



Operational Case Study

Use of specialised Firefighting Techniques and equipment at fires involving Waste and Recycling Facilities

| | | | |
|--------|-------------------|---------------|------------------------|
| Author | SM Richie Stevens | FRS Ref No. - | Originating FRS – NFRS |
|--------|-------------------|---------------|------------------------|

Introduction

This case study highlights the use of specialised firefighting techniques and equipment at a waste and recycling facility in Wellingborough, Northamptonshire during the summer of 2019.

Background

Northamptonshire Fire and Rescue Service attended a waste and recycling facility that was involved in fire. The fire involved 400 tonnes of RDF (Refuse Derived Fuels) bales, numerous vehicles (including HGVs), 3 x refuse baling machines and 2 asbestos roof buildings where at least 40% structural fire damage was sustained. Also involved were several 47kg LPG cylinders and oxygen/Acetylene cylinders and six shipping containers.

The East Midlands main railway line ran close to the facility and due to the acetylene cylinders being involved in fire a 200 metre cordon was set up, closing the railway line for several hours. The river Ise was also located approx. 300 metres from the site.

to implement the monitors. Environmental protection issues were highlighted at this stage due to the close proximity of the river Ise. The site had fixed interceptors, however, due to the strict cordons there was no way of telling if the interceptors were blocked or overflowing. Another issue was the exact location of the acetylene cylinder could not be verified. A drone was deployed to identify the exact location.

Use of Heavy Plant Machinery

The use of heavy plant machinery is essential at incidents of this nature. In this case 400 tonnes of waste material was involved in fire. The majority were one tonne RDF bales. Heavy plant machinery such as tele handlers were used to move the burning bales to a quarantine area where they were broken up spread out and extinguished using jets. The water used came from an 8000l dam which contained Cold Fire wetting agent.

It is imperative that a quarantine area is either available or set up in order to move burning material away from other non-affected areas and away from the main seat of fire. Due to the nature of the RDF bales it is also essential that they are broken up in order to extinguish any deep seated fires.

Extent of fire at Cawley's waste transfer station



Use of heavy Plant at Cawley's waste transfer station



Operational Considerations

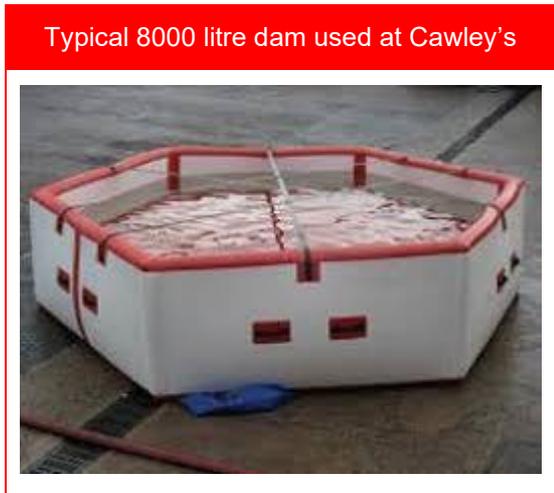
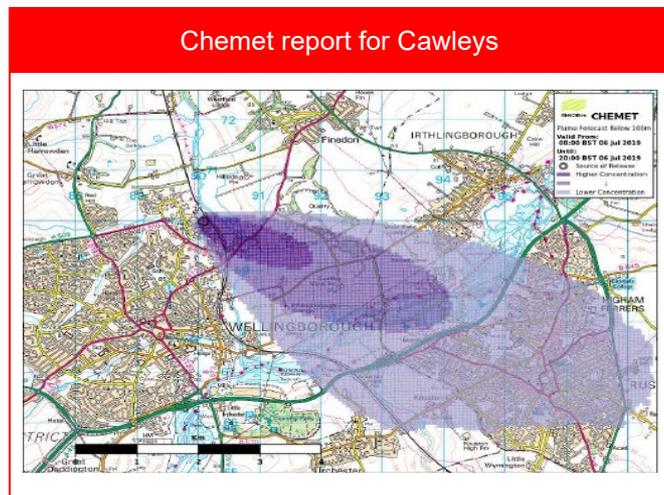
Due to the involvement of LPG and acetylene cylinders, it was necessary to implement a two hundred metre cordon. Ground monitors were placed strategically around the site to prevent fire spread, with minimum personnel entering into the inner cordon

