GUIDANCE
FOR CONDUCTING QUALITY INCIDENT INVESTIGATIONS
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Many of Trafigura Groups activities are high hazard: when something goes wrong it can lead to someone being hurt (or worse), damage to the environment and negative impacts upon neighbouring communities and our reputation. As a safe and responsible company we go to great lengths to prevent incidents occurring. One way we do this is to carry out investigations to learn from incidents and near misses to identify their causes and learn lessons so we can prevent a similar incident ever happening again.

Doing quality incident investigations is not easy; they often take a reasonably long time to complete and require technical knowledge and expertise in incident investigation techniques.

This document gives guidance on the investigation techniques required to carry out a quality incident investigation. This includes techniques to ensure the immediate, contributory and root causes are identified and appropriate actions are recommended which, when implemented effectively, will reduce the likelihood and consequences of a similar incident occurring.

The methodology for HSEC investigations could also be applied to incidents associated with processes such as project management, launching a new product or service etc.

1.2 WHY INVESTIGATE INCIDENTS?
Incidents, including high potential near misses, are investigated so we can identify what caused the incident. Once we know the causes of an incident we can take action to prevent a similar incident ever happening again. A poor incident investigation report is not as useful as it could be as it may only consider the immediate causes of an incident (see definitions). To be really useful and to prevent reoccurrence of incidents, the contributory factors and the root causes need to be identified and actions taken to prevent recurrence.

In most jurisdictions there is also a legal requirement to undertake an investigation of certain incidents.

1.3 LEGAL ASPECTS OF INCIDENTS
Incidents with significant consequences will often be investigated by external agencies e.g. Police, environmental agencies. These investigations will usually have a different objective to a Company investigation as they will be trying to establish if any laws have been broken. They will not necessarily be seeking to identify root causes to prevent reoccurrence. Therefore a Police or regulator investigation is rarely a substitute for a Company investigation which seeks to identify root causes.

Company investigation reports may be disclosable to the Police or regulators investigating a significant incident. Therefore care should be taken on the language used so that they do not create legal liability. Only known facts should be stated without exaggeration or embellishment. If assumptions are made to explain the incident these should be noted as assumptions.

For significant incidents the Legal Department should be consulted.

If legal or regulatory requirements contradict any of the guidance in this document, the legal requirements should be followed.
1.4 DEFINITIONS

To ensure we all understand the words that will be used in this document we need to clarify the definition of important terms:

**Unsafe condition:** A situation which left uncorrected could cause an incident or injury. Examples:
- A tool left in a place from which it could fall
- A confined space without warning signs or barriers
- An overloaded electrical socket
- A damaged ladder
- A rusted through hand rail
- A missing life saving buoyancy aid on a jetty
- A missing fire extinguisher
- An open hole
- A poorly written procedure which doesn’t comply with the safe way of doing things.

**Unsafe act:** Something a person does (or does not do) that can cause an incident or injury. Examples:
- Using a defective tools or equipment
- Deliberately removing safety devices such as mechanical guards
- Not wearing Personal Protective Equipment (PPE)
- Walking under a suspended load
- Working without a necessary permit e.g. a hot work permit
- Working at heights without using a safety harness
- Not reporting an unsafe condition
- Not following procedures
- Taking a short cut.

**Near miss:** An unplanned event that did not result in injury or damage -- but had the potential to do so eg “Close call”, “That just missed me”, “Wow, that was close!”.

**Incident:** An event which has caused an injury and/or damage to assets, the environment or reputation.

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* For further definitions please see the document: HSEC Incident Reporting Standard.
Immediate cause(s): the last (or immediate) cause(s) in a series of provocations that leads to an incident.

Contributing (or causal) factors: any behavior, omission, or deficiency that sets the stage for an incident, or increases the severity of injuries. There may be many factors that contribute to an incident. Examples:
1. A contributory factor might be that someone was fatigued, while the root cause would be the reason they were fatigued.
2. A contributory factor might be that a procedure was not followed, while the root cause would be the reason the procedure was not followed.

