their pre-injury or normal duties where they may not be able to perform all the associated activities with their regular work.

Serious Incident

- Any incident where there was a Lost Time Injury (LTI) or there was a potential for a LTI
- An actual or potential for damage to assets of greater than \$R100,000.00
- An actual or potential to be out of business or to sustain damage to our business reputation of local area significance or worse
- Where there has been or was potential for a transient environmental event that may attract public attention or a statutory fine

Severity

A relative measure of the actual or potential injury or damage that is consequent of an incident.

Severity Index (SI)

The number of days lost per million labour hours.

Work Injury

An occupational injury or disease which arises out of, or in the course of a person's employment and which requires First Aid, medical treatment, lost time injury or involves a fatality.

Employment, in this sense, includes the following:

- All work or activity performed in carrying out an assignment or request by the Employer, including incidental and related activities not specifically covered by the Assignment or Request
- All voluntary work or activity undertaken while on duty

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

with the intention of benefiting the Employer or with the consent and approval of the Employer

Note: Commuting injuries are not classified as a work injury.

Working days lost due to Lost Time Injury

The number of working days lost through Lost Time Injury/disease refers to the total number of working days, irrespective of the number of hours that would normally have been worked each day. A maximum of 12 months may be recorded for any individual occurrence.

For a fatality the maximum period of lost time (12 months {220 days}) should be ascribed.

5. Responsibilities

1. The Group Executive (Transnet Capital Projects) or his/her designate, is legally responsible for ensuring adherence to this procedure.
2. The Section 16(2) assignee in terms of the Occupational Health and Safety Act, is responsible for ensuring adherence to this procedure in his/her area of responsibility or jurisdiction of control.
3. Management shall be responsible for ensuring that all incidents are reported, recorded, investigated and followed-up in order to determine the root causes of incidents, institute corrective measures and ensure the prevention of similar incidents.
4. The Legal and Risk Department shall support and advise Line Management in ensuring adherence to this procedure.

6. Procedure

6.1 Incident Scene

On notification of an incident or on arrival at an incident scene, first:

- Make the site safe for the injured person, other employees or any emergency services that may be called to the scene
- Implement any Site Emergency Procedures
- Provide First/Emergency Aid if necessary
- Make preliminary assessments and identify any immediate actions required to prevent the incident happening again.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

6.2 Investigation Assistance

To assist with any resultant investigation:

- Cordon off, isolate and secure the area to restrict access
- Identify all personnel or third parties directly involved
- If possible, keep witnesses separated
- Await the arrival of any incident investigation team

Some details that may be required are:

- Time, date and nature of the incident
- Persons injured, equipment/environmental damage caused
- Nature of injury/damage and estimate of severity
- Immediate corrective actions taken
- Details of assistance provided
- Operations in progress at the time

6.3 Reporting and Recording of Incidents

- a. All incidents/accidents shall be reported internally using the Occurrence Flash Report as indicated in Annexure A. This form is designed to facilitate speedy internal reporting and notification of an incident/accident.
- b. All incidents/accidents shall be reported before the end of the shift or day or within 24 hours of the incident/accident occurring or as soon as anyone becomes aware of the fact that an incident/accident has occurred, in which case the same reporting timeframes will apply.
- c. Employees involved in incidents/accidents must notify their immediate supervisors or managers immediately.
- d. The person completing the Flash Report is required to provide all the relevant information as detailed in Annexure B. One flash report shall be completed per incident/accident.
- e. The completed Flash Report must be forwarded to the relevant Line/Project/Departmental Manager and the safety manager within 24 hours from the date of the incident/accident.
- f. The safety manager will assess the Flash Report and shall advise management in terms of the type of investigation that is required.
- g. For further information regarding the reporting of specific incident/accident types refer to Annexure A, the Reporting Responsibility Matrix.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

h. The SHEQ administrator shall be responsible for ensuring that the incident is recorded in the Transnet Occurrence Management System (TOMS)

All information for all stages of Incident Investigation, Analysis, and Corrective Actions etc. shall be entered into the TOMS database by the SHEQ administrator.

6.3.1 Incident/Injury Classification Levels

Consequences of incidents include injury and illness, the environment, plant and equipment, financial, outage/reputation, security, motor vehicle and quality.

The classification level of incidents or occurrences will be as per Annexure B. This is aligned to the Transnet Group classification level for incidents and occurrences.

6.3.2 Occurrence Notification Responsibility Matrix

Capital Projects Occurrence Notification Reporting requirements are shown in Table 1.

Table 1 - Reporting requirements

Incident / Occurrence Level	Reported by who	Reported to whom	How and what	When
Level 1, 2, 3 or 4	Employee or contractor	Supervisor and Safety Officer	<ul style="list-style-type: none"> Telephonically 	<ul style="list-style-type: none"> Immediately
Level 1, 2, 3 or 4	Supervisor	First Line Manager (e.g., Departmental Manager, Project Manager, Project Services Manager, Planning manager, Construction Manager, etc)	<ul style="list-style-type: none"> Telephonically 	<ul style="list-style-type: none"> Immediately
Level 1, 2, 3 or 4	First Line Manager	Health and Safety Manager Senior managers and directors Programme Managers or leads Insurance Manager Department of Labour Compensation Commissioner SAPS	<ul style="list-style-type: none"> Telephonically to Safety Manager and flash report to all 	<ul style="list-style-type: none"> Telephone immediately and flash report before end of shift or day
Level 1 or 2	Health and Safety Manager	Transnet Capital Projects EXCO members	<ul style="list-style-type: none"> SMS and flash report 	<ul style="list-style-type: none"> SMS immediately and flash report within 24 hours
Level 1	Transnet Capital Projects Group Executive or delegated person	Transnet Group SHEQ Manager	<ul style="list-style-type: none"> Telephonically and flash report 	<ul style="list-style-type: none"> Telephone immediately and flash report within 24 hours
Level 1	Transnet Group Chief Risk Officer	Transnet Group Chief Executive	<ul style="list-style-type: none"> As determined by Group Risk 	<ul style="list-style-type: none"> As determined by Group Risk

