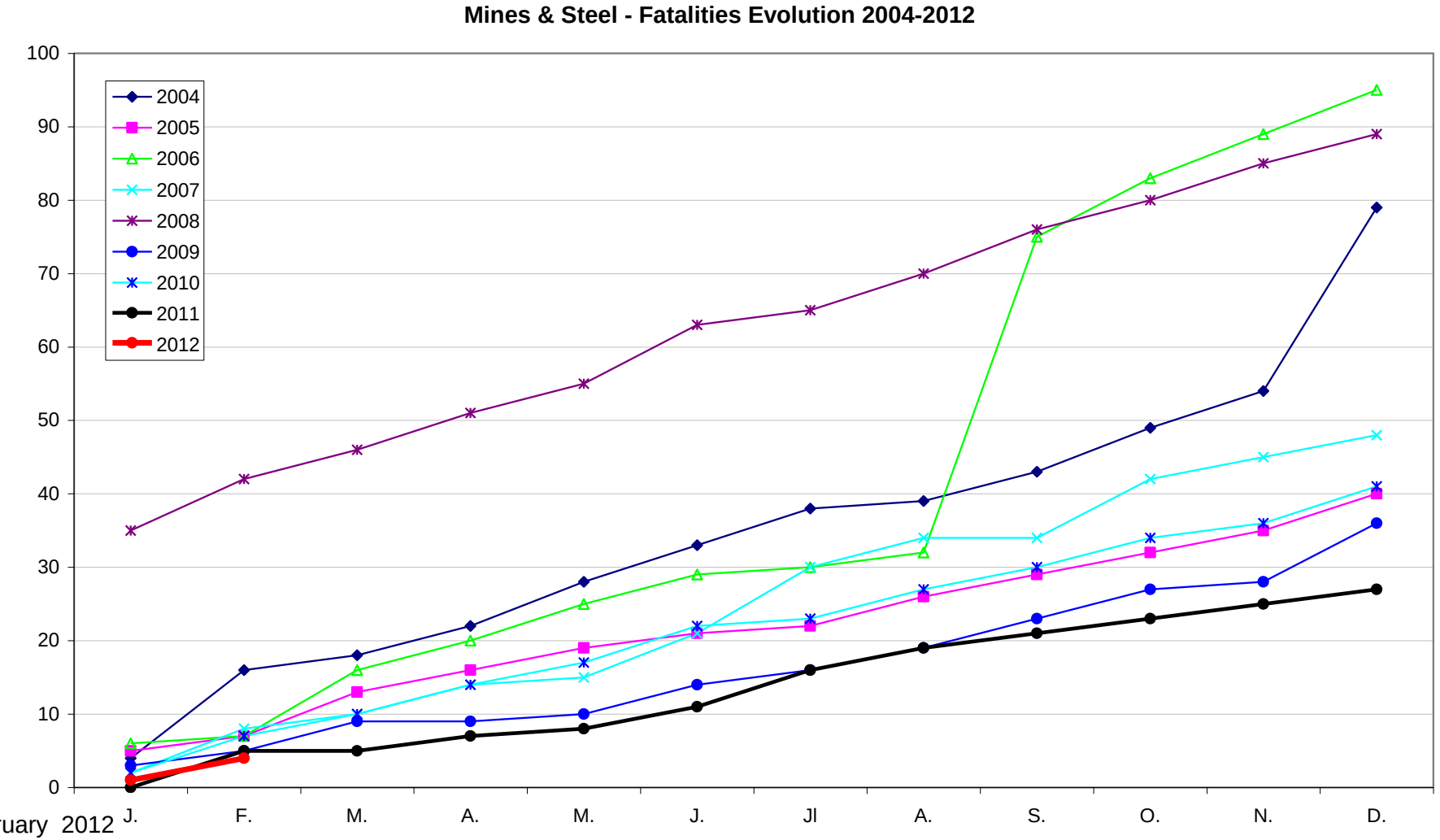
FPS & Life Books Trainings

Corporate Health & Safety
ArcelorMittal

Luxemburg
November 2011 – update February 2012

Figures about fatalities

201O	2011
39 fatal events	25
41 victims	28



Figures about fatalities

- Number of fatalities is just below 2009 level (which was the lowest year so far due to the crisis and the reduction of working hours)
- Contractors are still at a too high level as compared to own personnel (factor ~3 / 50% of the fatalities)
- We still have too many repetitions of similar / same fatalities (40%), sometimes even at the same location
- Main types of fatal incident: crushing, falling from height, load handling
- 2/3 of the fatalities occur in non production / maintenance activities (transportation, construction…)
- Mines: fatality frequency rate
  Own Pers: 0,102 -- Service Prov: 0,063 -- Total: 0,092 *(~2,5 times as high as steel)*

AM Frequency Rate & Severity Rate by Sector

(end January 2012)

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Fr (op+sp)

Domain - MINES	Fr 2008	Sr 2008	Fr 2009	Sr 2009	Fr 2010	Sr 2010	Fr 2011	Sr 2011	Target Fr 2012	Streched Target Fr 2012	Fr 2012 (Jan.)	Fr 2012 (1-1)	Sr 2012 (1-1)
MINES - COAL	5,0	0,31	3,01	0,25	2,07	0,23	1,08	0,12	1,02	1,02	1,08	1,08	0,05
MINES - IRON ORE	1,6	0,09	1,77	0,12	1,02	0,07	1,23	0,06	0,97	0,97	1,54	1,54	0,05
TOTAL DOMAIN MINES	**3,4**	**0,21**	**2,42**	**0,19**	**1,53**	**0,15**	**1,17**	**0,09**	**0,99**	**0,99**	**1,36**	**1,36**	**0,05**

