

Taking lessons from events

Lessons Learned

TIEMS 1the Fuel Safety &
Disaster Management Conference
Luxembourg City
GD. Luxembourg
26/09/2008

Lessons Learned

- At Thursday 03 July 2008, a yardman is uncoupling a empty Gasoline wagon in a Fuel Depot (similar to 200 Fuel Depots around Europe).
- The wagon is part of a load of 22 wagons, containing together about 1,8 Milj Litre of Gasoline.
- At the moment of uncoupling there is a spark, that ignites the remains of the unloaded Fuel.
- The coupling and the outside of the wagon gets on fire.
- The quick and cool-headed reaction of BOTH the yardman, prevent a disaster.
- During there attempt to put the fire out, one of the safety palls of a fire extinguishers broke.

Lessons Learned

WHAT WAS HAPPENING ?

WHAT WENT WRONG ?

WHAT IS THE REAL RISK

HOW TO PREVENT FUTURE EVENTS
LIKE THIS ?

?

Lessons Learned



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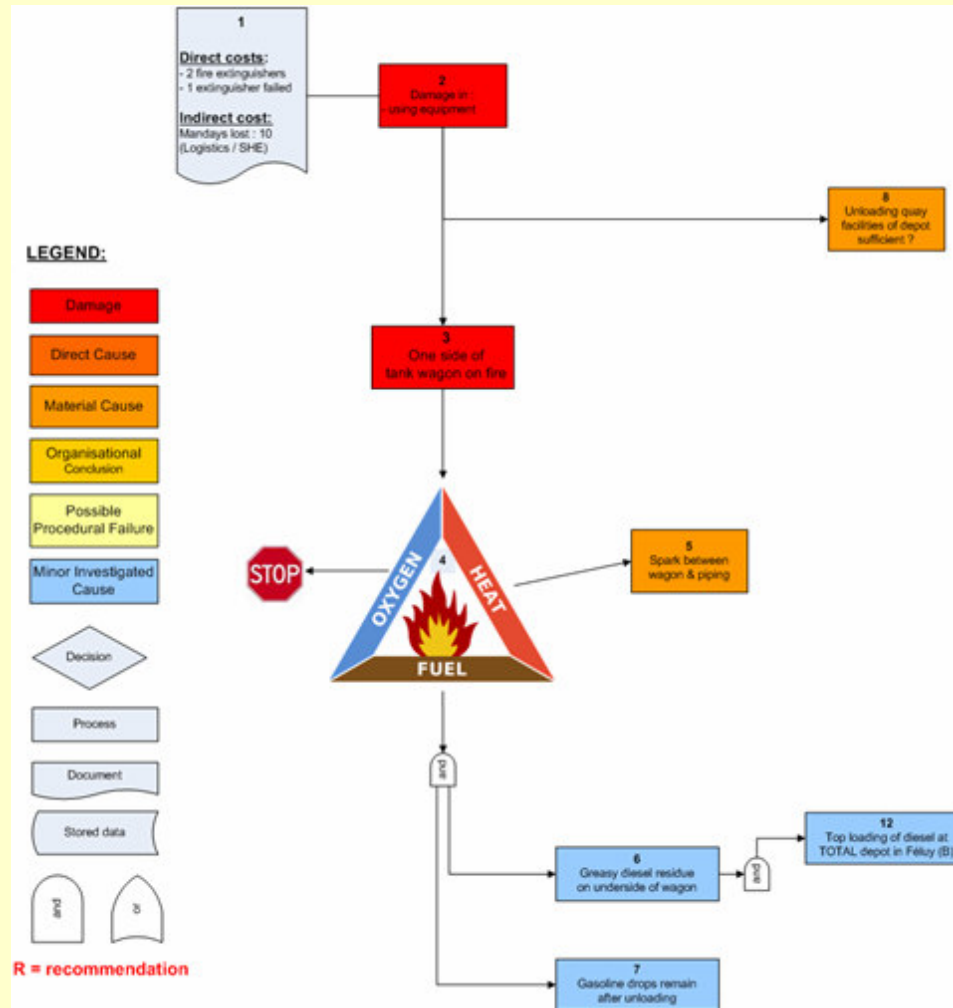
First Brainstorm

- Where is the ignition spark is coming from ?
- Yardman claims “only when there is a loc (*to move the empty train*) we have sparks...”
- What about the earth connection in the depot ?
- Is there a relation with passing trains ?
- Is there a potential difference between the tracks and the depot ?
- What are involved factors ?
- ...
- ...