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Prior to the recommencement of any operations the following should be considered:

- Obtaining any Health and Safety Authority Clearances to continue operations/production if required
- Advising other sites if affected by the incident
- Initiating any off-site isolation of similar plant until checked
- Discontinuing operations until all hazards are assessed and control measures put in place
- Correcting any non-conformances
- Temporary repairs to ensure compliance
- Taking equipment out of service
- Deferring any response until after the investigation is completed
- Assessing work alternatives with the Work Group
- Assessing if any Injury-causing Task needs to be completed
- Assess engineering repairs and modification possibilities
- Initiate any immediate Preventative Maintenance Programs
- Upgrade the existing Maintenance Program
- Conduct a total Hazard Assessment of the specific operation

6.3.3 Investigation Level

Determine the level of investigation and appoint Investigator/s. For serious incidents the Investigation Team should always include at least one Transnet Capital Projects Safety Representative or Project Manager.

Complete the Analysis Requirements detailed in Incident Management - Analysis Requirements (Annexure B).

These requirements apply to all work activities managed or performed by Transnet Capital Projects. The minimum standard of all Incident Analysis, shall meet Transnet Group Requirements:

- Generally, for Level 1 and 2 incidents a Brief Report and Summary Analysis is required
- For Level 3 incidents a Detailed Analysis is required
- For Level 4 and 5 incidents a Detailed Analysis and Formal Report are required

6.4 The Investigation

- Establish Scope and Aim of Investigation

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

- Respond swiftly
- Obtain background information
- Inspect location
- Take photos/make sketches
- Preserve physical evidence
- Gather witness statements;
- Conduct interviews; refer to Witness Interviewing Guidelines - see Annexure C
- Conduct specialist studies where required
- Resolve conflicting evidence
- Identify missing information;
- Establish event sequence. Refer to example - Incident Time Line in Annexure E
- Issue Interim Report

6.5 Analysis of Findings

- Construct an incident investigation tree
- Conduct a Root Cause Analysis

Identify and Group Root Causes into:

- Defences breached and/or failed
- Person/Team errors and/or violations
- Workplace error and/or violations producing conditions
- Organisation Management decisions/Organisational Processes

An example of an Incident Cause Analysis Worksheet and Guide to Identification of Root Cause Analysis for Incidents can be found in Annexure D.

A Basic Incident Tree is shown in Figure 2

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

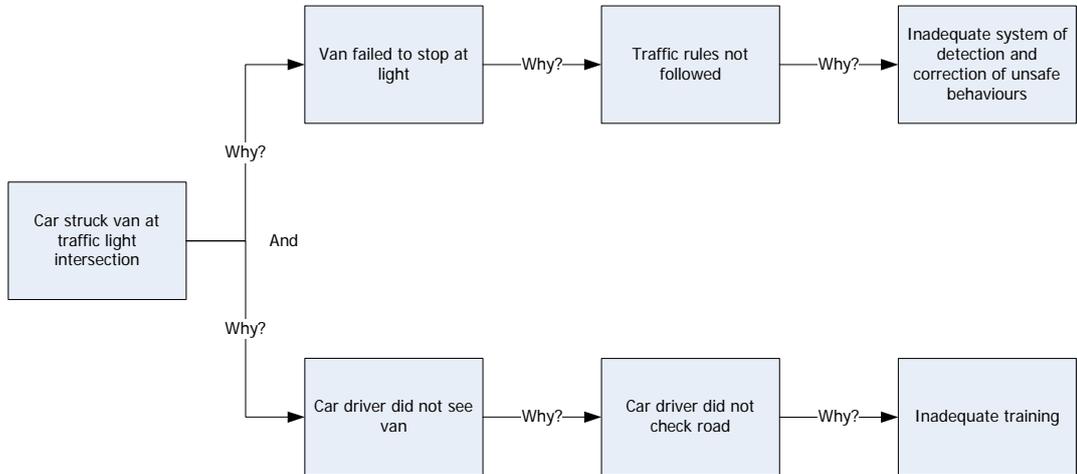


Figure 2 Root Cause Analysis - Event Tree Example

For a **Serious Incident Investigation Tree**, see example in Annexure E.

Refer to the Accident Causation Model Figure 3:

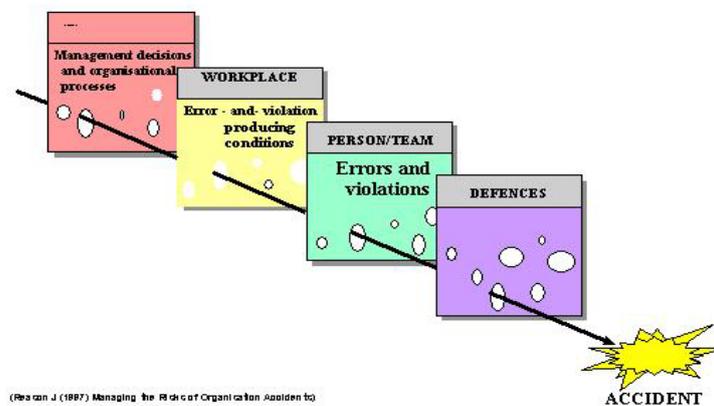


Figure 3 Accident Causation Model

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

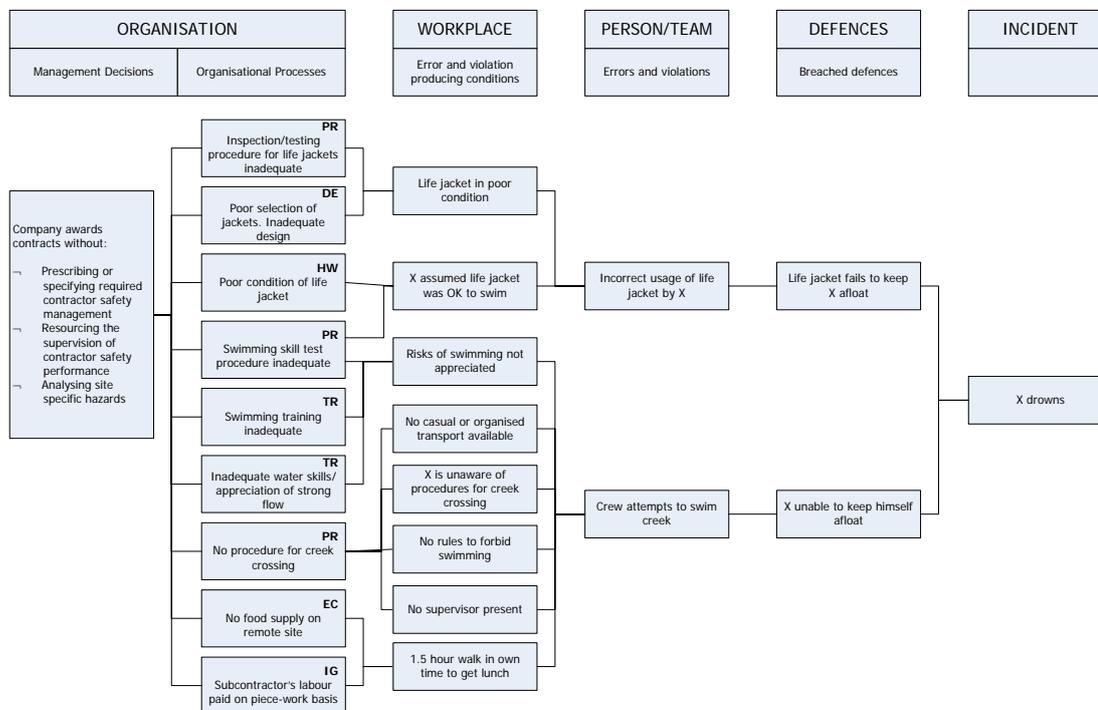


Figure 4 Cause Analysis Example - Drowning Incident

6.5.1 Corrective and Improvement Action Planning

- Identify the most powerful causes
- Generate possible solutions
- Evaluate and select the best
- Develop Action Plan
- Review with Management

6.5.2 Compile Final Report

Sample Incident Report Example may provide guidance (see Annexure E).

On completion of the investigation, a Significant Safety Occurrence (SSO) Report should be generated and distributed for information and learning purposes.

6.6 Implement Action Plan

- Implement corrective and improvement actions
- Communicate learning points
- Monitor implementation
- Review effectiveness

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

- Audit effectiveness of correct action implementation
- Ensure correct sign-off (see Table 2)
- Close out incident in TOMS

7. Associated Forms

To be advised

8. Records

All documents generated during the life of the contract will be retained in terms of the Document Management Procedure for records retention Archiving of Hard Copy Documentation – DOC-P-0013.

9. Annexures

Annexure A – Sample Occurrence Flash report

Annexure B – Classification Level of incidents

Annexure C – Witness Interviewing Guidelines

Annexure D – Incident Cause Analysis Worksheet and Guide to Identification of Root Causes

Annexure E – Incident Report Example

Note: If hardcopy, check electronic system for latest revision
 Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

Annexure A – Sample Occurrence Flash Report

OCCURRENCE DETAILS							
Date		Level	1	2	3	4	
Time		Department					
Location							
OCCURRENCE CLASSIFICATION (Mark appropriate box with an X)							
Fatality		Near Miss		Plant/Equipment		Security	
Injury		Environment		Motor Vehicle			
INJURY CLASSIFICATION (Mark appropriate box with an X)							
First Aid (FA)		Lost Time (LT)		Occupational Disease (OD)		Not Applicable (NA)	
Medical (M)		Fatality (F)		No injuries (NI)			
CLASS OF PERSONS INVOLVED IN THE OCCURRENCE (Mark appropriate box with an X)							
Employee (E)		HMG JV (JV)		Principal contractor (PC)		Not Applicable (NA)	
Public (P)		Sub contractor (SC)					
	Full Name	Class of Person		Injury Classification		Name of Company	
1							
2							
3							
DESCRIPTION OF OCCURRENCE:							
REPORTED BY		DATE		TEL. NO.			