Domain - STEEL	Fr 2008	Sr 2008	Fr 2009	Sr 2009	Fr 2010	Sr 2010	Fr 2011	Sr 2011	Target Fr 2012	Streched Target Fr 2012	Fr 2012 (Jan.)	Fr 2012 (1-1)	Sr 2012 (1-1)
AMDS	3,8	0,18	3,83	0,27	2,74	0,18	3,24	0,21	1,64	1,60	3,84	3,84	0,14
ASIA + AFRICA + CIS	1,2	0,05	1,09	0,05	0,92	0,05	0,67	0,04	0,59	0,51	0,38	0,38	0,04
FLAT AMERICAS	2,1	0,06	2,06	0,10	1,83	0,15	1,92	0,20	1,30	1,30	1,97	1,97	0,26
FLAT EUROPE	2,4	0,18	1,79	0,15	2,25	0,16	1,63	0,13	1,25	1,25	1,39	1,39	0,12
INDUSTEEL	5,0	0,36	3,52	0,35	4,47	0,42	2,63	0,38	2,99	1,90	2,19	2,19	0,30
LONG AMERICAS	1,7	0,1	1,30	0,08	1,59	0,09	1,11	0,07	1,13	1,00	1,14	1,14	0,09
LONG EUROPE	5,6	0,2	2,34	0,16	2,57	0,14	1,95	0,12	1,67	1,49	1,43	1,43	0,11
TUBULAR PRODUCTS	3,2	0,2	2,29	0,14	1,92	0,07	0,81	0,05	0,84	0,73	0,48	0,48	0,00
OTHERS	2,0	0,07	0,57	0,03	0,38	0,00	0,97	0,00	0,78	0,78	1,15	1,15	0,01
R-D	1,1	0,01	2,48	0,05	2,02	0,04	1,75	0,05	1,30	1,30	0,00	0,00	0,00
TOTAL DOMAIN STEEL	**2,4**	**0,12**	**1,79**	**0,12**	**1,80**	**0,12**	**1,46**	**0,11**	**1,21**	**1,05**	**1,32**	**1,32**	**0,11**

Total Mines & Steel	2,5	0,13	1,87	0,13	1,77	0,12	1,42	0,11	1,20	1,04	1,33	1,33	0,10

Best LTI FR result ever for ArcelorMittal, slightly above target level ! (incl. APERAM even below)

- **Mining** → well below 2010 result but above 2011 targeted max (due to iron ore above 2011 target)
- **Steel** → well below 2010 result and close to (but still a bit above) targeted maximum value
- **APERAM** → well below 2010 result and below 2011 target

Figures about Safety Audits

- **Number of audits evolution from 2010 to 2011**
  - 2010 – 42 DUO + FPA
  - 2011 – 60 DUO + FPA

- **Number of sites visited evolution from 2010 to 2011**
  - 2010 - 39 sites visited
  - 2011 - 54 sites visited
  - 21 sites visited twice in 2010 / 2011

- **Number of mandatory audits evolution from 2010 to 2011**
  - 2010 - 21 FPA + 3 DUO = 24 mandatory audits after a fatality
  - 2011 - 14 FPA + 20 Follow Up FPA + 3 DUO = 37 mandatory audits

- **Number of audits asked by sites / BUs evolution from 2010 to 2011**
  - 2010 - 1 FPA + 13 DUO = 14 audits asked by sites / BU
  - 2011 - 23 FPA + 6 DUO = 29 audits asked by sites / BU

Main conclusions for FPA

- Sites now perform their self evaluations even if some are late
- But when a site is crossed-audited the result is always worse than the one of the self evaluations

  Why?

  - Sites don't understand the FPA questions?
  - Because of the pressure coming from top management to reach the level 3 of the FPA?
  - The scoring system is strict?
- Sites that have been audited 2 times always improve their safety organization on the FPA, sometimes dramatically
- As a results the sites that have been audited have less or no more fatality from 2010 to 2011
- On the other hand when a site overestimates its self evaluations that's very hazardous because when people estimate they are Level 3 they also conclude they don't have to improve
- FPA must be used as a tool to find improvement paths

Main conclusions coming from Audits / Visits

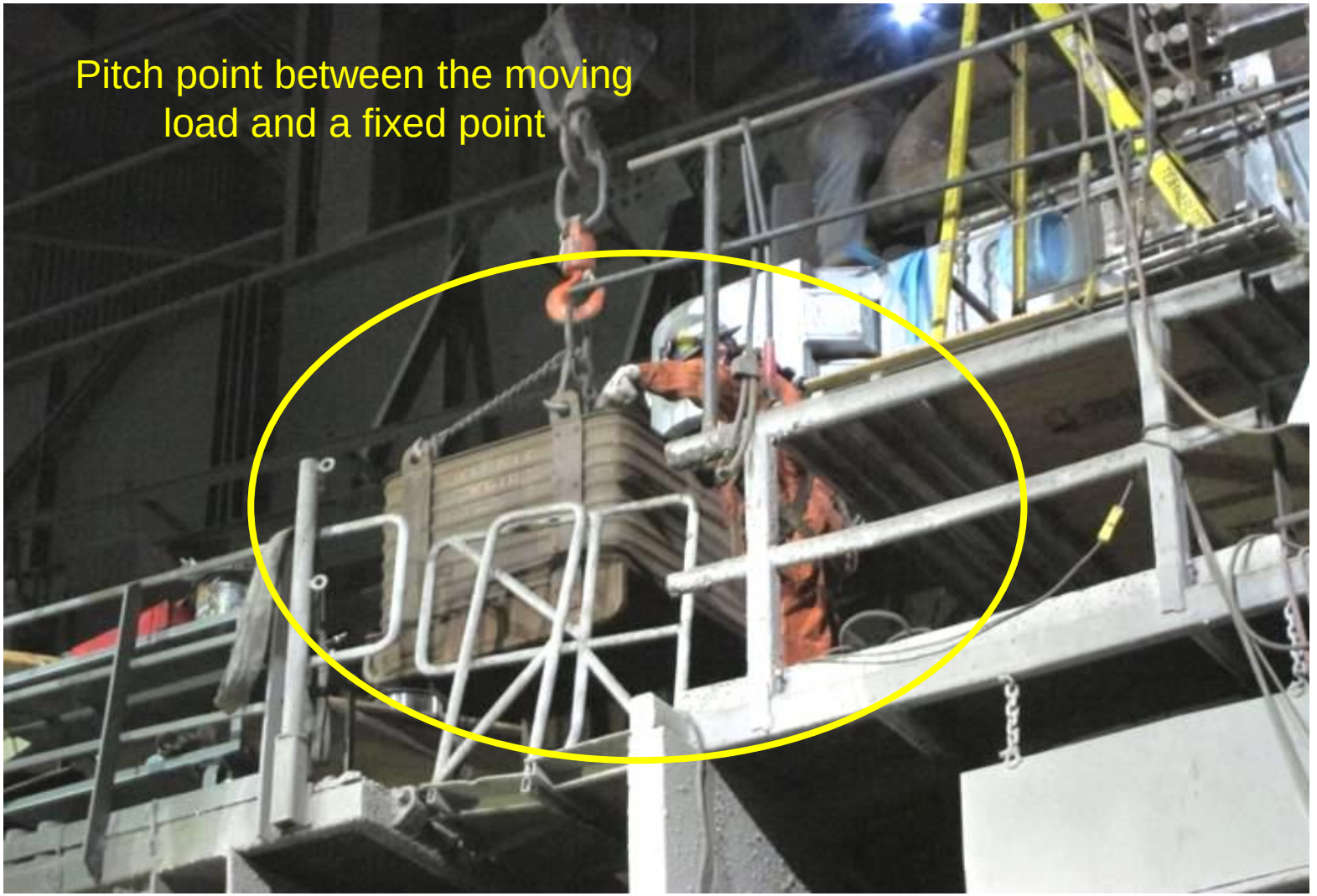
1. We still notice a lot of basic safety non conformities that should be treated through Shop Floor Audits and/or Layered Evaluations