Root causes: A root cause is a factor that caused a sequence of events that eventually resulted in an incident. If actions are taken to permanently eliminate a root cause, they will prevent similar incidents occurring again. Root causes often address systemic failings and are sometimes considered the ‘big fix’.

High Potential Incident: A near miss that could have realistically resulted in a level 4 or 5 incident e.g. under slightly different but realistic circumstances there could have been one or more fatalities or significant environmental, operational impact or reputation incident. See Incident Severity Matrix in Appendix A.

High Potential Near Miss Example: CCTV shows a Saudi man nearly being killed when a glass window falls from height. The man was wandering along the street when a large window pane fell, it missed his head by a hair’s breadth and pulled off his headscarf in the process. The window pane shatters on the floor next to him leaving him shaken but otherwise unhurt. Under slightly different circumstances he could have been killed. This is a good example of a high potential near miss.
1.5 INCIDENT POTENTIAL

All incidents shall be considered based upon their **actual consequence** and **potential consequence**. The actual consequences of an incident can easily be identified, these are the injuries and/or damage the incident caused. However, we should also consider the potential consequences of an incident, known as ‘incident potential’. These are the worst case impacts from the incident that could have reasonably occurred in slightly different circumstances.

For instance, the actual consequence of an incident could be a first aid injury. However, under slightly different circumstances the injury could have been an LTI. In this example the **actual** consequence is a Level 1 first aid injury and a **potential** consequence is a Level 3 lost time injury ([Fig 3.](#)).

Considering the potential of incidents means we can identify the causes of incidents that, if repeated, could cause significant injuries or impacts. This is why we put a lot of effort into identifying and reporting nears misses. Near misses are often referred to as ‘free lessons’ as we have the opportunity to learn from them without there being any injuries or damage.

For instance, a hammer falling from 20m height and landing 50cm to the right of someone working below is a high potential near miss. However, if the hammer had landed on the person it may have killed them. This would be classed as a near miss with potential to be a Level 4 fatal incident. Therefore, by learning from the high potential near miss and taking effective action to prevent tools falling we can avoid a possible fatal incident.

1.6 WHICH INCIDENTS SHOULD BE INVESTIGATED?

There may be lots of incidents and near misses that could be investigated. To make effective use of our time and resources we need to focus our attention on **significant** incidents and those incidents with important learning opportunities.

The following incidents should be investigated:

- Incidents with a Level 3, 4 or 5 actual consequence
- High potential incidents: near miss incidents with an incident potential of Level 4 or 5
- Level 1 and 2 incidents that are occurring frequently.

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**Incident Severity Matrix**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>LEVEL 1 LOW</th>
<th>LEVEL 2 MINOR</th>
<th>LEVEL 3 MODERATE</th>
<th>LEVEL 4 MAJOR</th>
<th>LEVEL 5 CRITICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury and illness (to employees, contractors or subcontractors, third parties or members of the public)</td>
<td>First aid treatment Short-term subjective inconvenience.</td>
<td>Medical treatment case of restricted work duties Objective but reversible disability / impairment. Illness or injury results in restricted / modified duties. Potential breach of health and safety legislation.</td>
<td>Lost Time Incident injury Moderate irreversible disability or impairment to 1 or more persons. Clear breach of health and safety legislation.</td>
<td>Single fatality. Severe irreversible disability or impairment to 1 or more persons. In-patient hospitalization equal to or more than 3 people and equal to or less than 9 persons.</td>
<td>Multiple fatalities. Significant irreversible human health effects or hospitalization of more than or equal to 10 people.</td>
</tr>
</tbody>
</table>

*This incident is an actual Level 1 First Aid Case and a Level 4 High Potential Near Miss*
The first thing to remember about investigating incidents is that managing the emergency response to the incident and making the location safe take priority over starting the investigation. Only when the incident is over, the location is safe and the incident has been reported should the investigation phase begin.

The following are the steps to take to begin an incident investigation:
1. Appoint an investigation Team Leader and Team Members
2. Determine the scope of the investigation
3. Define the Incident
4. Investigate the Scene of the incident
5. Obtain Evidence
6. Consider the incident
7. Identify the Causes of the Incident
8. Identify Recommendations
9. Write the Incident Report
10. Share Lessons Learnt
11. Update Safeguard.