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Annexure B – Classification Levels of Occurrences/ Incidents

Level 1

1. An undesirable occurrence/incident that meets one or more of the following criteria:
 - 1.1. Technical:
 - 1.1.1. Plant /Asset damage exceeds R2 million in the case of Spoornet and R500 000 in respect of all other Divisions.
 - 1.1.2. Incident/Occurrence that have caused maximum business interruptions in the opinion of the Divisional Chief Executive Officer.
 - 1.1.3. An incident impacting on more than one Division.
 - 1.1.4. Impact on customers, stakeholders or outside parties where costs might exceed R2 million in the case of Spoornet and R500 000 in respect of all other Divisions.
 - 1.2. Operational:
 - 1.2.1. The death of an employee, a passenger or a member of the public
 - 1.2.2. Physical harm to a person(s) or a member of the public requiring hospitalisation.
 - 1.2.3. Any incident where any person's health or safety was endangered: (this effectively requires most if not all near miss incidents to be formally investigated with a presiding officer and a board of enquiry – may pose a practical challenge)
 - 1.2.4. Where a dangerous substance was spilled.
 - 1.2.5. Uncontrolled release of any substance under pressure took place.
 - 1.2.6. Machinery or any part thereof fractured or failed resulting in flying, falling or uncontrolled moving objects.
 - 1.2.7. Machinery ran out of control.
 - 1.2.8. Exposure of any person or group of persons to any workplace where the noise ratings are at or above 120 dB(A) as a single exposure (e.g. explosion) or a continuous exposure (SANS 10083 item 3.13, 8.1.4 and 8.2) without double hearing protection which is properly fitted.
 - 1.2.9. Exposure to any hazardous chemical substance:
 - 1.2.9.1. above the occupational exposure limit Control Limit (OEL - CL) listed in table 1 of the Regulations for Hazardous Chemical Substances with or without the required use of respiratory protection unless BA sets

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

were used as part of rescue situations. This is in terms of Regulation 10 (1)b.

- 1.2.9.2. Including exposure to uncontrolled regulated asbestos dust and/or PCB oil fumes without the required use of respiratory protection.
- 1.2.10. An official strike by organised labour;
- 1.2.11. Major fraud or theft that is likely to be punished by demotion or dismissal.
- 1.2.12. Incidents of interpersonal conflict that are likely to stop production for more than two days.
- 1.2.13. Transnet Limited becoming liable to prosecution or other legal action.
- 1.2.14. Major political or media focus on the image of Transnet Limited.

Level 2

- 2. An undesirable occurrence/incident that meets one or more of the following criteria:
 - 2.1. Technical:
 - 2.1.1. Plant/asset damage more than R1 000 000 in the case of Spoornet and R200 000 in respect of all other Divisions.
 - 2.1.2. Capacity loss considered significant by the Divisional Chief Executive Officer.
 - 2.1.3. Events that have resulted in serious business interruption and other impact to customers.
 - 2.1.4. An environmental incident as defined by NEMA section 30(1)(a) and the National Water Act (36 of 1998) Section 20 (1).
 - 2.2. Operational:
 - 2.2.1. Physical harm to a person or persons that does not result in hospitalisation.
 - 2.2.2. Threat of strike.
 - 2.2.3. Significant fraud or theft.
 - 2.2.4. Non-routine security responses, including interventions by the SAPS.
 - 2.2.5. Incidents or circumstances that have the potential to generate significant reaction from trade unions and/or customers.
 - 2.2.6. Changes in security risk.
 - 2.2.7. Significant political or media focus on the image of Transnet Limited.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Level 3

3. An undesirable occurrence/accident that meets one or more of the following criteria:
 - 3.1. Plant/asset damage which exceeds R500 000 in the case of Spoornet and exceeds R100 000 in respect of all other Divisions.
 - 3.2. Business interruption considered significant by the Executive of the Business Unit concerned.

Level 4

4. An minor incident that could be service disruption, daily incidents or safety occurrence with a lesser significance or an incident that did not necessarily result in damage or injury but that had the potential to cause major plant damage/or loss of production or result in injury or death and/or damage to environment. A Level 4 incident includes the following:
 - 4.1. An incident with the potential, or have caused, plant/asset damage greater than R50 000.
 - 4.2. An incident with the potential to cause medical or disabling injury.
 - 4.3. An incident with the potential to affect a person's health.
 - 4.4. An incident with the potential to cause severe damage to the environment.
 - 4.5. Business interruption of a minor nature.
 - 4.6. First aid injuries or minor spills or impact to the environment.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Annexure C – Witness Interviewing Guidelines

In a Typical Investigation

- About 50% of the information comes from witnesses
- About 50% of fact finding time is spent interviewing

Necessity for Speed

- Memory
- Friendly → unwilling → hostile
- Rationalisation by witness distorts testimony
- Conversation with others distorts testimony
- Physical evidence changes

Interview each person as soon as possible after the event. This will minimise subconscious adjustment of the events to fit what they may perceive the Interviewers wish to hear. Take evidence in a chronological order as soon as possible. Consider if there should be two Interviewers and if the witness should be accompanied by a friend.

Let witness(s) and personnel involved in the investigation tell their story in their own words. *It is imperative to listen to what they have to say.*

All questions should be “open” structured to *facilitate discussion*, not a yes/no answer.

Interviewed persons should ideally not discuss their observations with others prior to the investigation being completed.

Conduct the interviews with tact, compassion (especially if an injury has occurred) and skill. It is quite likely, especially in serious cases, for the victim and those present, to have long-term psychological problems.

Witnesses must be convinced that the purpose of the investigation is to identify the immediate and then real causes of the accident and not to attribute blame.

Eliminate the apprehension of incriminating either themselves or others - bearing in mind the legal consequences of the various OH&S Acts.

Convince them of the need to disclose all of their observations in order to prevent recurrence of the accident.

Conduct the interview in a quiet place to minimise distractions from others, and follow normal interview good practice. A relaxed manner, non-confrontational

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

setting (why sit behind a desk?) and no telephone calls/interruptions, are essential to maximise the benefits of this investment in OH&S resources.

Document the responses and evidence obtained.