2. We're always guided on the shop floor by local management. When observing hazardous situations and waiting for the reaction of the local management, too often they don't react / correct.

3. The reports of Shop Floor Audits are often too poor (PPE issues only). We work more on quantity than on quality

Example of audited hazardous situation

Example of audited hazardous situation



Recurrence of incidents

- Just 1 month before a fatality occurred in Zenica in the same situation
- Alert + REX + Closed Loop had been sent to everybody

Example of audited hazardous situation

20 contractors busy working at height together on a platform

- At the first visit they had no safety harness and the side of the platform wasn't protected against falling because they thought the platform was safe because it was large enough
- They have been asked to use safety harnesses and protect the side of the platform

Example of audited hazardous situation

Second visit

They all wear a safety harness which is hooked on a line

FPS & Life Books Trainings

Example of audited hazardous situation

More than 15 people were hanged on the same wire!

But have a glance on that “life line” which is also the fixed protection against fall erected on the side of the platform

FPS & Life Books Trainings

Example of audited hazardous situation

No more protection on the side of the platform

Same works

An access to the elevated platform with a portable ladder

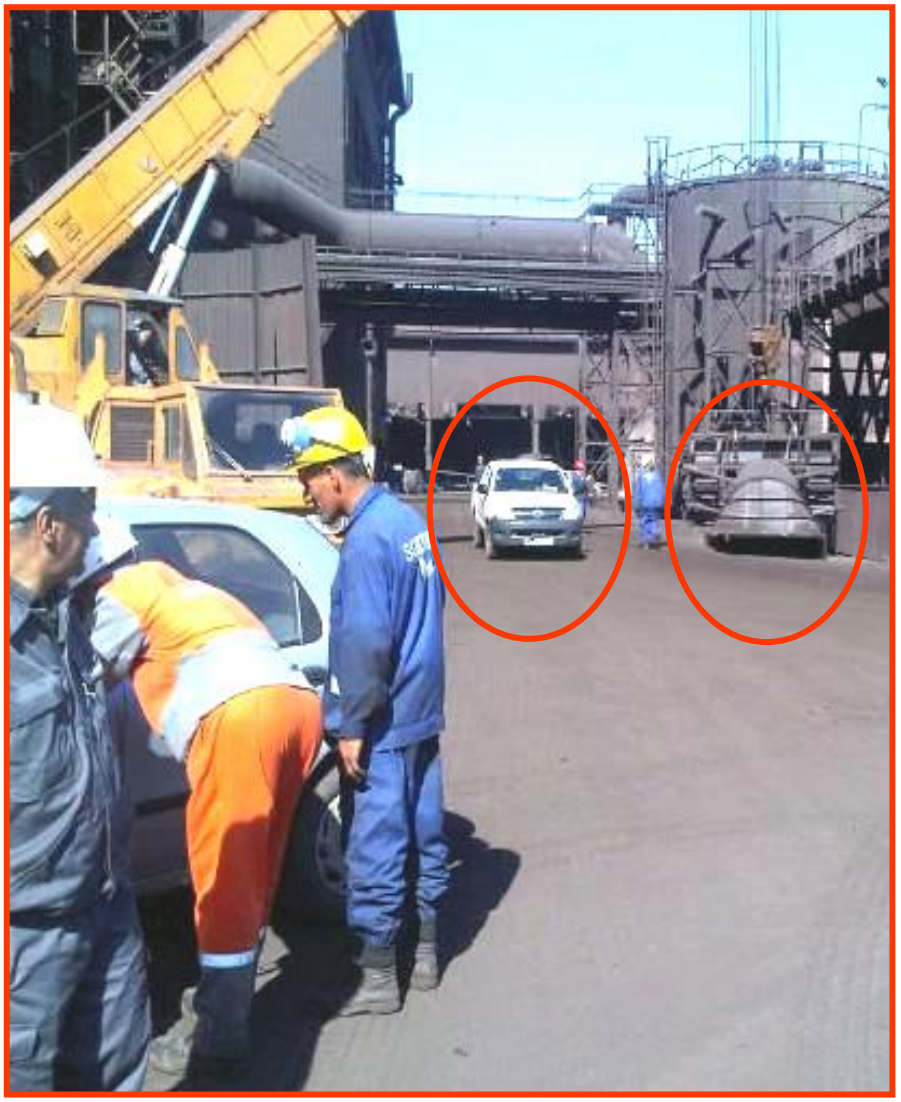
Home made ladder in a very bad shape not fixed