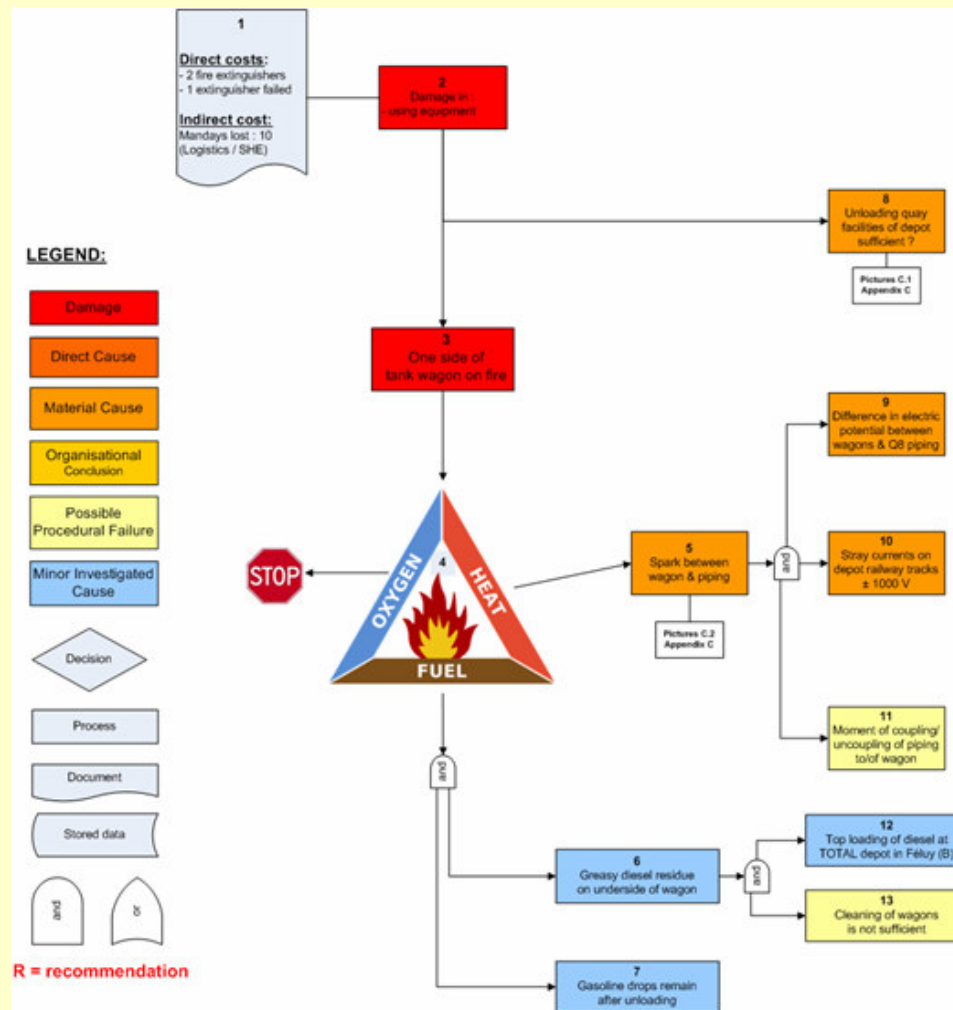
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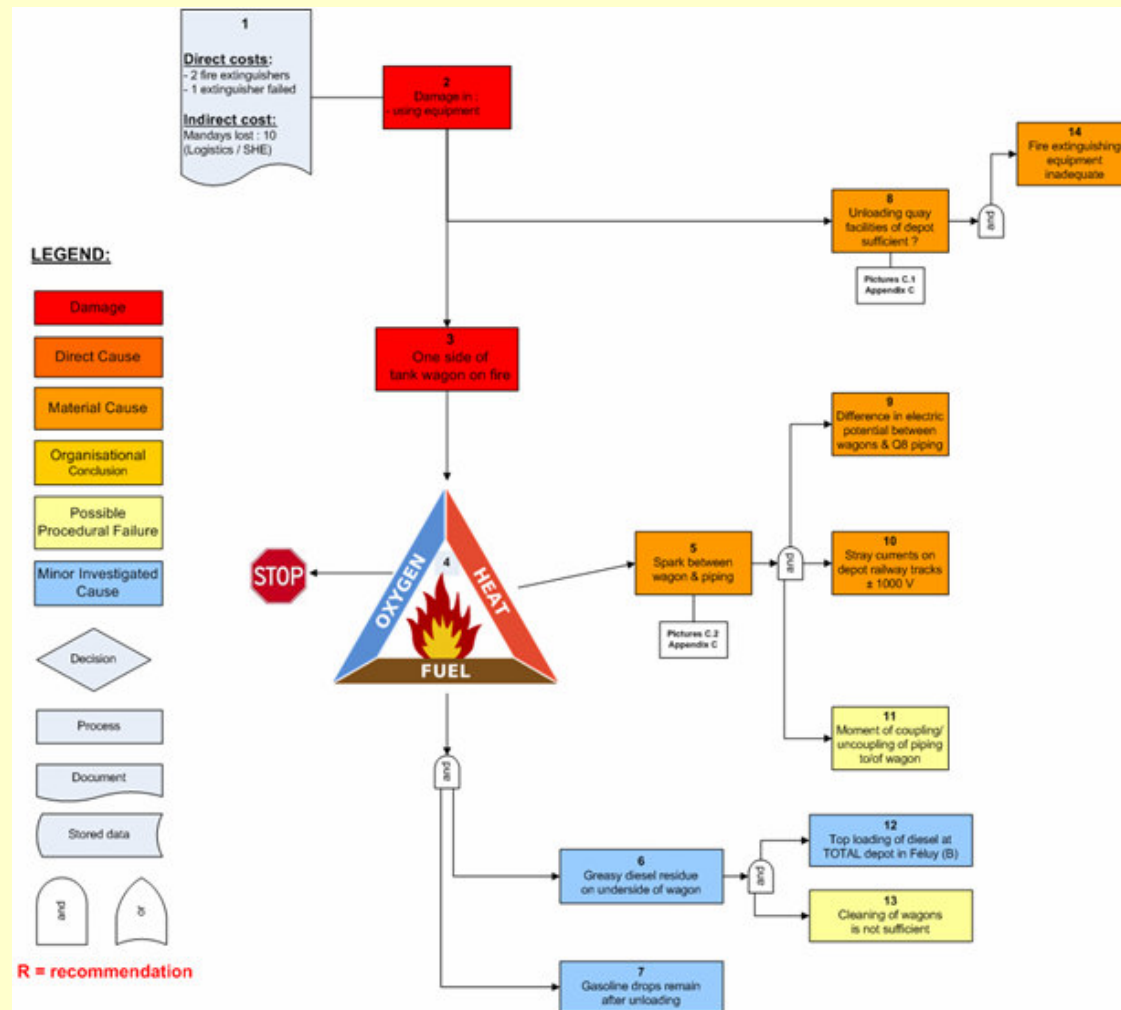
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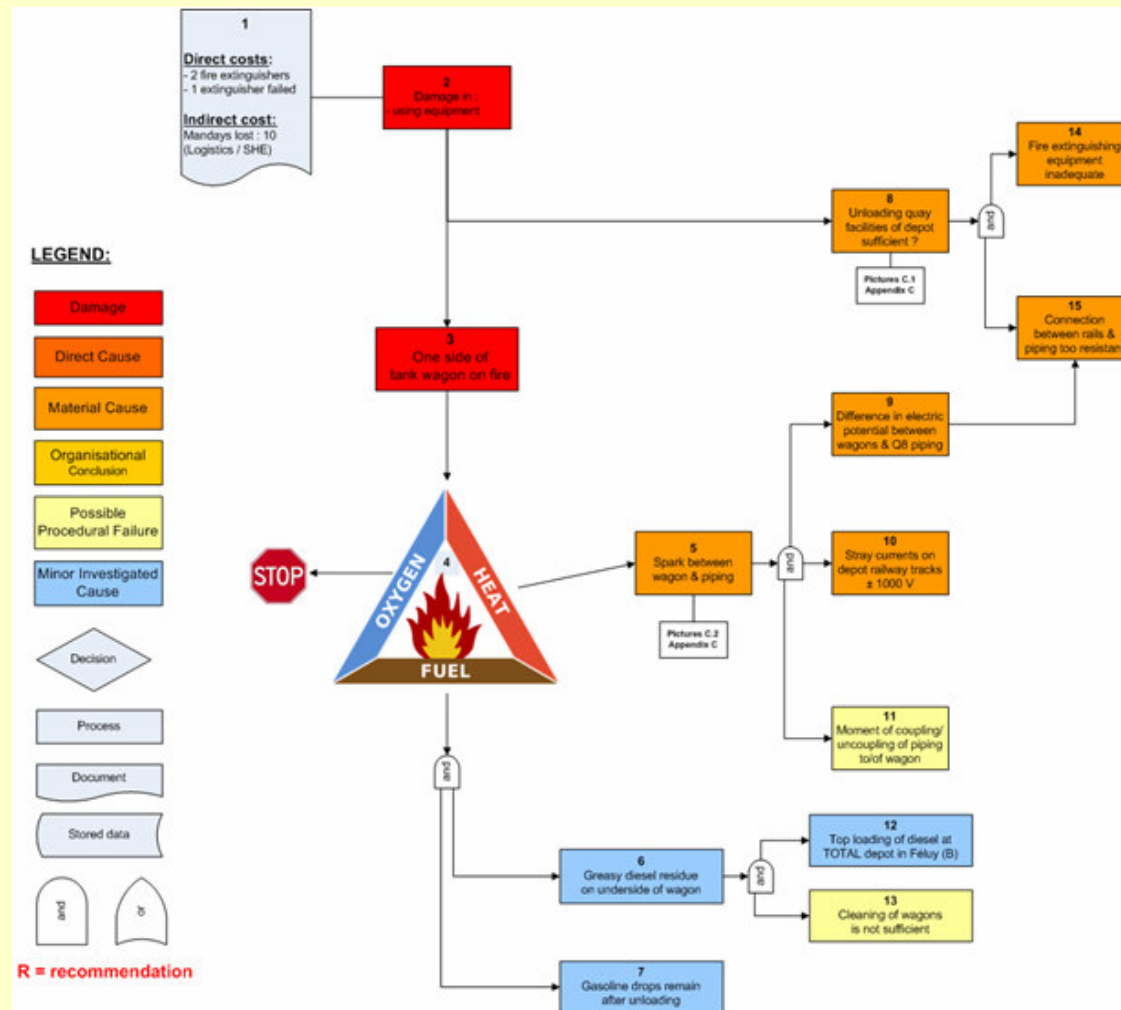
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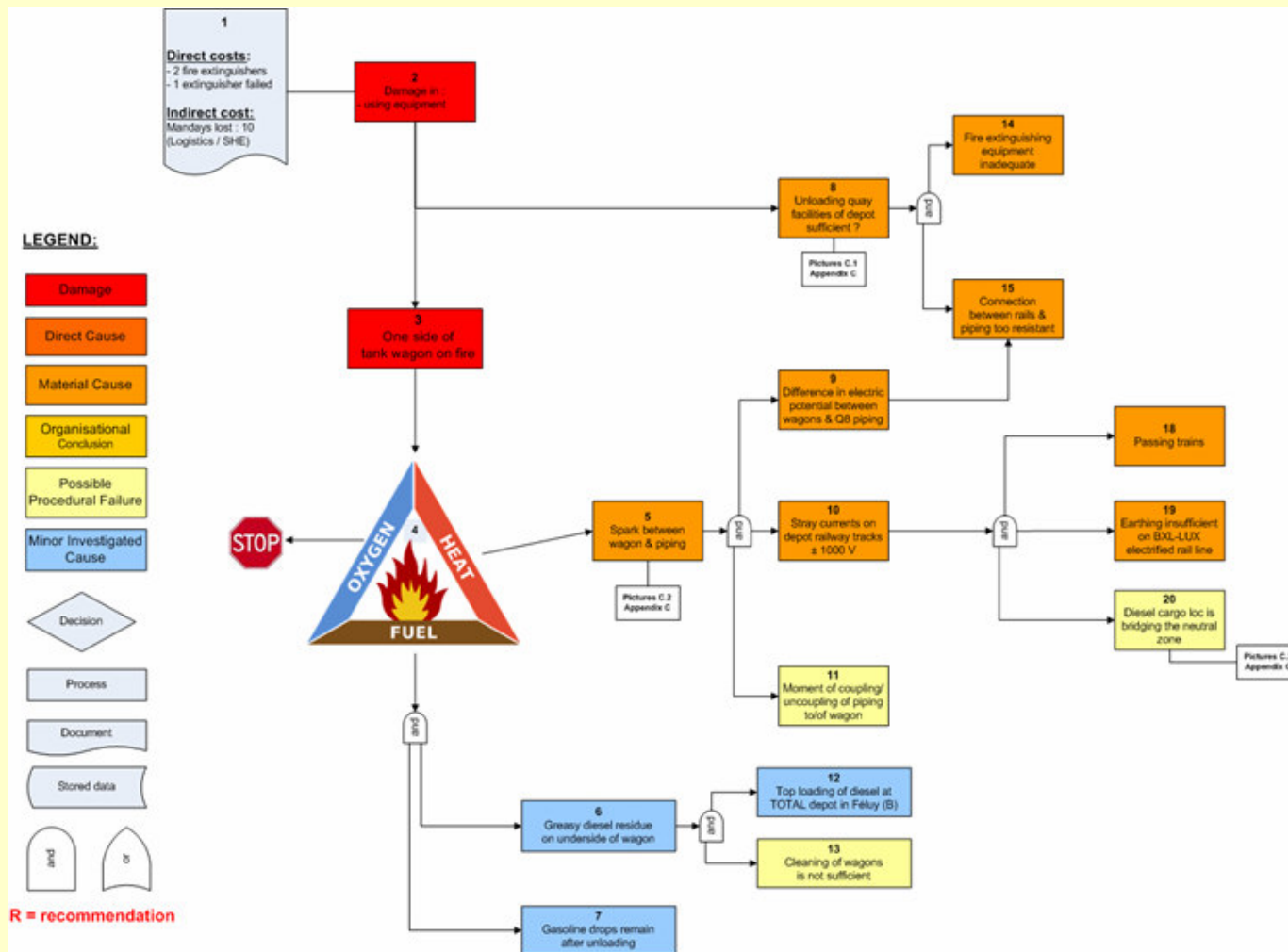