Note: *Contradictory evidence and statements and attempt to resolve differences. If this is not possible, note the evidence considered, the most reliable Interviews should be conducted individually with each witness.*

Be aware of the following:

- Your key witness may or may not be able to tell you exactly what happened
- The same witness may give a different story when questioned in subsequent interviews
- Don't be surprised if different witnesses come up with different versions of the same event
- Given the above, your witness is not necessarily lying or trying to hide something

Interviewing Witnesses to Incidents - Prompt List

Do's of Witness Interviewing

- Do aid the witness with indices, e.g. "How did the lighting compare to the lighting in this room?" "How did he compare in size to you?"
- Do assist the witness with props (photos, drawings, graphs, manuals etc.)
- Do treat the witness with respect and keep the interview from becoming an interrogation
- Do listen to the answers and ask follow-up and clarifying questions
- Do observe how things are said (voice inflections, gestures, facial expressions etc.)

Don'ts of Witness Interviewing

- Don't ask questions that suggest an answer e.g. "Was the odour like rotten eggs?", "Was the colour the same as your dress?", "Was the victim about your height?"
- Don't use inflammatory words e.g. "violate", "kill", "steal", "lie", "stupid" etc.
- Don't make promises that cannot be kept e.g. "You tell us something and we will keep it confidential"
- Don't threaten or blame the witness
- Don't leave questions out of the interview just because you think you know the answer

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

Questioning Techniques

Question Type	Example
Overhead question, to open discussion	Where shall we start?
Direct question, to gain information	Were you trained to operate?
Relaxing question, to gain opinion	Would you like to comment?
Reverse question, to encourage thought	Tell me your experiences?
Factual question, to get the facts	When, how, who?
Broadening question, to broaden discussion	What other factors were involved?
Justifying question, to gauge a further perspective	Is that important though?
Hypothetical question, to change discussion	Did we ever consider?
Alternative question, to decide an alternative	What is the best solution?

The factual questions:

- WHO?** Was involved i.e. injured employee, witnesses, people present at the time, people who worked in the area immediately prior to accident.
- WHAT?** Happened: what was the apparent cause, what did the people concerned do/not do?
- WHERE?** Did it happen? i.e. where were the parties concerned at the time of the accident?
- WHEN?** Did all the contributory events occur? This is not just a matter of the precise timing of the accident but also issues such as maintenance schedules, training sessions, reorganisation of the workplace, hazard surveys. The questions focus on the interrelation between events and actions.
- HOW?** Did it happen? A subjective view by the individual concerned but it also covers qualitative factors such as training effectiveness (how well?) etc.
- WHY?** Were procedures not followed? This should give some indication of corrective action as answers will focus on unsafe acts and conditions.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Closing the Interview

Summarise the discussion to ensure that no misunderstanding exists.

A written record should be made of the interview and this should be discussed with the witness to clarify any anomalies. Any conflicting evidence should be clarified.

Ask:

- "What else should we know?"
- "Who else should we talk to?"
- "May we call you back later if we need to?"

Summary

- Don't rush
- Shake hands
- Be friendly
- Ware up with 'non-business' items
- Request permission to record
- Explain your purpose
- Stress witnesses' importance to investigation
- Do not judge, anger, refute, or suggest
- Start with routine matters e.g. job title, experience level, training etc.

Note: If hardcopy, check electronic system for latest revision
 Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

Annexure D - Incident Cause Analysis Worksheet and Guide to Identification of Root Causes

Incident Cause Analysis Worksheet

Organisation		Workplace	Person/Team	Defenses	Incident
Management Decisions	Organisational Processes	Error and Violation Producing Conditions	Errors and Violations	Breached Defences	

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

Guide to Defining Root Causes of Incidents

Examples of Common Organisational Deficiencies		Examples of Error & Violation Producing Conditions
Level	Definition	Error Producing Conditions
Senior Management	<p>Incompatible Goals - Conflicting requirements between safety objectives and individual, group or organisational goals.</p> <p>Communications - Information necessary (or some part of it) does not reach correct recipients in a clear, unambiguous and intelligible form.</p> <p>Organisation - Deficiencies in the structure or way of doing business which allow safety responsibilities and accountabilities to be ill defined and warning signs to be overlooked.</p>	<ul style="list-style-type: none"> • Unfamiliarity • Time shortage • Noisy/unclear communication between groups • Poor man-machine interface • Designer-user mismatch • Irreversibility • Information overload • Need to “unlearn” old habits • Need to transfer knowledge • Misperception of risk • Poor feedback • Inexperience • Inadequate checking • Poor instructions • Educational mismatch • Sleep disturbance • Hostile environmental • Monotony and boredom
Front Line Management	<p>Design - Poor design, plant and equipment fundamentally inadequate.</p> <p>Hardware - Deficiencies in quality and availability of tools, plant and equipment.</p> <p>Procedures - Deficiencies in quality, accuracy, relevance, availability and workability of procedures.</p> <p>Training - Deficiencies in knowledge and skills due to deficiencies in the training process.</p> <p>Maintenance Management - Inadequate Management of maintenance (not execution of maintenance tasks).</p> <p>Housekeeping - Poor housekeeping usually present in the workplace.</p>	<p>Violation Producing Conditions</p> <ul style="list-style-type: none"> • Poor safety culture • Worker Management conflict • Poor morale • Poor supervision • Inappropriate work group norms • Misperception of risk • Perceived managerial indifference • Little pride in work • Belief that “it can’t happen to me” • Low self-esteem • Learned helplessness (who gives a damn anyway) • Perceived licence to bend the rules • Unclear or meaningless rules • “Macho” culture • “Can do” culture • Excessive zeal
		<p>Task Level</p> <p>Error - Producing Conditions - Conditions that lead to errors and violations.</p> <p>Defences - Inadequate or absent protection against consequence of failure once it has occurred.</p>

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Annexure E – Incident Investigation Report Example

Facts Resulting from the Investigation

Basic Situation:

A Contractor Rigger (A) working under 122' floor level on the No.1 System Upgrade at approximately 7:45am on 12th May 2000, moved a sling along a beam under a channel holding an electrical conduit. The sling contacted the conduit causing it to bounce and sparks were noticed. The Rigger was wearing gloves and rubber sole boots.