Recurrence of incidents

- The last 3 years it's 1 fatality / year during works on a portable ladder
- In the REX system 15 events have been reported

Details of the home made portable ladder

Example of audited hazardous situation

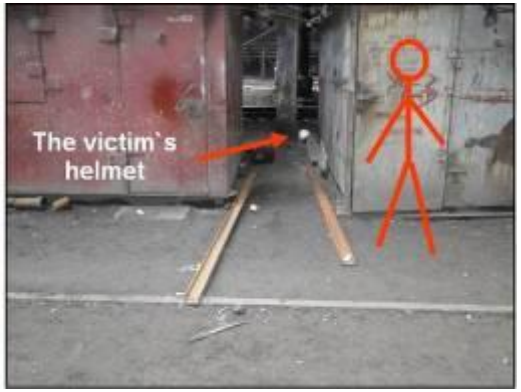


A car crosses the works between the mobile crane and the load

No barricade / No access control

REX mobile cranes

During the lifting operation with a mobile crane the load fell down from 4 m and crushed the head of a worker who was going out of a building



August 2011
Lost Time Injury – Crushed by the falling load

Example of audited hazardous situation

Points à améliorer / Recommandations

- This open hook is used by a contractor to take of the edge of the ladle the peaces of metal
- 7 people were busy working around exposed to the risk of being crushed but the hook suddenly disengaged
- The damaged can also be used to move a load and lead to an incident

Example of audited hazardous situation

Another way to clean the ladle is to oxy-cut the metal but have a glance on that scaffold.

If the operator goes back he falls from 3 m.

And he doesn't wear the appropriate PPE

Example of audited hazardous situation

Take the example of this car loading operation

One person was there sitting on the side of the car during the operation

Example of audited hazardous situation

A few minutes later he was into the car close to the hanged load together with his colleague

There's no written HIRA for that task

There's nothing in the written procedure concerning the risk of crushing and the fact that nobody should be into the car during the loading operation

Example of audited hazardous situation

Damaged slings all found in the same workshop

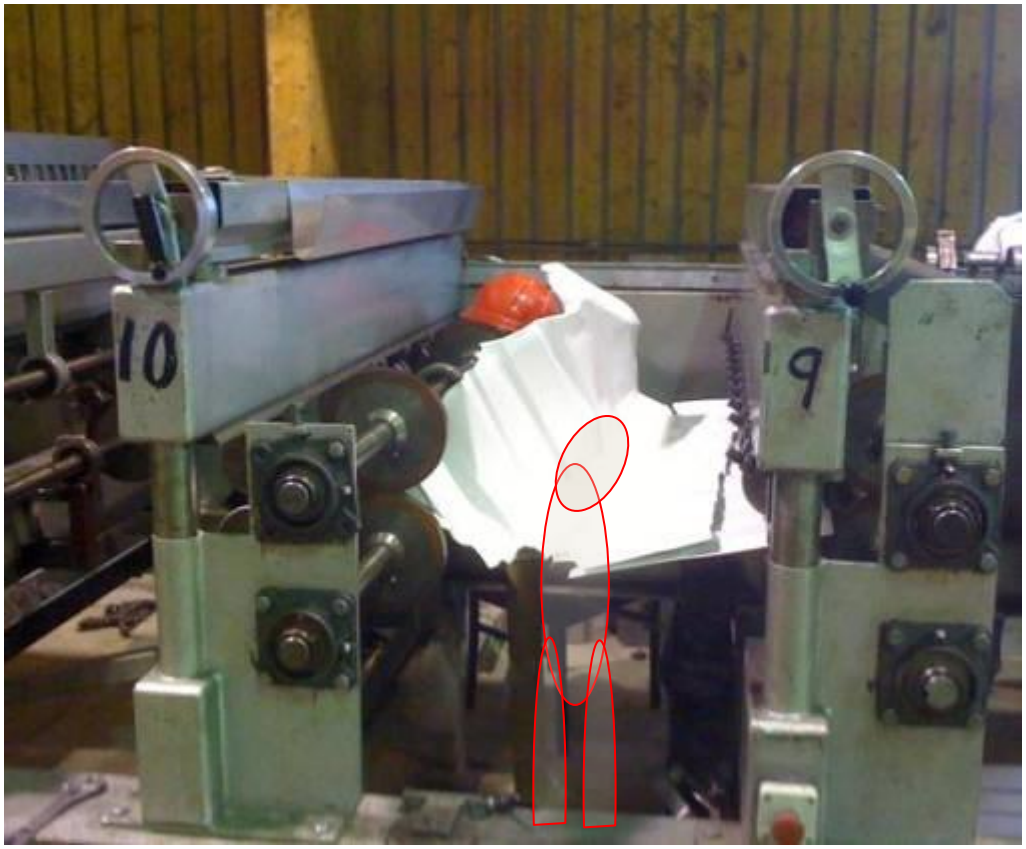
Example of audited hazardous situation

Home made scaffold erected near the entrance of the training where people are trained to working at height in safety

REX 1

Flat products profiling line

- After the profile change the operator always produce a second choice sheet to measure and calibrate by adjusting the rollers
- But to measure he enters between cages with the remote control handset and start profiling in slow speed
- His jacket was caught between the turning rolls behind him
- He was probably so surprised that he pushed the high speed button and was crushed by the sheet of steel



This fatality should have been avoided with a good HIRA of the job position till the task of rolls calibration

