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What are lessons learned?

Workshop on Accident Analysis and Risk Assessment

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Examples

- 1) "A lesson learned is knowledge or understanding gained by experience that has a significant impact for an organisation – The experience may be *either positive or negative*".
- 2) "A lessons learned is a potential mode of failure (a risk) and the possible actions to mitigate that risk".
- 3) "A lesson learned documents the experience gained during a project. These lessons come from working with or solving real-world problems. **Collecting and disseminating lessons learned helps to eliminate the occurrence of the same problems in future projects**".
- 4) "A lesson learned is an experience or outcome of a particular course of action - *either positive or negative*".
- 5) "The knowledge acquired from an innovation or an adverse experience that causes a worker or an organization to improve a process or activity to work safer, more efficiently, or with higher quality".
- 6) "Knowledge derived from the reflection, analysis and conceptualization of experience that has potential to improve future action".



- **experience gained**
- **knowledge acquired**
- **extracted/derived**
- **mitigate**
- **improve**
- **possible actions**
- **positive or negative**

But these only lessons identified.
How to apply?

- **disseminate lessons**
- **share information/knowledge**
- **eliminate the occurrence**

1. Reflect on experience/knowledge. Think back and discuss what happened (sequence of event/accident description).
2. Identify learning points. Where was there a difference between what was planned, and what actually happened?
3. Analyze. Why was there a difference? What were the root/underlying causes (causes of accident)?
4. Summarize. What is the learning point? What should be done in future activity to avoid the hazard?
5. Take actions, identify instructions/recommendations based on the findings.
6. Recommendations should be clear and specific, straightforward.
7. Avoid unclear messages e.g. "A better system needs to be in place". What better system? Better than what? Who needs to put it in place?
8. Change is the key word for lessons learned. Change in the process, policy, document etc.

If nothing changes, there is no learning.

And finally – do you agree?



Lessons Learned is a change in personal or operational performance as a result of past experience.

Accident description

1500 litres liquid chlorine were released, resulting in a chlorine cloud.

Cause

The incident occurred during scheduled maintenance. Liquid chlorine was released from a chlorine expansion pipe (1 and 1/4 ").

An infra red heater heated the liquid chlorine in the expansion pipe up to more than 140 degrees (Celsius) causing a chlorine iron fire. Approximately 35 cm of the expansion pipe burnt. The fire extinguished itself because of the liquid chlorine washing through the hole in the pipe. The risks -that were part of the maintenance works- had not fully been taken into account before starting the maintenance works. Moreover, the supervising on the maintenance works was not sufficient.



Causes of the accident

Liquid chlorine was released from a chlorine expansion pipe due to a chlorine iron fire.

An infra red heater heated the liquid chlorine in the expansion pipe up to more than 140 degrees (Celsius) causing a chlorine iron fire. Approximately 35 cm of the expansion pipe burnt. The fire extinguished itself because of the liquid chlorine washing through the hole in the pipe. The risks -that were part of the maintenance works- had not fully been taken into account before starting the maintenance works. Moreover, the supervision on the maintenance works was not sufficient.

LL2

LL1

Lessons Learned

Only measures, NOT lessons learned!

~~Measures to prevent recurrence: The company has decided not to use infra red heaters to dry pipes anymore. Furthermore, it will be common policy in the company to not only use the 'job risk analysis' for the specific task someone is carrying out, but to focus as well on the environmental factors that could have an influence on the task.~~

The suggested lessons learned – the focus is how to extract LL from the report.

Lessons Learned

- The operator should have clear and updated documentation of all identified major accident hazard scenarios associated with the site.
- Management of change – An additional risk assessment should be conducted to take into account all maintenance related risks (e.g. accidental release of toxic substance).
- Sensors should be installed where a risk of release of toxic substances is possible.
- The operator should carry out random supervision, especially when contractors are in the field.

- Re-programming to meet new server needs -mid-June 2014
 - EMARS has the highest security programming possible now.
 - Re-programming required to adapt to new servers (who are the only ones with JRC security certificates)
- Improve accident administration functionality (MS/MAHB)
- Cosmetic changes to the form
 - Add Seveso III, facilitate administration, clarify and clean-up
 - New emphasis on **telling the story**
 - Make free text prominent in both input form and output view
 - Provide advice in tool tips on accident details of interest
 - Multiple choice options still available but less prominent

THANK YOU FOR YOUR ATTENTION

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