

Positive Investigation Methodology

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Background to IXOM Pty Ltd (IXOM)

- IXOM are the market leader in water treatment and chemical distribution in Australia and New Zealand, with a growing presence in North and South America and Asia.
- IXOM supplies general chemicals across a diverse range of industries.
- These include agriculture, building and construction, food and beverage, mining and metals, oil and gas, pharmaceutical and personal care, plastics, pulp and paper and water treatment industries.
- IXOM also provides customers with a number of services, including:
 - emergency response service;
 - specialised training programs; and
 - expert technical advice for the practical, effective and safe use of the products and technologies.



Scope of Work

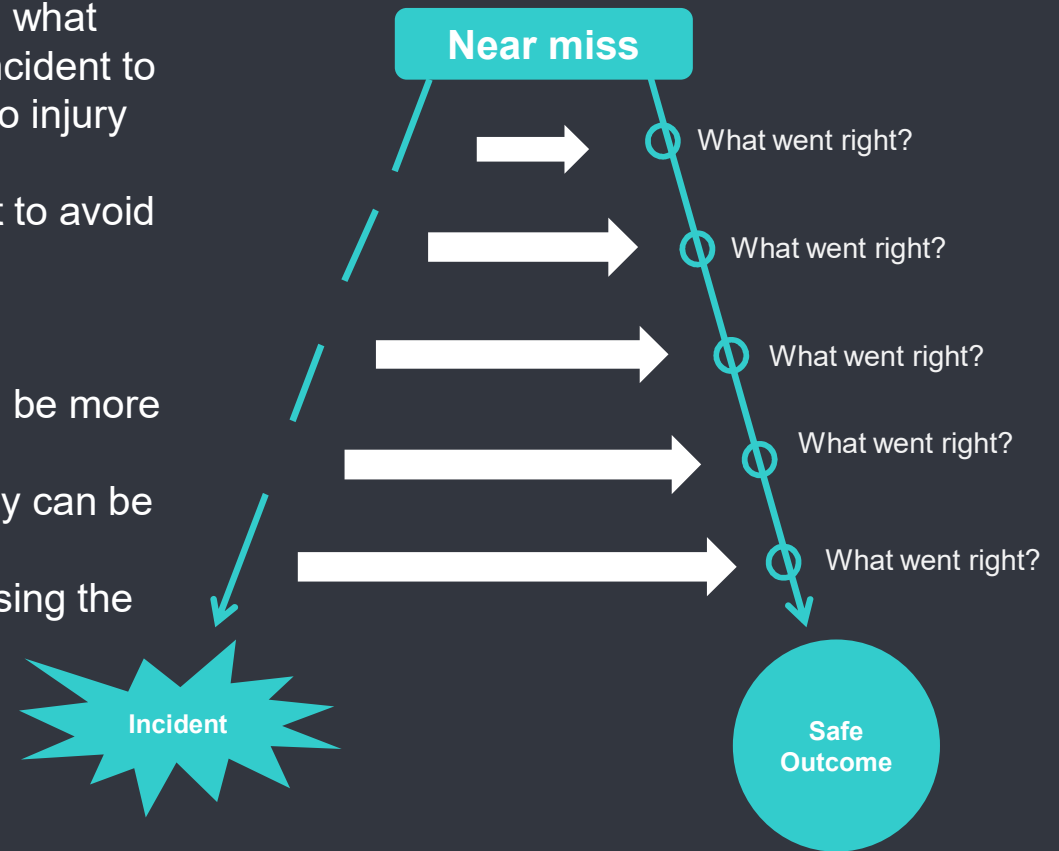
- For a period of 12 months, Clyde & Co has agreed to investigate serious near miss events occurring at Ixom using PIM.
- Serious near miss events are:
 - *Serious incidents which are notifiable to a health and safety regulator which did not result in death or serious injury to a person.*
- For each PIM investigation, the Clyde & Co and Ixom team did the following:



- 1 • Obtain information on the facts and circumstances surrounding the Serious Near Miss Event
- 2 • Upon receipt of the information, determine whether it is necessary/relevant to conduct interviews with witnesses
- 3 • Where necessary, interview persons with knowledge pertinent to the PIM investigation.
- 4 • Prepare and provide a PIM report for each Serious Near Miss Event that identified practical lessons to minimise the potential for incidents in the future