REX 2

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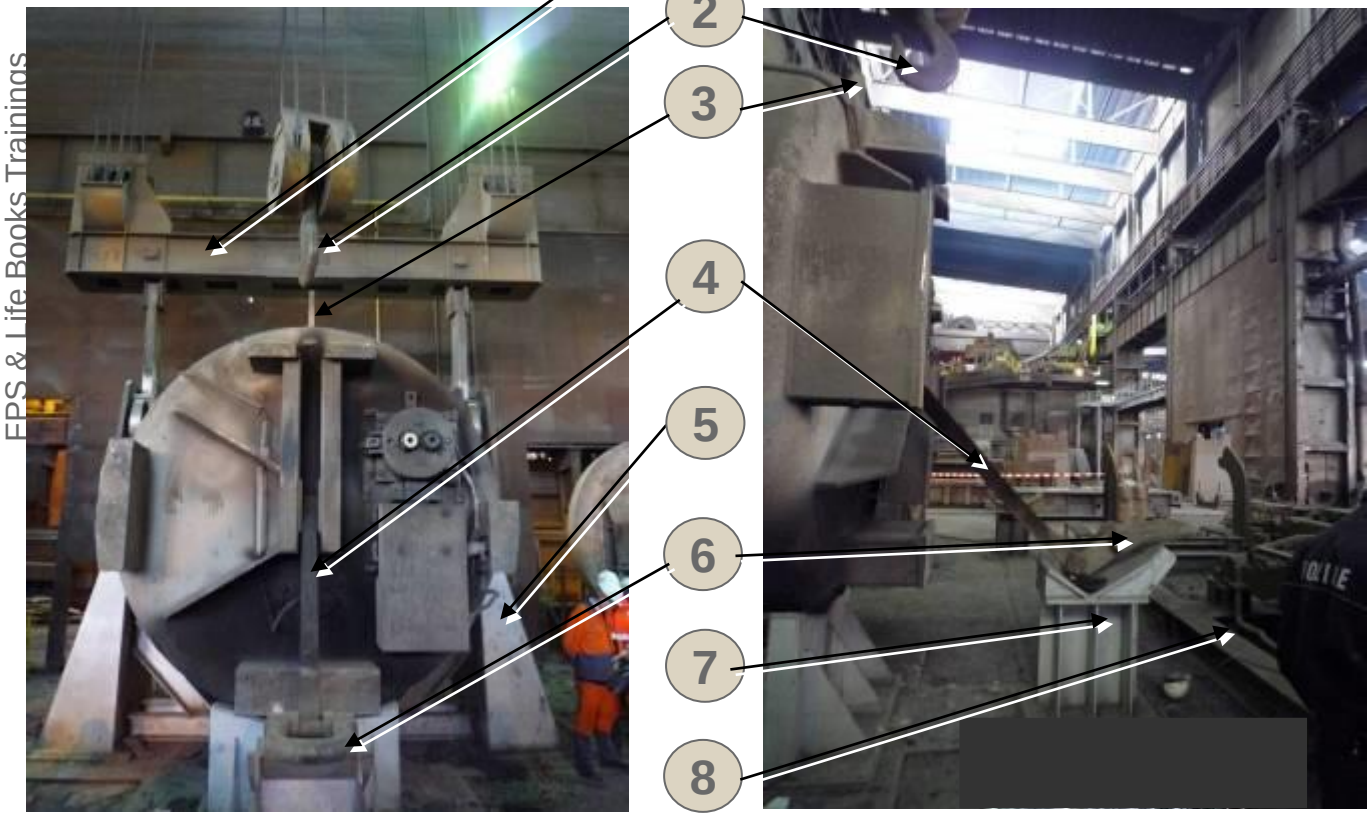
Details of the heating station and the ladle when the accident occurred



1	Main lifting
2	20 tons hook
3	Locking pin of the ladle tilting arm
4	Ladle tilting arm
5	Side cradles
6	Handling ring of the tilting arm
7	Tilting arm cradle
8	Moulds

REX 2

Passage taken by the victim at the moment of the accident

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REX 2

Handling ring in its usual stand-by position

Position of the handling ring after the accident

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REX 2

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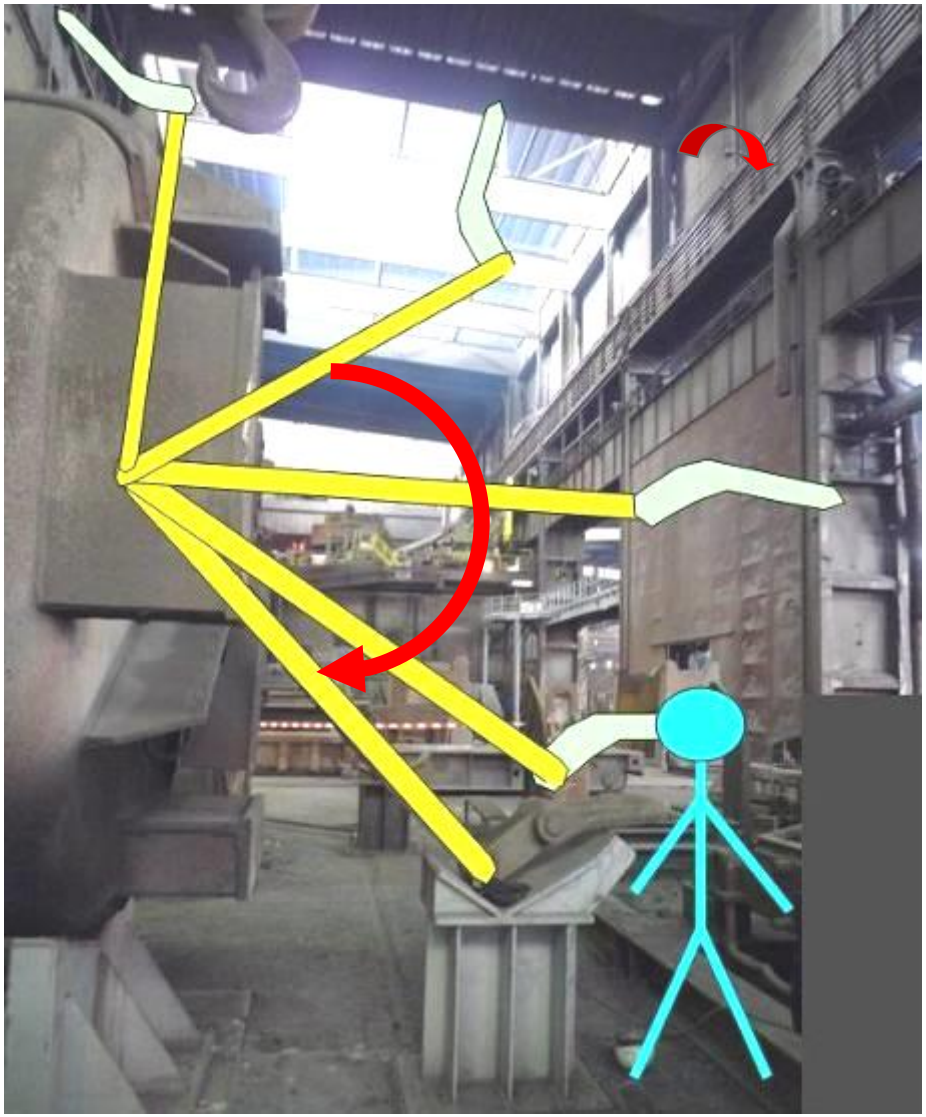

