Health & Safety Red Stripe Bulletin

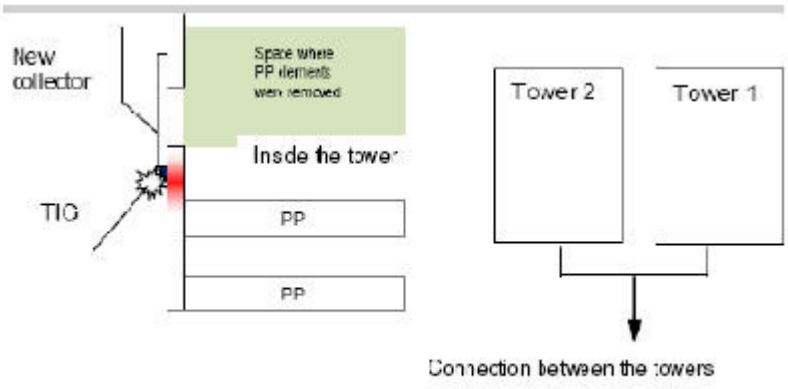
Short Term Action

072b/13/LPB

FIRE IN COOLING TOWERS DURING MAINTENANCE STOP - AUGUST 2013 - SEGAL, FRANCE

HEALTH, SAFETY & ENVIRONMENT ON 02/08/2013

Fire, cooling tower, heat conduction, welding, polypropylene elements.



Actual Loss
Plant Damage

Potential Loss
Major Injury

What Happened

On 2nd August 2013 a sub-contractor was in charge of the replacement of the water supply of the cooling towers. During the work, damage to the collector was revealed and it needed to be replaced. The maintenance work was put on hold for 2 days in order to install a new collector. The work permit was based on the original work definition. An informal risk assessment for the new job was done and led to the decision that there was no need for a new permit.

TIG welding was used to avoid extra sparks and to get an overlap between the casing and the new collector. The worker was welding when the fire started: +/-50% of the welding was already done. The droplets separator elements, which contain polypropylene, were not completely removed. The heat conduction generated by the welding was strong enough to set fire to the polypropylene elements.

The fire in tower one was propagated to the second tower via the water exhaust pipes that link both towers.

Conclusions

Although the work was being done in one of the towers, the second one caught fire due to the connecting pipe. Both towers were destroyed. The blaze stopped when the polypropylene calorific load was consumed. The extinguishers of 9kg in the place of work were insufficient to overcome the blaze.

The risk of inflammibility of polypropylene was not well known and underestimated. The material safety data sheet for polypropylene indicates a high inflammibility risk. The employees involved were unaware of this.

The fire risk is low when cooling towers are in operating condition but during maintenance the risk is high because of the highly flammable fire load (polypropylene or wood) and the chimney effect.

A short animation video of the fire in the cooling towers has been made. Please contact the following persons for further information:
Arie Duineveld - arie.duineveld@tatasteel.com
Anne-Marie Schouw - annemarie.schouw@tatasteel.com

Recommendations	Person Responsible	Completion Date
* Indicate the level of inflammability of the polypropylene material.	Plant Managers/Engineers	31/12/2013
* Put a yellow triangular warning sticker 'DANGER HOT WORK' on the cooling tower to indicate the hazards.	Plant Managers/Engineers	31/12/2013
* Follow the rules of the hot work permit. In particular the rule that describes the minimum distance between the inflammable elements and the heat source of at least 10m.	Plant Managers/Engineers	31/12/2013
* Make sure workers are trained and fully understand the job that requires a hot work permit and the control measures that need to be in place.	Plant Managers/Engineers	31/12/2013
* In case of hot work on cooling towers, make sure they are properly insulated.	Plant Managers/Engineers	31/12/2013
* The role of a fire watch has to be cleared defined and known. They need to be qualified and clearly visible.	Plant Managers/Engineers	31/12/2013
* In recent years, there have been four fire incidents within Tata Steel which have	Plant Managers/Engineers	31/12/2013

polypropylene as a common factor. Local management teams should improve on how to learn from events in other areas (Red Stripe bulletins)in order to avoid repeats.		

For further information on this incident contact Airie Duineveld on +31 (0)251 491084.

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Site Actions Following Review **Alert 072b/13/LPB**

	Action	Who?	When?
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Safety Contact Information

Contact Leader		Date	
Team Members			