1. APPOINT INVESTIGATION TEAM LEADER AND TEAM MEMBERS
A quality investigation is more likely to be achieved by a team approach. This ensures more than one opinion is heard and more than one person’s expertise and knowledge is utilised. It is good practice for the investigation team to be led by a manager, supported by an HSE practitioner who has skills and expertise in the incident investigation process described in this document and supported by others as necessary. Investigations of significant incidents conducted by one person should be avoided.

The Investigation Team Leader should be a senior person independent of the area where the incident occurred. At least one Team Member should be trained in incident investigation techniques and be able to work on the investigation full time.

The individual assigned responsibility for leading the investigation into an incident should identify the resources, incident investigation team members required to undertake the investigation and their tasks and roles. During the investigation phase the Team Leader will be the liaison between the team and the management of the facility where the event occurred. The Team Leader is accountable for the performance of the investigation team and the delivery of a quality report within a reasonable period of time (target within 28 days of the incident occurring).

2. DETERMINE THE SCOPE OF THE INVESTIGATION
In order to manage and align expectations, it is important to clarify the scope of the investigation. A written investigation scope should be agreed between the Team Leader and the facility management early in the investigation. For instance, should the emergency response following the incident be considered ‘in-scope’ for the incident investigation and should the report contain recommendations to improve response performance?

3. DEFINE THE INCIDENT
In order to remain focussed upon the incident it is important to clearly define the incident which is being investigated. Describe the incident in order to clarify what is being investigated. Use ‘what?’, ‘when?’, ‘where?’ and ‘why?’ it is important to investigate the incident:

- **What** [what happened]: This is the concrete expression of the consequence(s) whose recurrence we want to avoid.
- **When** [when did it happen]: Timing of the event. This should be expressed both in absolute terms (00:07:00 on March, 17th) and in relative terms (“at the end of the shift”, “after the lunch break”, etc.).
- **Where** [where did it happen]: Location of the event. As with the timing, the location should be expressed in absolute terms (e.g. W6° 51’ 18”; N 37° 46’ 30”) and in relative terms (“downstream from the tailings dam”, “at the entrance of the boiler room”, “in the new open from level 652m”).
- **Importance**: The reason why we have decided to investigate this event, i.e. the degree of severity of the incident (refer to Incident Severity matrix, Appendix A), the potential consequence of an incident or near-miss, etc.
4. INVESTIGATING THE SCENE OF THE INCIDENT

Prior to the investigation team arriving on-site, where feasible, local management should be instructed to preserve the area of the incident in order to minimise damage to evidence between the time of the incident and the beginning of the investigation. If the scene of the incident is required to be altered in order to prevent further harm or incidents occurring, any necessary activity which may disturb the scene should be recorded e.g. photographs.

Prior to mobilization to the scene of the incident consider material that will be needed at the scene to gather evidence of the causes (for example: camera, recording devices, stationery, sample bags, gloves, etc.). Consider if there are any external parties that should be involved (including regulatory agencies) and practical issues such as any access or security concerns and the weather and other conditions under which the scene analysis will occur.

Once on-site, the investigation team should introduce themselves to the local management and then attend to the scene of the incident as soon as possible.

- Treat the first visit to the scene as reconnaissance and do not make hasty judgements.
- Walk around the whole site to see it from every angle, avoiding touching things and taking care not to spoil evidence which others may need to review. Do not work an incident site with limited light – doing so poses a high risk to personnel and evidence.

Photographs are extremely important: they help record the incident and also can be used to illustrate the Incident Investigation Report. Please note the location and time of the photographs to help set them in context.

5. OBTAIN EVIDENCE

Incident Investigations shall be conducted as a fact-finding exercise and not as a fault-finding mission. Obtaining evidence to support the fact-finding exercise is an iterative process to confirm all of the events and elements that contributed to the incident (Fig 4).