At about the same time, a Company Electrician (B) was called to fix the lights that were not working on the 90' level. The fuses were found to have blown, were replaced and blew again. Shortly afterwards a cut conduit was found, the cable was pulled back and made safe.

The subsequent investigation found that the conduit and 415v 3 phase cables had been cut immediately east of junction box 1 by another contractor employee (C), using an oxy torch. This employee was wearing gloves and rubber sole boots. The cut was made during night shift on the 11th - 12th May. The cut was made in order to remove junction box 1 and make way for a new column base. Diagram 1 illustrates the empty stub end of conduit and junction box 1. Diagram 2 illustrates the relative location of junction box 1 and the next junction box immediately to the east of junction box 1.

When interviewed, contractor employee (C) said that when he cut the conduit, he had assumed that the power had been disconnected. He had made this assumption based on his belief that when the conduit and cables to the west of the junction box were removed in late January 2000. He believed that the cables had been confirmed as dead by the Company Electricians and he and others in his work crew had been instructed to cut and remove the conduit.

The removal of the conduit west of junction box 1 had been done on a day prior to 2nd February, 2000. This conduit was removed in order to make way for preparation work for the installation of the new saturator. Diagram 3 illustrates.

It has been concluded from the investigation, after interviews with the Company Supervising Area Electrician, that when the cables were cut with the oxy torch, some if not all three of the phase fuses were blown. The sparks observed by contractor employee (A), the following morning, were probably due to either an induced voltage (typically 50 v) in the neutral conductor or one of the phase fuses may not have blown the night before. Contractor employee (C) was therefore at risk of electric shock and contractor employee (A) was at a lower risk of electric shock.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

Previous Incident on 2nd February, 2000

Following removal of the conduit in the “saturator hole”, a conduit to a light from junction box 2 was found to be partially cut by an angle grinder which cut the insulation on a cable exposing the wire. The exposed conductors were made safe and the light removed.

After the light was removed, it seems that contractor employee working on the preparation work at this time gained a somewhat common, if ill-conceived, belief that the conduit and the cables to the west of junction box 2 were dead.

In interviews with contractor employees on the job on 12th and 13th May, it was found that about 60% believed that the cables in the conduit between junction box 1 and junction box 2 had been removed or were at least dead.

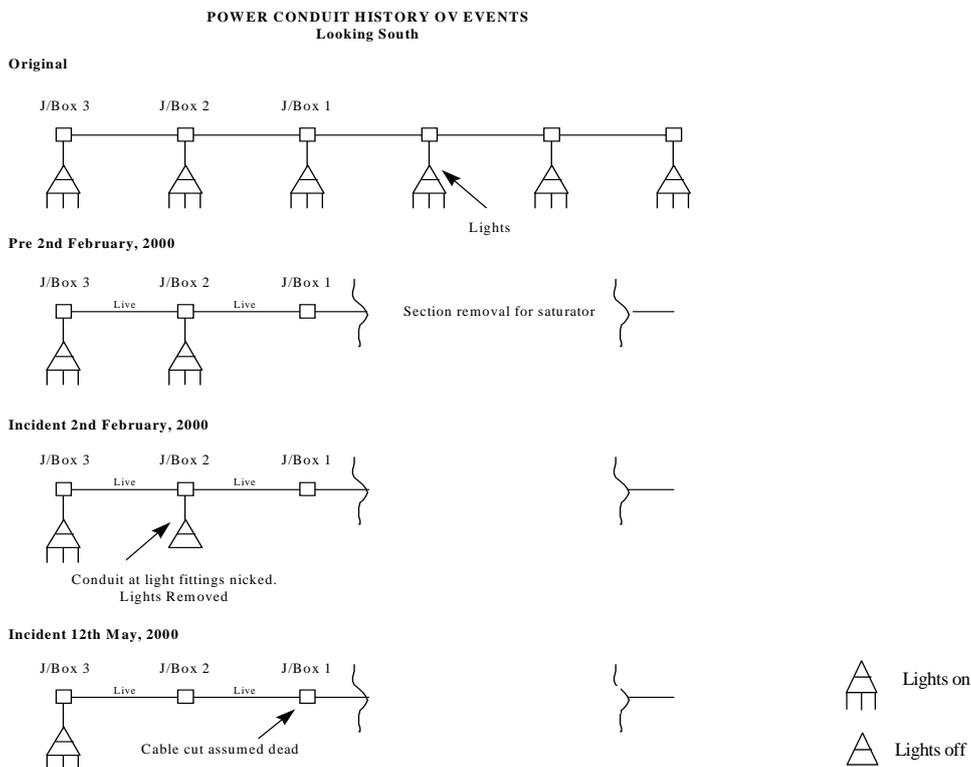
The Incident Report for the incident on 2nd February is attached for reference.

Diagram 4 shows a pictorial history of events for the electrical conduit.

Photograph 1 shows the empty stub end of conduit prior to oxy cutting.

Photograph 2 shows the continuation of the conduit on the West side of the saturator ‘hole’.