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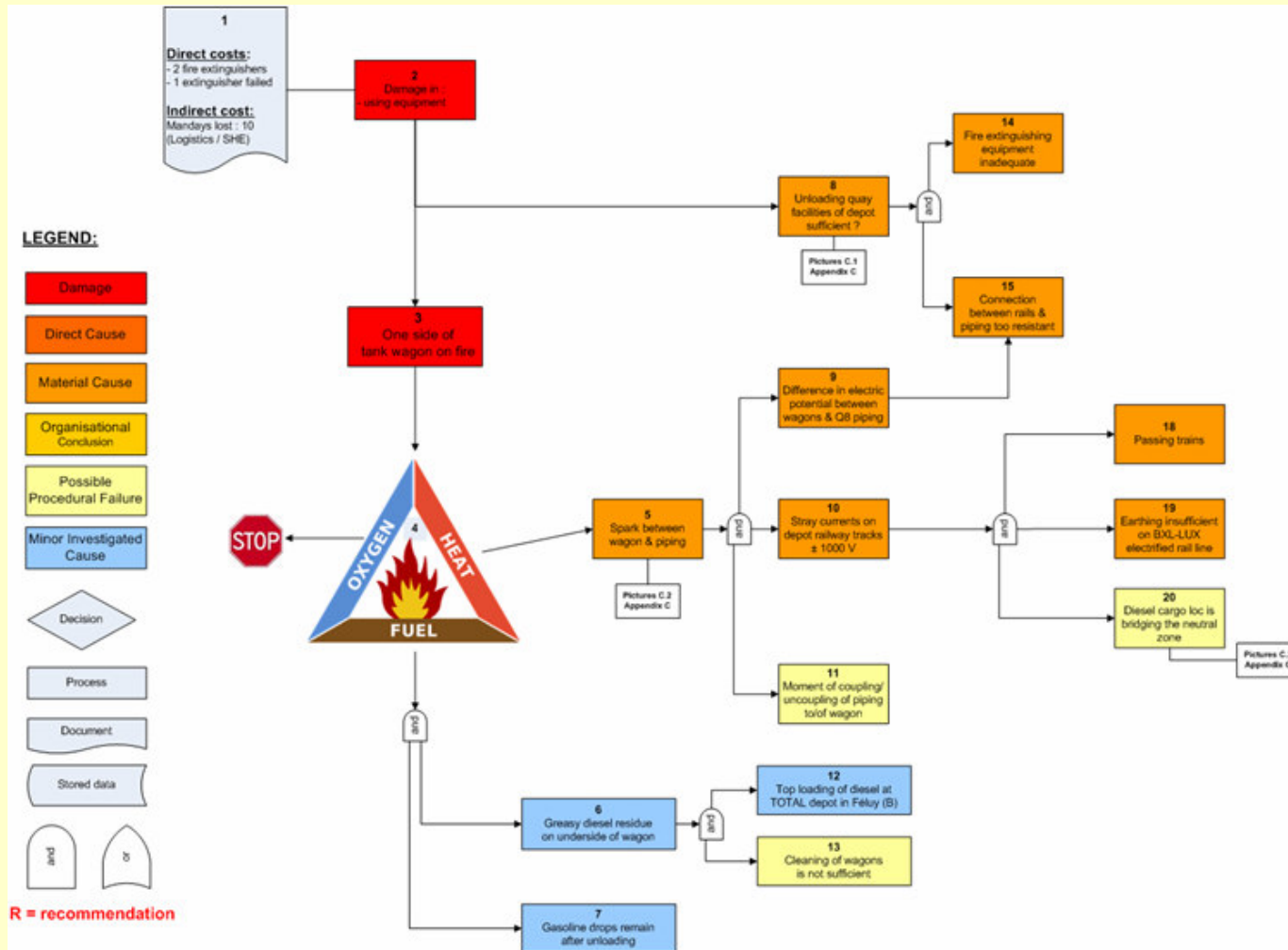
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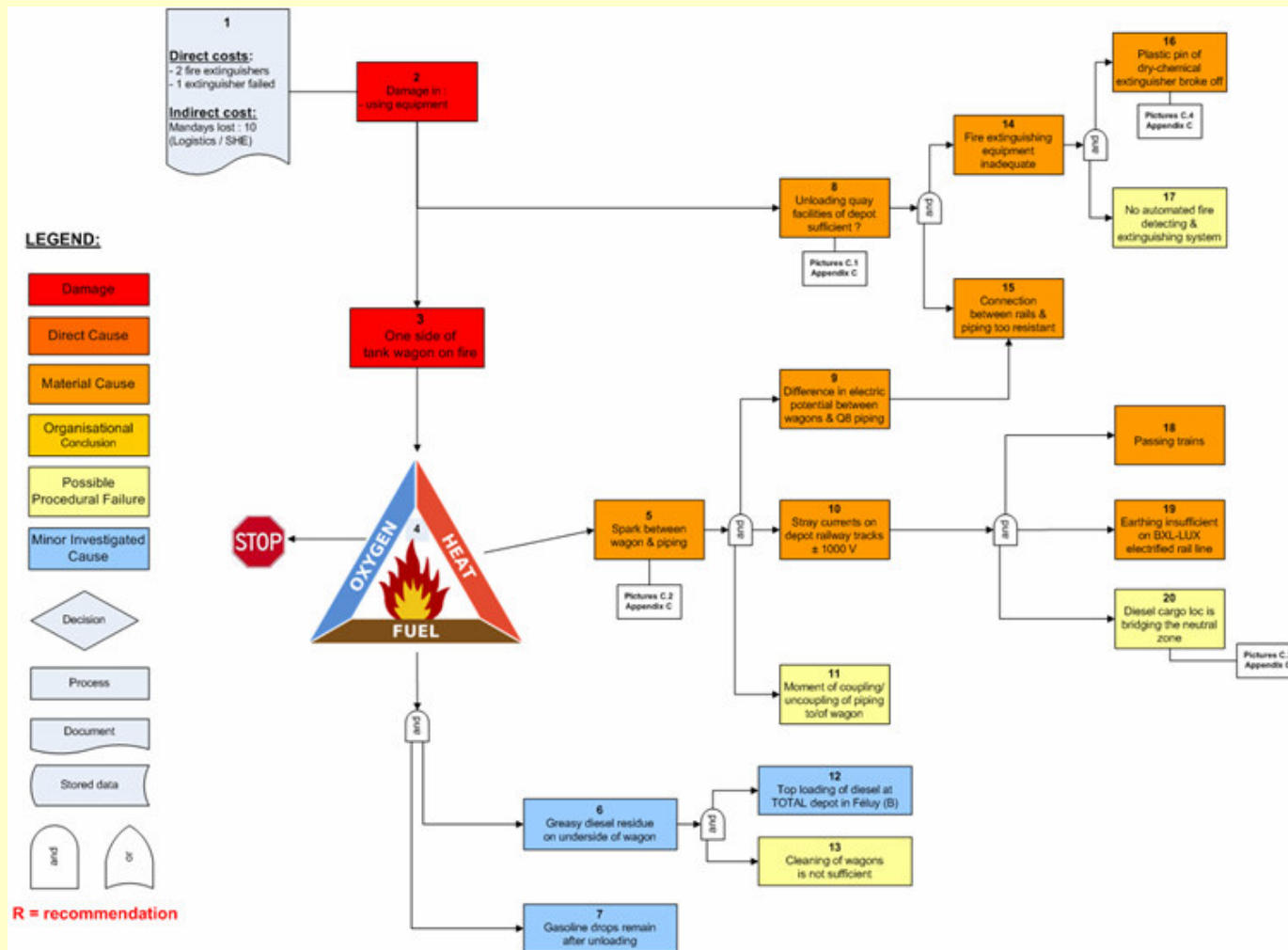
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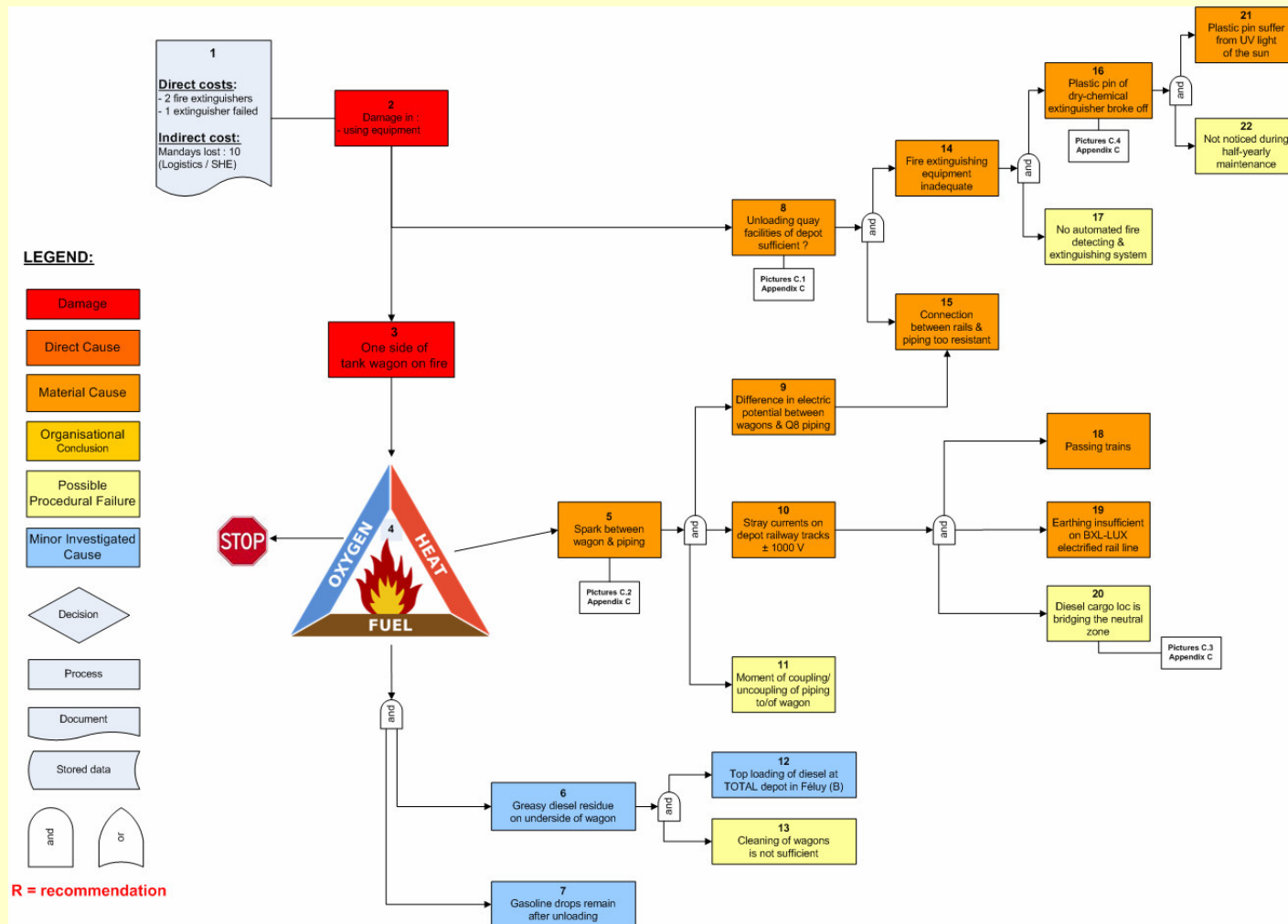