Evidence can be of three types: physical, documentary and testimonial. A useful way of approaching an incident is to consider the 4Ps:

- **People** – Conduct interviews with the people involved, both direct in indirect witnesses
- **Parts** – What parts played a role in the incident: vessels, trucks, cranes, forklifts, etc.
- **Position** – Consider the position of things following the incident: where were people, where was the equipment, what were the switch and valve settings, where items may have landed, bent objects, etc.
- **Paper/Procedures** – Gather all the relevant written or electronic data: log books, registers, emails, maps, risk assessments, permit to work certificates, Digital System Control (DSC) printout, etc. Gather the applicable procedures, emergency plans, etc. that show how things should have been done.
Gathering of evidence shall be complemented with an examination of organisational and management factors, those elements of the management system which might not have been followed, such as:
• What procedures, work instructions etc. were applicable?
• Have they been appropriately followed?
• Was the activity subject to a Permit to Work? Was the permit correct? Were all permit conditions followed?
• Have contractors followed the agreed instructions?
• Is the incident related to any of the Golden Rules?

Many incidents occur when performing repetitive, highly known and regulated activities but if something changes it can lead to problems:
• What was different this time? People? Equipment?
• Focus on the unusual that happened at the time of the incident.

Witness statements: Obtain information from personnel involved in or witnesses to the incident to capture facts and as a basis for further investigation. When undertaking interviews consider the following:
• Interviews should be carried out as soon as possible so that interviewees recall as much detail as possible.
• Do not ask “who?” as it strives for finding blame.
• Preferably use open-ended questions. Make use of closed questions only to confirm information (Fig 5):

- Ask for permission or mention that notes will be taken.
- If you bring a support person to take notes, ask for permission. If you commit that the support person will not participate in the interview then do not change the rules during the interview.
- Avoid leading questions and do not jump to conclusions.
- Ask a final encompassing question like “Is there anything else you’d like to tell me?” as this sometimes gets an interesting response.
- Thank the interviewee and leave the door open for the person to provide additional information after the interview if needed.

Often a similar incident or near miss may have happened before:
• Check incident and near miss records for a similar incident
• Was the risk identified in previous audits or inspections
• What action was proposed and/or taken?

It is important to record all evidence gathered during the investigation:
• As a general rule, in order to gather evidence, take notes or have a voice recorder and avoid relying on memory. Use simple sentences.
• Describe just facts and avoid interpretation, speculation or assumptions. One statement for each fact.
• To the extent possible, gain an understanding of the situation - before – during – after the event.
• Do not describe feelings or opinions from interviews.
• Avoid using qualifying adjectives (“good”, “dangerous”, “much”, “little”) as these are subjective.
• Do not assign blame.

Start to create a timeline of events that led up the incident and update this log as you learn more about the incident. Go as far back as is necessary, sometimes the causes of an incident can be traced back years. Post-it notes are a useful way to develop the time sequences, using one post-it note for each element of the incident; these can be moved in the order as necessary (Fig 6).

Fig 6. Example of building a Time Sequences of actions associated with an Incident

<table>
<thead>
<tr>
<th>20 YEARS AGO</th>
<th>2 YEARS AGO</th>
<th>10 MONTHS AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessel designed with hazardous gas ingress unto confined space.</td>
<td>Vessel repainted: confined space warning signs not reapplied.</td>
<td>Vessel place on long term time charter. Trafigura safety expectations in charter contract.</td>
</tr>
</tbody>
</table>
6. CONSIDER THE INCIDENT
A lot of time during an investigation is spent considering the information obtained and trying to piece together what happened and why it happened. The best approach is for the investigation team to regularly share what they have found and discuss next steps. Often a piece of information will lead to another avenue of enquiry. Sometimes interviewees may have to be re-interviewed to clarify information and ask further questions. The timeline will become more detailed as new information is gained. It is not unusual for original perceptions about the incident to change as more information becomes available.

This evolving understanding is all part of a good investigation and sufficient time must be allocated to considering the evidence and discussing its implications in the team. The benefits of a team approach, with all team members contributing, will be most apparent at this stage.