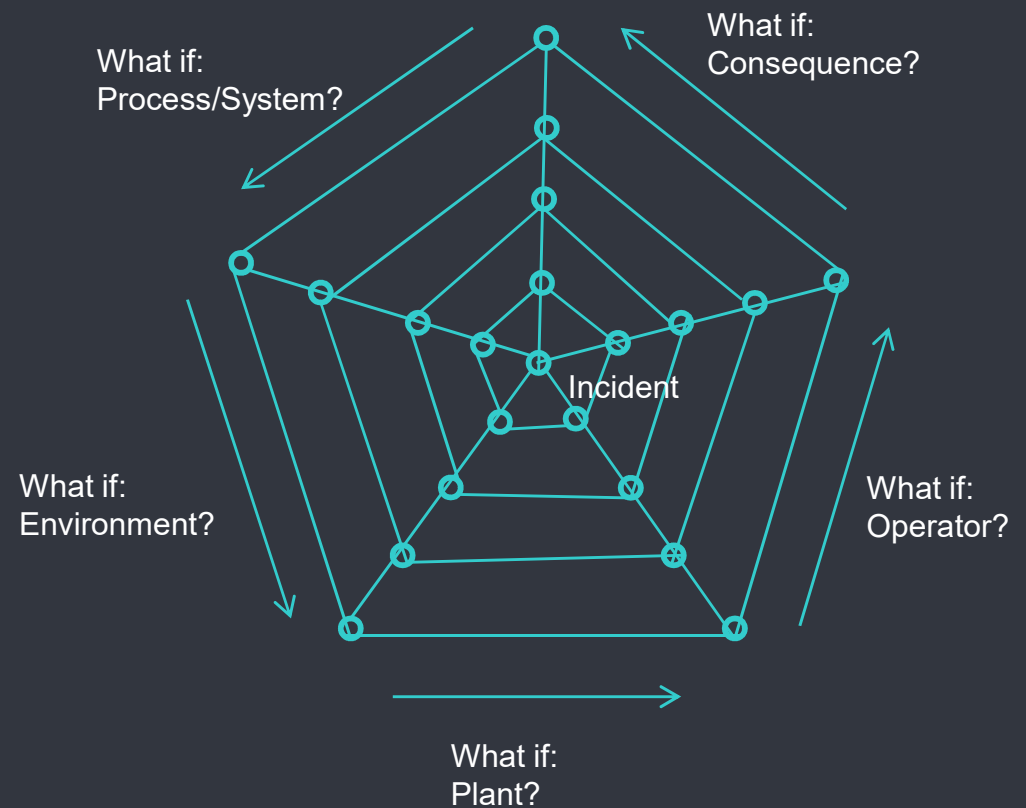
Background to Positive Investigation Methodology (PIM)

- PIM considers what went right by focusing on what factors allowed that potential injury causing incident to become 'harmless' (in the sense of causing no injury or harm).
- That is, it attempts to uncover what went right to avoid the Incident's negative potential.
- Benefits of PIM:
 - What went right in a near miss incident can be more instructive than what went wrong.
 - By identifying effective control features, they can be replicated across the system.
 - Good deeds should be recognised: harnessing the power of positive reinforcement.



How to do PIM

1. Identify what happened.
2. Look for the factors that meant that the incident did not resolve in further harm.
3. Alternatively, identify what could have happened.
4. Ask what went right that prevent the incident from causing serious injury or damage.
5. Test to see if it can be used to avoid a similar incident in future. Ask:
 - What if the consequences were different?
 - What if the process/system was different?
 - What if the environment was different?
 - What if the plant was different?
 - What if the operator was different?
6. Ask how can we systematise the learnings so we repeat our success?



Case Study 1: Morwell Site in Gippsland, Victoria, July 2017

What happened?

- There was a minor loss of containment of caustic soda, resulting in potential worker exposure.
- The process operator was transferring 10% caustic soda from an IBC to a process tank for cleaning.
- The hose connection failed and a small quantity of caustic soda sprayed into the air near the process operator.
- As the worker was wearing full PPE, he did not require a safety shower and did not sustain any injuries.

What can we learn?

- Operator mind set was that hose connections can fail, so they deliberately positioned themselves out of the “line of fire” and close to the pump stop.

What is the key takeaway?

- The importance of mindfulness by our front line workers of potential hazards in their jobs and planning for them.
- The importance of wearing correct PPE even if the risk of exposure is perceived to be very low.
- The importance of establishing and maintaining exclusion zones.

Case Study 2: Laverton Warehouse Site, Victoria, July 2017

What happened?

- At the Laverton Warehouse site – where a metal recycler from the site next door ejected a 2kg piece of metal which hit a 1000L container of water treatment chemical causing it to rupture.
- The metal recycler was operating a few metres from the boundary, to break up machinery pieces. As part of this process, the ejected piece went over the boundary fence and into the IBC.
- An Ixom worker who was driving a forklift heard the sound and saw the liquid from the IBC flowing onto the ground.



What can we learn?

- There was the potential for a serious injury, even a potential fatality, which could have occurred given the force and speed of the projectile.



What is the key takeaway?

- It is very important to monitor neighbouring activities, when the nature of their operations can be high risk and impact on you without warning.

Case Study 3: Laverton Chlorine Facility, Victoria, March 2018

What happened?

- Whilst disconnecting a filled chlorine cylinder, there was a small release of chlorine from the filling hose. No injuries were sustained.
- He had opened the degas valve on the north filling point and missed opening the south degas valve. The technician also did not see the green indicator was off showing the hose was not under extraction.
- The gas sensor was triggered and the packing shed personnel evacuated on the alarm.
- The building extraction system operated effectively and the area was then checked and made safe.