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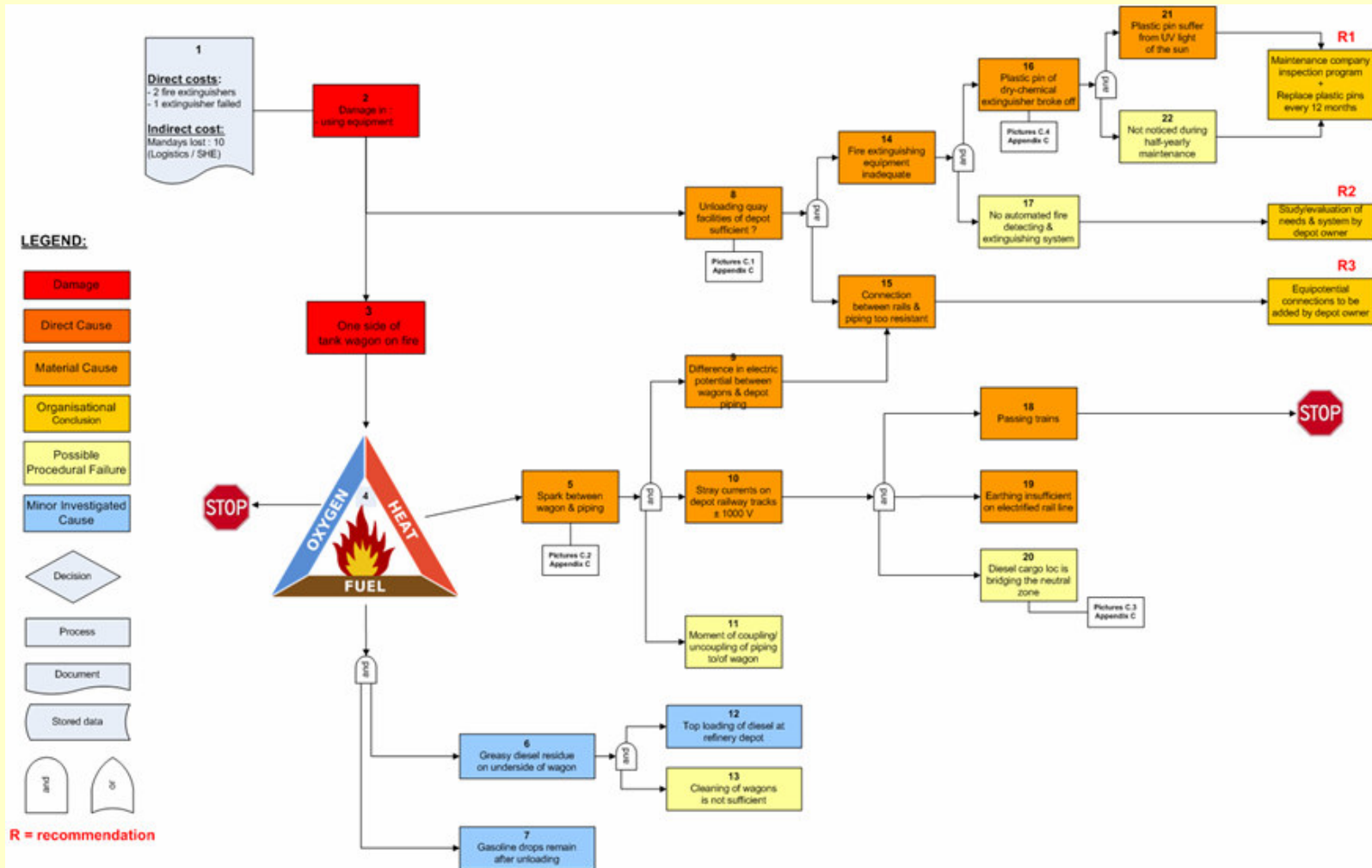
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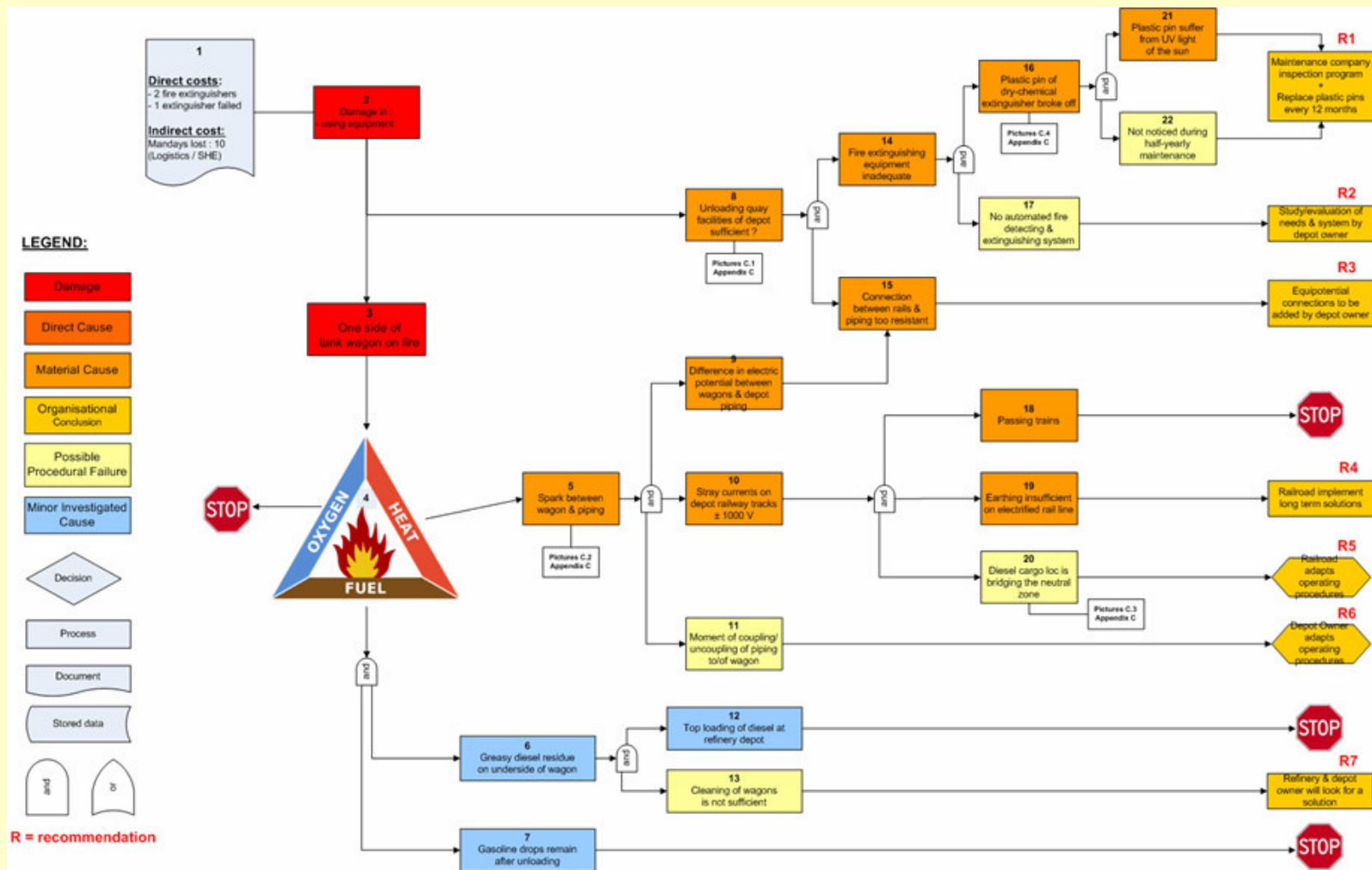
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A	<p>Train in depot</p>	365 Day's a year	24 hours	8760 hours a year
		200 working day's	8	1600