7. IDENTIFY THE CAUSES OF THE INCIDENT
An incident is the result of an infinite chain of events leading to consequences specific to the site, time of occurrence and the specific context of activities occurring. Every one of those events is a contributor (causal factor) to the final consequence (incident) to a certain degree.

Seek to identify the immediate cause(s), the contributing factors and finally the root causes. Usually, there will be one immediate cause, a number of contributing causes and a small number of root causes. Among all the causes contributing to an incident, root causes are those that properly managed will avoid the recurrence of an incident and its consequences.

Remember that human error or weather are never root causes.

Use a recognized investigation technique to help identify all the causes. The ‘5 Whys?’ approach is explained here, but other techniques can be used.

Considering the barriers that failed is another useful way to understand why an incident occurred. The Barrier Model is often used by Trafigura to help explain serious incidents.

BARRIER MODEL
Incidents are rare as there are usually multi-layered protection systems or processes (both formal and informal) which prevent incidents occurring. Hazards are prevented from leading to incidents due to a series of barriers. However, these barriers are never 100% effective all the time and an incident happens when all the barriers fail. In practice, each barrier has unintended intermittent weaknesses and, when they line up, a hazard can lead to an incident. This explains the reason for having multiple barriers, instead of one barrier that has to be 100% effective all the time.

To help explain the barrier concept, compare the barriers to slices of Swiss cheese with holes. The holes in the barriers are dynamic and continuously change in size and location. When the holes in all slices line up, the hazard (the arrow) can pass through these deficient barriers leading to an incident (losses).

A Barrier Model is often a good way to demonstrate the multiple failures of barriers that has occurred and which allowed the incident to happen. Each barrier that failed can be represented by a ‘slice’.

Only one barrier needs to be effective to prevent an incident occurring.
THE '5 WHYS?' APPROACH TO INCIDENT INVESTIGATION

The ‘5 Whys?’ approach to incident investigation is a simple way of identifying causal factors and sometimes getting down to root causes. It involves asking ‘Why?’ a number of times. Although it’s called ‘5 Whys?’ it does not mean that ‘Why?’ is asked five times. It may take fewer or more than five ‘Why?’ questions to get to root causes. By repeatedly asking the question “Why” (five times is a rule of thumb) you can peel away the layers of symptoms which can lead to the root cause of a problem. Very often the ostensible reason for a problem will lead you to another question.

How to Complete the ‘5 Whys?’:
1. Write down the specific problem. Writing the issue helps you formalize the problem and describe it completely. It also helps a team focus on the same problem.
2. Ask ‘Why?’ the problem happens and write the answer down below the problem.
3. If the answer you just provided doesn’t identify the root cause of the problem that you wrote down in Step 1, ask ‘Why?’ again and write that answer down.
4. Loop back to step 3 until the team is in agreement that the problem’s root cause is identified. Again, this may take fewer or more than five ‘Whys?’.

The ‘5 Whys?’ approach to incident investigation is a very simple technique, but used well and with thought it can help identify root causes. There are other more sophisticated techniques available on the market.

INCIDENT
Employee cut off a finger with a grinder

WHY?
The grinder did not have a finger guard

WHY?
The mechanic did not refit it after repair of grinder

WHY?
The guard was damaged and a spare not available but the grinder was needed

WHY?
An urgent job came in and the supervisor said it had to be done

WHY?
Work takes priority over safety considerations

ROOT CAUSE
Work pressures led to using an unsafe grinder

ACTION
Management to re-emphasis safety always takes priority even if delays result and using defective equipment is not allowed
8. IDENTIFY ACTIONS
The ultimate purpose of investigating an incident is not to identify its causes but to identify corrective actions to be adopted to avoid the recurrence of the incident. Actions can be identified by using 4P’s (position, parts, paper and people) approach, use of the Barrier Model and/or organized by Technical, Organizational and Human factors (TOP) categories.

When proposing actions, remember they need match the causes identified in the investigation and be under the control of Trafigura management to implement. Clearly articulate the actions that will be executed. The actions should link directly to the immediate and root causes and causal factors; each cause should have at least one action to prevent it occurring again. To emphasise the linkage of actions to causes it may be useful to list each cause and show the actions to be executed to prevent reoccurrence of each specific cause.