Point of leak

What can we learn?

- The technician had a process of doing the task whereby he would stand at the side of the cylinder and angle the hose away from his body. These were personal control measures implemented by an experienced worker.

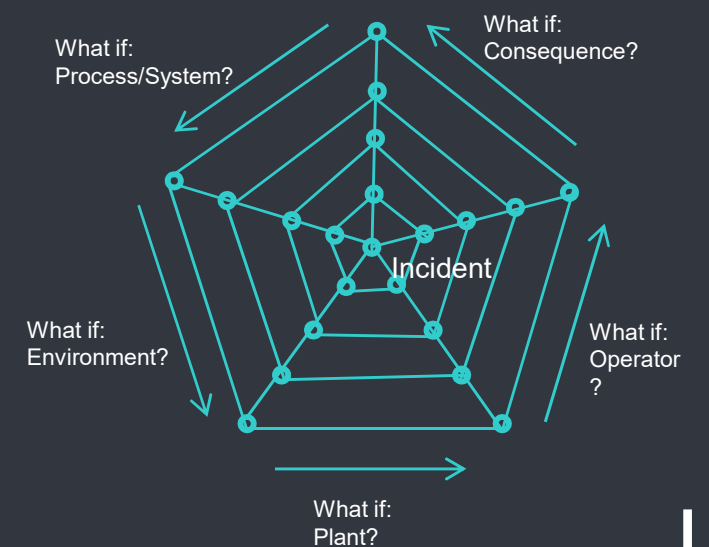
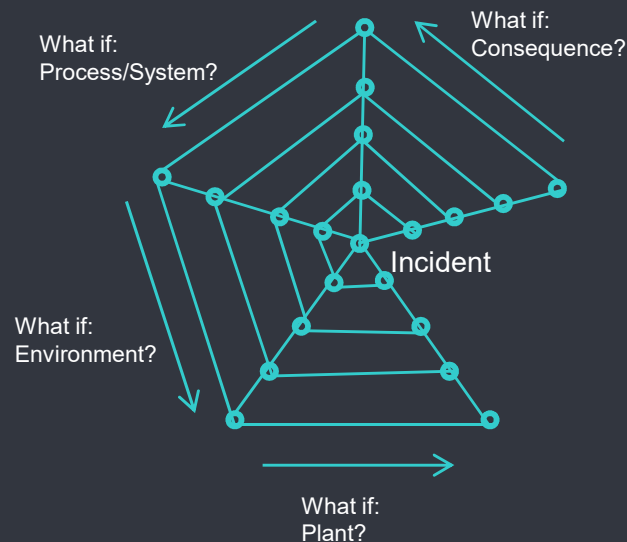
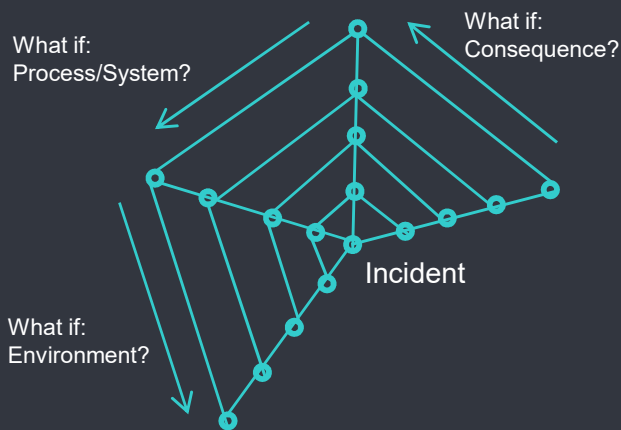
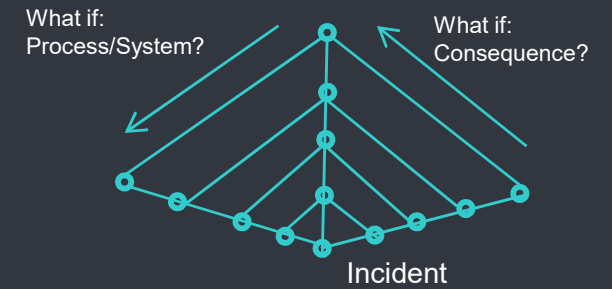
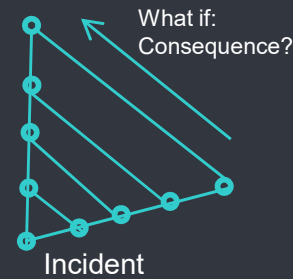
What is the key takeaway?

- There were several systems including the chlorine filling station design and operation, as well as operator techniques which worked to mitigate the incident.
- Ixom had the opportunity to learn from the controls that were implemented by an experienced worker.



Degas valve

Application of PIM to Case Study 3



Takeaways:



1
for employers to
engage with their
employees on how to
improve mitigation
strategies



2
to continue to
train employees to
think practically
about their
workspace



3
to revisit mitigation
plans in order to
incorporate effective,
unplanned defences

Questions?

Thank You