Diagram 4



Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

Cause Analysis

An Incident Tree was prepared, see Diagram 6, causes analysed and categorised into:

1. **Defences** - in place/breached.
2. **Person/Team** - errors and/or violations.
3. **Workplace** - error and/or violation producing conditions.
4. **Organisation** - Organisational processes and/or management decisions that may have contributed to the incident.

1. Defences

a) The hazard (the live electrical service) was left in the construction zone and not identified by any of the many scheduled or the informal hazard inspections/observations/audits that were held prior to the shutdown and during the shutdown.

b) Supervision on the job did not predict that this electrical service would need removing in order to complete the construction work at this location.

2. Person/Team

a) The cardinal rule "do not cut any electrical services unless confirmed dead and supervised by the area electrician" was violated. Not deliberately, or maliciously, but under the ill-conceived belief that the electrical service was dead.

3. Workplace

a) The electrical conduit had been cut and appeared to be redundant. The stub end of the conduit to the west of junction box 1 was roughly cut by oxy torch and there were no visible cables, possibly misleading to a non-electrical trades person.

b) The conduit was underneath the working floor level and out of sight.

c) There was a fairly common belief amongst the work crew that the conduit was redundant and dead.

4. Organisation

a) The Electricians in January 2000 isolated the electrical service back to junction box 1. This was still within the future construction zone. They say they were instructed to only isolate the section of conduit immediately within the "saturator hole" and were not aware of the extent of the future works towards the east.

It was a mistake to leave a disused section of electrical service live and within the construction zone. There was also no obvious visual means of identifying the services as still being live. The next functional electrical device on that power circuit was a light at junction box 3.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Occurrence Reporting and Investigation
12 March 2008

b) The Contractor advised that the cardinal rule “do not cut electrical services” was repeated by Crew Supervisors at every Toolbox Meeting daily. The effectiveness of the communication needs to be re-examined.

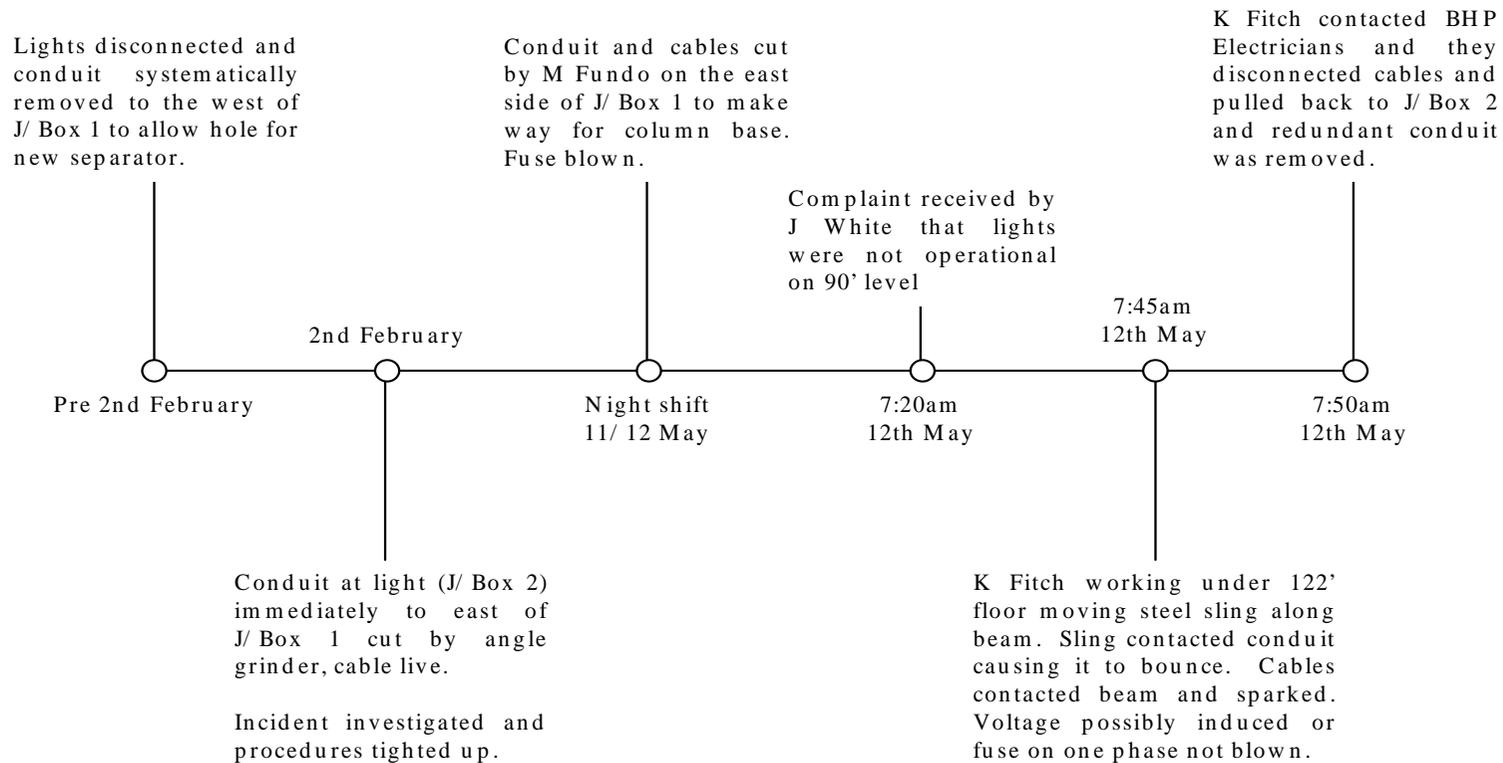
The Project Induction does not address cardinal safety rules or critical safety procedures. The Contractor advised that these would be discussed at Toolbox Meetings.

c) Interface with operational services was identified in a HAZAN (a Hazard Identification and Analysis Workshop) prior to commencement of the shutdown. A Specific Site Inspection was held to identify services that would require relocation. The service was not identified.