Actions should:
• Clearly describe the actions to be taken
• Have a completion date
• Nominate someone to complete the action
• Be actionable within a reasonable timeframe (it’s not helpful to propose an action which will take years to complete)
• Be actionable by Trafigura or a contractor it can control (it is no use giving actions to organisations who we cannot influence e.g. the government to fix a dangerous road after we had a road traffic accident).
• Be tracked to completion.

9. WRITE THE INCIDENT INVESTIGATION REPORT
The outcome from the Incident Investigation is an incident investigation report. A good report allows someone unfamiliar with the event to understand what happened, understand what the immediate, contributory and root causes are and learn what must be done to prevent a repeat incident occurring.

Typically, a good incident report will contain the following sections:
• Executive summary
• Narrative description of the incident: with sufficient detail about the build-up to the incident, the immediate causes of the incident and response actions
• Sequence of events: the timeline leading up the incident recognizing that some incidents start a long time before the actual incident
• Immediate causes
• Contributory factors
• Root causes
• Failed barriers narrative and use of a Barrier Model diagram showing the processes which should of prevented the incident but which in this case failed
• Corrective Actions and Recommendations
• Appendixes: witness statements, photographs, sketches, technical reports, etc.

Incident investigations should be completed within 28 days of the incident occurring or less where the local regulation requires.

TECHNICAL, ORGANIZATIONAL AND HUMAN FACTORS (TOP)
The TOP categories can be used to help organize the recommendations:
• Technical causes (T): changes in equipment, physical barriers, etc.
• Organisational causes (O): creation or changes in Procedures, new KPIs, operational controls, training required, Permit to Work (PTW), etc.
• Human factors or People causes (P): refresher training, changes in duration of shifts, etc.
10. SHARE LESSONS LEARNT
Part of the value of a good incident report is to share the lessons with the rest of the business so that the learnings from the incident can help others also to prevent similar incidents. Some incidents have high value learnings which should be shared. The process to share what has been learnt from an incident investigation is a Lessons to be Learnt (L2bL) bulletin. The emphasis of L2bL is to share what you have learnt with others so they can prevent a similar incident occurring.

11. SAFEGUARD
Safeguard is the Corporate memory of incident and a tool to recognise trends and improvement opportunities. Information on the incident should be loaded into Safeguard and the investigation report, photographs, etc. attached to the incident file. Safeguard is interrogated to identify trends and other learning opportunities.
# APPENDIX A