Simulation of the accident

- During a talk with the concerned operators, they said the tilting sometimes unhooks and falls
- They said that when it falls on the other side on the worm ladle the situation is more hazardous because they had to climb there with a portable ladder and re-hook the arm
- The HIRA has been completed after the accident with the precious information given by all the operators

Global Conclusion

We still daily have too many hazardous non controlled situations and violations of safety rules in our sites that should be at identified and corrected

- Problem of management?
- Problem of behavior?
- Problem of communication?
- Lack of risk perception?
- Lack of technical knowledge?...

We already have tools that should fix those issues if they were properly used

The existing tools for improvement

- **Problem of management** → **Layered Evaluations**
- **Problem of behavior** → **Shop Floor Audit + Layered Evaluations + Shared Vigilance**
- **Problem of communication** → **Shop Floor Audits + Shared Vigilance + Golden Rules**
- **Lack of risk perception** → **HIRA + REX + Closed Loop**
- **Lack of technical knowledge** → **Trainings**

Shop Floor Audits / Layered Evaluations

- So much time is dedicated to safety observations and talks. It's a pity not to use it properly
- We should increase the quality of layered evaluation and Shop Floor Audits by helping our auditors to go deeper in their safety evaluation

Shared Vigilance

- We don't have enough observations and those we have mostly concern PPE too
- Outside the position of auditor it's sometimes difficult to interfere in a situation to criticize or correct it
- We should increase the number and the quality of shared vigilance observations by helping people to find legitimacy when practicing Shared Vigilance

HIRA

- Risk assessment is the base of the safety management system
- The quality of risk assessment determine the level of risk identification and control
- We must improve our HIRA involving the operators the most it's possible and help them not to underestimate the risks they are daily exposed to

REX and Closed Loop

- Are the best opportunity to avoid incidents recurrence
- Show people the activity they daily perform can lead to an incident when some causes exist
- We should use REX and Closed Loop systematically to improve our people's risk perception and prevent incidents repetition

Training

- Is the best way to increase our people safety knowledge and improve our operators way of working + their management and our SF-auditors ability to evaluate and correct unsafe situations
- We should train all those people to FPS

The FPS Trainings

- **Start with REX**
  - **To show people that sometimes even routine tasks can lead to fatal incidents**
  - **To help them reminding the level of risk they can be exposed to**
  - **To make them always wonder « what can go wrong? » before acting….**
- **Then present the basic safety rules for the concerned FPS**
- **Illustrated the most it's possible**

The FPS Trainings

Should be provided to:

- **Managers concerning their activities**
- **Shop Floor Auditors**

To increase their knowledge in FPS activity and help them to:

- **Manage their team in compliance with the FPS requirements**
- **Identify and correct hazardous and/or non compliant situations**
- **Train people when necessary (e.g. in case of repetitive safety violations and/or lack of safety knowledge of audited people**

Take care! the FPS trainings can't replace mandatory legal trainings (crane or manlift operator, rigger….) because they don't provide the same level of details in the information

Life Books

A simple and very practical document to use on the shop floor

Recto Side

Reminder of the basic rules for the concerned activity

FPS & Life Books Trainings

February 2012

Health & Safety Life Book

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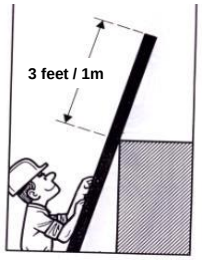
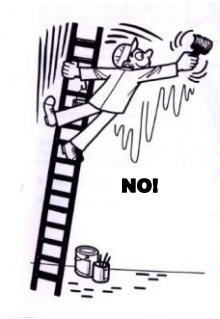
Portable Ladders





Design Specifications

- The use of home made ladders is forbidden.
- The ladder must not be loaded beyond
- The ladder must have the proper size for the job. The side rails must extend at least 3 rungs or 3 feet (1 m) above the upper landing surface.
- It is forbidden to use metal ladders nor metal tools around exposed electrical wiring.