Prior to the start of the current shutdown work, a number of other initiatives were taken with the aim to further reduce the risk of an incident such as this. Unfortunately, this electrical service was overlooked by all.

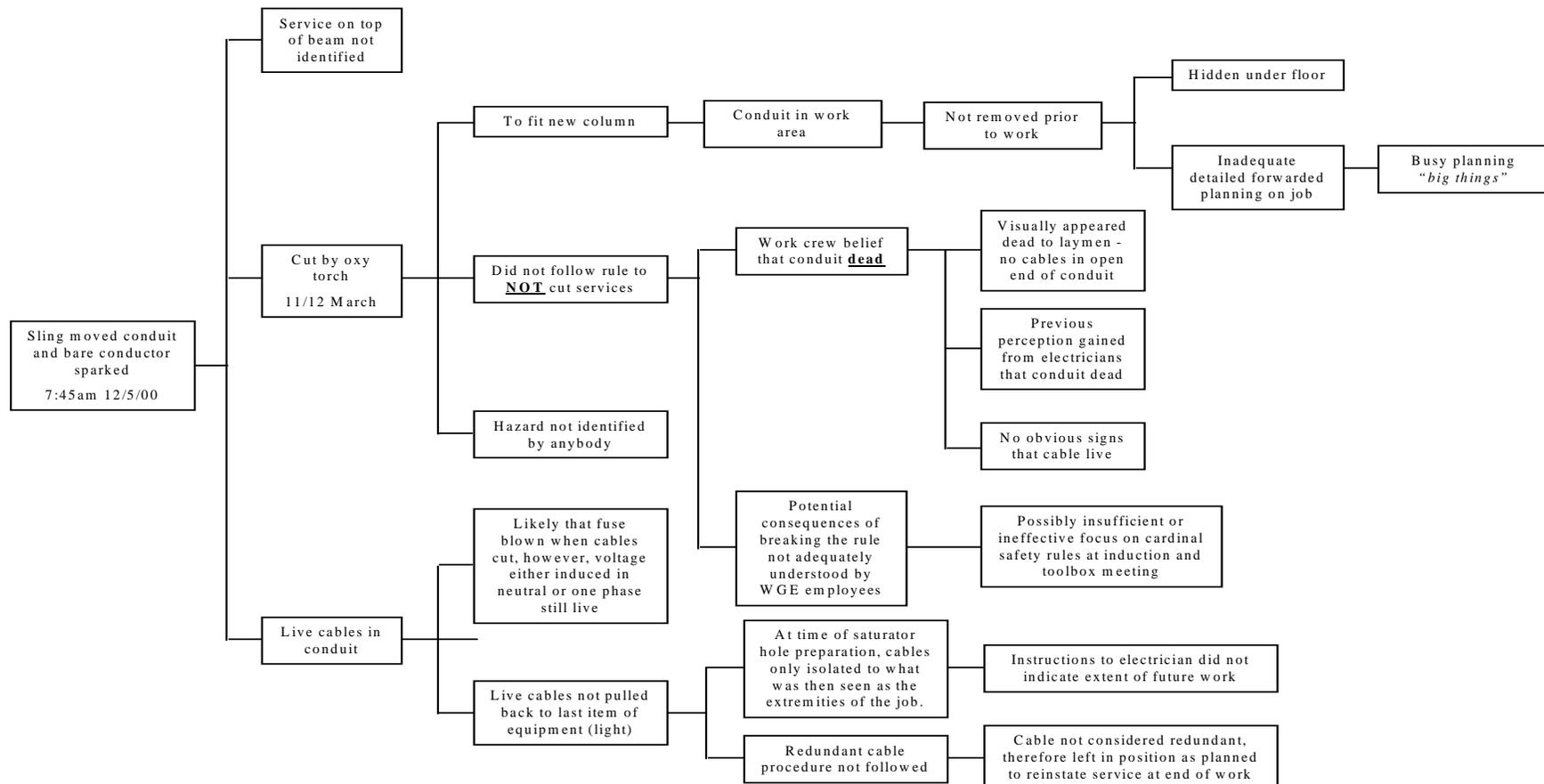
Note: If hardcopy, check electronic system for latest revision
 Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

TIMELINE
Incident 12th May 2000



Note: If hardcopy, check electronic system for latest revision
 Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

INCIDENT TREE
Incident 12th May, 2000



Note: If hardcopy, check electronic system for latest revision
 Transnet Capital Projects Health and Safety Management
 Occurrence Reporting and Investigation
 12 March 2008

5. CORRECTIVE ACTIONS

A number of possible solutions were developed and narrowed down to the following approach.

On all brown field jobs:

1) Clearly identify the extremities of the construction zone and include a safe buffer. Aim to have all services in construction zone isolated, where necessary it is preferable to use temporary power then leave permanent services in a construction zone.

Clearly identify all live services that remain in the construction zone.

Have a written Cardinal Rule such as 'only electrical qualified people are permitted to isolate, disconnect, cut, handle, remove electrical cables, junction boxes, conduits' It is unacceptable to rely on verbal communication alone.

Action Plan

Corrective Actions	Responsibility	Date	Sign Off
1. Hatch to implement the above principles immediately.	Transnet Capital Projects		
2. Contractor to implement the above principles immediately.	Contractor		
3. Hatch to take to the Company site safety committee to put the issue on the agenda with the proposed solutions	Transnet Capital Projects		