## INCIDENT SEVERITY MATRIX

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>LEVEL 1 LOW</th>
<th>LEVEL 2 MINOR</th>
<th>LEVEL 3 MODERATE</th>
<th>LEVEL 4 MAJOR</th>
<th>LEVEL 5 CRITICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Injury and Illness</strong> (to employees, contractor or subcontractor, third parties/members of the public)</td>
<td>First aid treatment</td>
<td>Medical treatment case or restricted work duties</td>
<td>Lost Time Incident injury</td>
<td>Single fatality.</td>
<td>Multiple fatalities.</td>
</tr>
<tr>
<td></td>
<td>Short-term subjective inconvenience</td>
<td>Objective but reversible disability / impairment.</td>
<td>Moderate irreversible disability or impairment to 1 or more persons.</td>
<td>Severe irreversible disability or impairment to 1 or more persons. In-patient hospitalization equal to or more than 3 people and equal to or less than 9 persons.</td>
<td>Significant irreversible human health effects or hospitalization of more than or equal to 10 people.</td>
</tr>
<tr>
<td><strong>Environmental Effects</strong></td>
<td>Hydrocarbon spill* of less than 1 barrel (BBL).</td>
<td>Hydrocarbon spill of more than 1 BBL less than 7 BBLs (1 tonne).</td>
<td>Hydrocarbon spill of more than 7 BBLs less than 51 BBLs (more than 1 tonne less than 7 tonnes).</td>
<td>Hydrocarbon spill of more than 51 BBLs less than 5,110 BBLs (more than 7 less than 700 tonnes). Serious environmental effects with impairment of ecosystem function or relatively widespread long-term impacts, irrespective of product volume lost.</td>
<td>Hydrocarbon spill of over 700 tonnes or 5,110 BBLs. Long-term, widespread effects on significant (i.e. protected) ecosystem, irrespective of product volume lost. Impact on nationally or internationally recognised protected environment. Major clean-up / intervention programme required.</td>
</tr>
<tr>
<td><strong>Social / Community / Reputational Issues</strong></td>
<td>An isolated point of negative feedback from an individual.</td>
<td>Negative feedback from more than 1 individual. Adverse local media or local NGO attention. Minor infringement of cultural heritage.</td>
<td>Repeated, on-going negative feedback. Significant infringement of cultural heritage. Adverse national media or national NGO attention. Breach of social / community related law / company policy.</td>
<td>One fatality to member of the public On-going significant negative community feedback or human rights impacts. Significant damage to items of cultural significance. Significant infringement and disregard of cultural heritage. Adverse international media or international NGO attention.</td>
<td>More than 1 fatality to member of the public Reputation severely tarnished, license to operate under threat. Repeated widespread grievance(s) related to serious negative feedback or human rights impacts. Irreparable damage to highly valued items / property of cultural significance. Highly offensive infringements of cultural heritage.</td>
</tr>
<tr>
<td>Financial cost of the HSEC incident with an impact leading to losses, material damages or business interruption of the following financial values</td>
<td>Less than or equivalent to US$5,000.</td>
<td>Between US$5,001 and US$50,000.</td>
<td>Between US$50,001 and US$500,000.</td>
<td>Between US$500,001 and US$5 million.</td>
<td>More than US$5 million</td>
</tr>
</tbody>
</table>

*NB. Gross volume spilled not residual or ‘effective’ volume remaining in environment following recovery efforts.
APPENDIX B

INCIDENT INVESTIGATION STEPS

1. Appoint an investigation team leader & team members

2. Determine the scope of the investigation

3. Define the incident
   - What happened?
   - When did it happen?
   - Where did it happen?
   - Why is it important?

4. Visit the scene of the incident

5. Obtain evidence
   - People: Interview those involved.
   - Parts: Identify the equipment that was involved.
   - Position: Understand where people, equipment, settings, etc. were.
   - Paper procedures: Identify relevant procedures, risk assessments, permits, emails, etc.

Team led by a manager independant of area where the incident occurred. At least one team member should be trained in incident investigation techniques.

Prepare a scope for the investigation and agree with location and investigation team leader.

Describe the incident (what, when, where, why important?) to help stay focussed on what is being investigated. This paragraph may be the first paragraph in the executive summary of the investigation report.

Review and record the scene.

Identify the key elements in the incident. Build a time sequence of events leading up to the incident. Begin to identify the causes of the incident.
Consider the incident

Take enough time to discuss the incident as a team.

Identify the causes of the incident

Determine the various causes of the incident using investigations techniques such as ‘5 Whys’ and the Barriel Model.

Immediate causes
Contributory factor
Root causes

‘5 Whys?’
Barrier Model

Identify actions to prevent a repeat incident

At least one action to address each cause identified. Actions to be clear, time bound, allocated to a person within Trafigura Group.

Technical
Organisational
Human factors

Write the investigation report

Target completion within 28 days of incident. Actions tracked to completion.

Share Lessons to be Learnt

L2bL circulated.

Upload to Safeguard

Load all evidence, report, etc. into Safeguard.

Incident closed
Trafigura Group PTE. Ltd. and the companies in which it directly or indirectly owns investments are separate and distinct entities. In this publication, the collective expressions 'Trafigura', 'Trafigura Group', 'the Company' and 'the Group' may be used for convenience where reference is made in general to those companies. Likewise, the words 'we', 'us', 'our' and 'ourselves' are used in some places to refer to the companies of the Trafigura Group in general. These expressions are also used where no useful purpose is served by identifying any particular company or companies.