Safety Work Instructions

- When working at 1,8 meters (6 feet) or above ladders' users must wear fall protection equipment and have a suitable tie off point except for short-term works of minor extend.
- Working is allowed on a ladder only when the following 3 requirements exit:
  1. Practically there is no safer way to perform the work
  2. It is a short time work
  3. The worker on the ladder must have at least 1 free hand to grasp the ladder
- Ladders must only be set on stable and level surfaces and secured at the foot to prevent accidental movement
- Ladders must not be set on slippery surfaces unless secured or provides with slip-resistant feet to prevent accidental movement.
- The area around the top and the bottom of the ladder must be secured (clear of debris, tools and other objects, signaled and secured when placed in areas such as passageways, doorways or driveways, or where they can be displaced by workplace activities or traffic to prevent accidental movement).
- The technically proper angle for a non-self-supporting ladder is about 75 degrees above horizontal. This means that the base should be set out one-fourth of the ladder's height to its top support point.
- One must always face the ladder when climbing up or down, maintain 3 point contact and keep his/her belt buckle inside the rails of a ladder

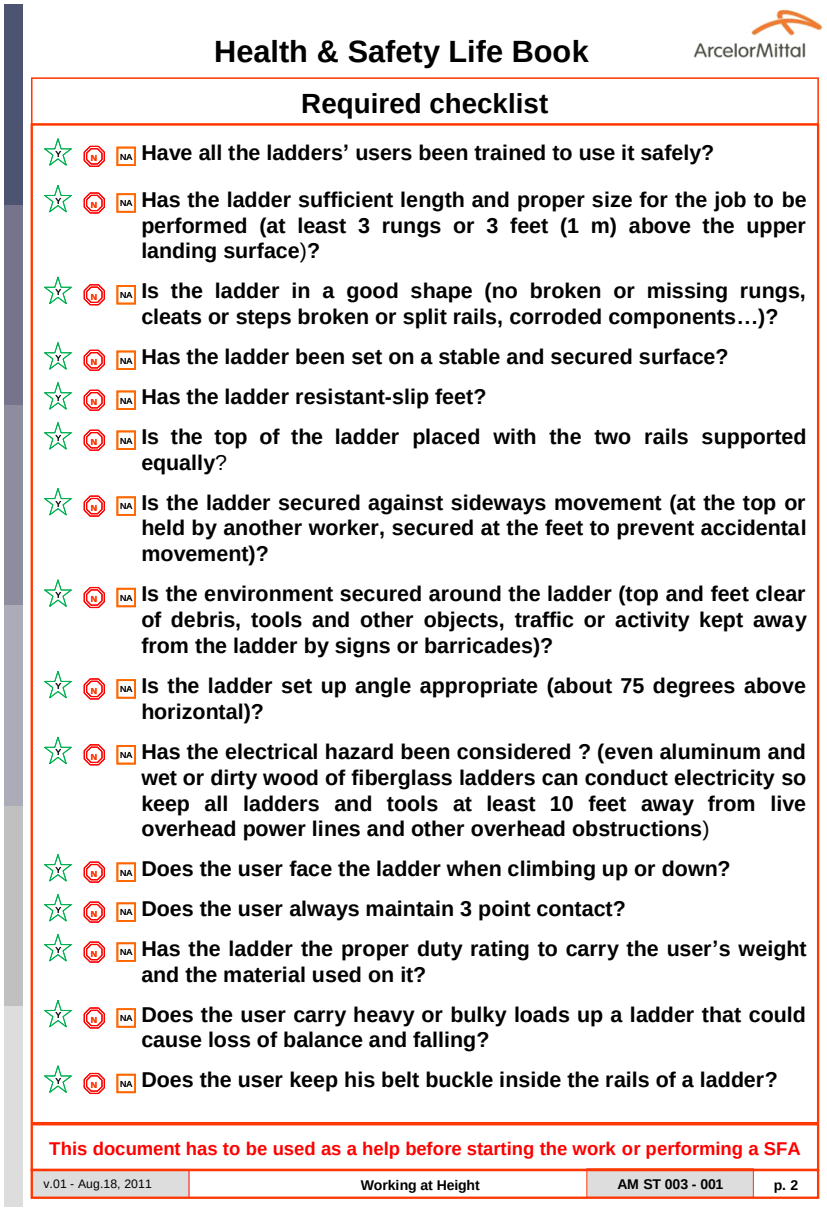
Safety Checks

- The ladder must always be inspected prior use to make sure it is in a good shape. Defective ladders must immediately be marked defective or tagged with "do not use" or similar language and withdrawn from service.

Life Books

Verso Side

- Short questionnaire for evaluation
- All the right answers are indicated



Health & Safety Life Book

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Required checklist

- ☆ N NA **Have all the ladders' users been trained to use it safely?**
- ☆ N NA **Has the ladder sufficient length and proper size for the job to be performed (at least 3 rungs or 3 feet (1 m) above the upper landing surface)?**
- ☆ N NA **Is the ladder in a good shape (no broken or missing rungs, cleats or steps broken or split rails, corroded components…)?**
- ☆ N NA **Has the ladder been set on a stable and secured surface?**
- ☆ N NA **Has the ladder resistant-slip feet?**
- ☆ N NA **Is the top of the ladder placed with the two rails supported equally?**
- ☆ N NA **Is the ladder secured against sideways movement (at the top or held by another worker, secured at the feet to prevent accidental movement)?**
- ☆ N NA **Is the environment secured around the ladder (top and feet clear of debris, tools and other objects, traffic or activity kept away from the ladder by signs or barricades)?**
- ☆ N NA **Is the ladder set up angle appropriate (about 75 degrees above horizontal)?**
- ☆ N NA **Has the electrical hazard been considered ? (even aluminum and wet or dirty wood of fiberglass ladders can conduct electricity so keep all ladders and tools at least 10 feet away from live overhead power lines and other overhead obstructions)**
- ☆ N NA **Does the user face the ladder when climbing up or down?**
- ☆ N NA **Does the user always maintain 3 point contact?**
- ☆ N NA **Has the ladder the proper duty rating to carry the user's weight and the material used on it?**
- ☆ N NA **Does the user carry heavy or bulky loads up a ladder that could cause loss of balance and falling?**
- ☆ N NA **Does the user keep his belt buckle inside the rails of a ladder?**

This document has to be used as a help before starting the work or performing a SFA

v.01 - Aug.18, 2011	Working at Height	AM ST 003 - 001	p. 2

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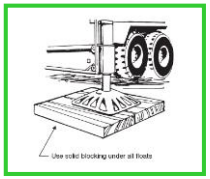
Cranes and Lifting – Mobile Crane Operations

The lifting Team

- The **crane driver** must be trained and have a written valid authorization to drive the crane.
- The **rigger** must be trained.
- A **signaler** is needed when the crane driver cannot see the load, the load landing area, the path of travel of the load or when the crane or is far enough away from the load to make the judgment of distance difficult. He must be trained.