Smoke Plume Management

The fire generated large volumes of smoke which had the potential to drift over highly populated areas, it was imperative that an accurate assessment of the

weather conditions were taken. A Chemet report was generated and updated every twelve hours. The report provided valuable information on wind direction, the strength of wind and the likelihood of it changing direction in the near future

to the main seat of fire while the other jet was applying the finished solution to the broken bales situated within the quarantine area.



Liaison with Public Health England (PHE) is paramount to give valuable updates of the incident, more importantly relaying information regarding the smoke plume; this gives PHE an overview and provides trigger points for them to act on the information appropriately. A media message was also sent advising the public to close windows and doors. It is always good practice to inform PHE and the EA that a media message has been sent.

The Cold Fire solution proved to have excellent penetrative qualities, far greater than water alone. The solution was able to penetrate further into the RDF bales extinguishing deep seated pockets of fire; working in conjunction with the heavy plant machinery provided a highly efficient extinguishing method.

Cold Fire Wetting Agent

Another noticeable feature of the Cold Fire solution was that re ignition was minimal. Also it was visible that there was a significant reduction in the smoke plume, the remaining smoke plume changed colour from dark to a lighter colour, suggesting that the cold fire/ water solution application reduced carbon omissions.

The opportunity arose to use Cold Fire wetting agent at this incident, approx.. 300 litres of Cold Fire wetting agent was at our disposal. The Environment Agency (EA) was on site and were monitoring the river ISE for any signs of pollutants.

When the correct application is applied, water/solution run off will be minimal;



It is always good practice to fully inform agencies such as the EA regarding the use of specialised firefighting media such as Cold Fire. Sharing information like the safety data sheets provide a greater knowledge and understanding of the product, its capabilities and whether there are any environmental issues surrounding the product

The product is environmentally friendly; it is PH neutral when diluted and is 100% biodegradable. Any run off entering water courses would have a minimal effect on the environment. It is also considered non-hazardous to health.

Conclusion

Following detailed discussions with the EA and providing them with all the relevant information, they were satisfied that Cold Fire was not harmful to the environment.

The use of Cold Fire additive as a wetting agent at this incident proved to be very efficient and significantly reduced the time Fire and Rescue Service assets were in attendance at the incident (4 days).

An 8000 litre dam was set up and 20 litres of Cold Fire solution was added, this gave a mix of 0.25%, this was a lean mixture, but still effective. Overall 256,000 litres of finished product was used over a period of two days to assist with extinguishing the fire.

Traditionally attendance at these incident types has been very protracted, with fire service attendance being present for many days' even weeks.

The dam supplied a base pump which in turn supplied two 45mm jets. One jet was applying finished solution

It is probable that the use of Cold Fire significantly reduced our attendance at Cawleys' waste transfer facility. It also contributed in minimising water runoff and mitigating significant environmental protection issues.

Further Information



<http://www.hydronavitas.com/>

Administration Section and Author Support

This section of the document will not be published and is intended to provide support to the author and assist in the administration and workflow of the document. For assistance in writing this document please contact the FRS Operational Guidance Department.

Document Control

This section is used to monitor and track the changes to the document

| Document Control & Workflow | | | | |
|-----------------------------|------------|--------------------------------|-----------------|---------|
| Document Title | | Domestic Back Boiler Explosion | | |
| Version | Date | Author | Document Status | Changes |
| V1.0 | Sept. 2019 | R Stevens | Publish | |
| | | | | |
| | | | | |