				18,26 % of the year there is a train in the depot
B	<p>Passing Trains</p>	100 Trains passing the depot on a working Day		
		200 Day's		
		60 Seconds of Stray Current		
		1200000 Seconds a year		
		60 seconden in one minut		
		60 seconden in one hour		
		333,3333 Hours in total		
		percentage of 8760		3,81 % there is possible current
C	<p>Bridging by other Loc</p>	200 Day's		
		2 hour		
		400 hours		
		percentage of 8760		4,57 % of Electrical bridging by Loc
D	<p>Uncoupling</p>	200 Day's		
		22 Wagons		
		2 uncoupling - coupling		
		10 seconds		
		88000		
		60		
		60		
		24,44444 Hours		
		percentage of 8760		0,28 % of uncoupling time

Lessons Learned

Calculation of Probability	18,26	
	3,81	0,695009139
	4,57	0,031735577
	0,28	8,85569E-05
		0,000088557
1,25	22,83	
	4,76	1,08595178
	5,71	0,061983549
	0,35	2,16E-04
		0,000216203

Lessons Learned

Conclusions :

- Fault – Fact – Event Tree analyse goes to the point of solution, answer, dead end or stop.
- This method gives a good view in failure and fact event.
- Recommendations are motivated
- Overview-able method
- ...

Lessons Learned

“Fault, Fact & Event Tree”

analyse workshop

Babes Bolai University

Cluj – Napoca, Romania

May 2009

Preventieve Diensten

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