The lifting Equipment (crane)

- Each mobile crane coming from outside the site must have certificates ensuring it passed the required safety inspections.
- At the beginning of each shift the crane driver must conduct the crane pre-use inspection. The results must be documented in a checklist.
- The crane shouldn't be operated when a safety equipment has been identified as inoperable or defective.
- The ground must be level and capable to support the weight of the crane with the load and the outriggers must extended and blocked.
- The crane must be fitted with a audible and a visible travel alarm
- When a crane is operated outside, it can't be used in case of hazardous weather (excessive wind, fog…).

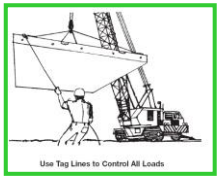


The lifts

- The lift must have been categorized (high/abnormal or low risk lift).
- If it's a high risk lift, a lifting plan must had been written involving the crane operator and rigger.
- The path of the load must be clear of obstacles and people.

Rigging

- The rigger must know approximately the weight of the load and the crane Working Load Limit and make sure the crane can carry the load.
- He must select the appropriate rigging devices:
  1. Their rating capacity must be sufficient to carry the load.
  2. The rigger must inspect them to make sure they are not damaged.
  3. Each rigging device must have its ID number and load rating capacity clearly marked.
- Hooks must be fitted with safety latches except where a Risk Assessment and Hazards Identification indicates otherwise.
- To make a level or stable lift, the crane or hook block must be directly above the load center of gravity before the load is lifted.



People on the ground safety

- Whenever there is a danger of personnel being trapped or crushed when crane swings the area should be barricaded.
- The load must never be moved above or to close from people.
- People must never stand between the moving load and a fixed point where they can be crushed.

Another example

Recto

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Required checklist

- Y N NA Is the crane driver trained and does he have a written valid authorization to drive the crane?
- Y N NA Is the rigger trained?
- Y N NA Is the signaler trained?
- Y N NA Is the ground level and capable to support the weight of the crane with the load?
- Y N NA Are the outriggers extended and blocked?
- Y N NA Did the rigger inspect all the rigging devices and are they in a good shape?
- Y N NA Is the load rating capacity and the ID number marked on each rigging device?
- Y N NA Are all the hooks equipped with safety latches?
- Y N NA Does the rigger know the approximate weight of the load?
- Y N NA Is the rigging devices rating load capacity sufficient to carry the load?
- Y N NA If the rigger use a multiple legs rigging device are 2 legs strong enough to carry the load?
- Y N NA Are there electrical lines that can come in contact with a part of the crane?
- Y N NA Is the area around the crane where people on the floor could be trapped or crushed barricaded?
- Y N NA Is there a documented completed pre-use checklist in the cabin for the daily inspection of the crane?
- Y N NA Did the crane driver complete it properly at the beginning of the shift?
- Y N NA When a safety equipment of the crane is identified as defective or inoperable in the pre-use checklist, is the crane stopped till the problem is fixed?
- Y N NA Is the crane fitted with an audible or visible travel alarm that works?
- Y N NA Has the crane driver a good visibility of the load, the load path and its environment or does a signaler guide him/her?

This document has to be used as a help before starting the work or performing a SFA

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Same example

Verso

Life Books

Please be clear!

Life Books are not a new additional type of audit to perform!

They are only guidelines for safety observations

They should be used for Shop Floor Audits / Layered Evaluations / Shared Vigilance to:

- Go deeply in the situation evaluation / correction
- Check if the audited people have the necessary knowledge to perform their work safely
- Train them if necessary
- Give legitimacy to Shared Vigilance observation (“I don’t tell you – the Life Book tells”)

Existing Life Books & FPS Training

1. **Working at Height** (7 trainings and 10 Life Books)
2. **Cranes** (1 training and 4 Life Books)
3. **Contractors** (6 step by step trainings and 1 Life Book)
4. **Rail** (1 trainings and 2 Life Books)
5. **Isolation** (1 trainings and 3 Life Books)
6. **Confined Spaces** (1 trainings and 5 Life Books)
7. **Vehicles & Driving** (1 trainings and 3 Life Books)

Total: 18 trainings & 28 Life Books

You'll receive the full package during this training and will have to cascade it in all your sites

Process for implementation

Step 1 - Train trainers

(can be held in 2 times. E.g. you can train more trainers after this session)

- **Who?**

  Safety experts – trainers must have expertise in safety and experience in our business activities

- **How?**

  That's not a real training because of their skills and expertise in safety.

  It's more to explain the process

- **How many?**

  Enough to cascade quickly in each sites

Process for implementation

Step 2 - Trained trainers cascade in their site

- **Who?**
  - Managers
  - SF auditors
  - Sometimes operators… in all the sites
- **How?**

Different ways:

1. All the trainees in 1 session trained to all the FPS trainings + Life books (impossible)
2. Progressively each 2 months train them all to 2 FPS + the corresponding Life Books (starting with the activities the site should improve first)
3. Train people per group to 2 FPS + the corresponding Life Books, making sure all the FPS are covered in 1 session. Then progressively train all the people to more and more FPS till they have been trained to all

Process for implementation

If you already use some other FPS Trainings and if they provide the same level of information / illustrations with REX:

- **You can keep them**
- **You can adapt them if necessary**
- **But you have to cascade them following the same process**
- **And you must implement Life Books**

Process for implementation

If you want to:

- **Improve a FPS training or a Life Book**
- **Create some new ones**

You're welcome!

But please, communicate!

Because what is good for your site will probably be good for your BU and the whole AM Group

Thank you for your attention!