F-500 ENCAPSULATOR TECHNOLOGY

When in Doubt, Call in the Experts for Emergency Response

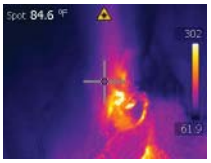
Hazard Control Technologies, Inc.

After a bituminous coal hot spot developed in their dust collector, Kentucky Utilities, Ghent Generating Station in Ghent, KY attempted to extinguish it by discharging their CO_2 fixed supression system. The CO_2 was ineffective, failing to penetrate the surface of the 550 lbs. of coal. Then, they applied Class A foam which created a wave of steam that threatened to dislodge more combustible coal dust. Foam can't penetrate the coal, and actually forms a blanket, trapping in the heat which is counterproductive. They were also afraid emptying the dust collector could cause an explosion. The F-500 Encapsulator Agent they eventually used produces very little steam and penetrates the coal.

They contacted another Kentucky Utilities plant in Trumbull, KY. The Trumbull Plant uses PRB sub-bituminous coal and had been through HCT's *Coal Handling Hazard Awareness Training*. Trumbull recommended they call HCT.

Ghent Generating contacted Hazard Control Technologies (HCT) on August 12, 2012 for advice to extinguish the hot spot. Instead of making remote suggestions over the phone, where miscommunications could be dangerous, it was recommended HCT be brought in to provide Emergency Response Incident Command Services. Under this program, the HCT incident commander provides hands-on technical expertise to see that the coal hazard is safely mitigated.

Thermal Imaging Cameras are available through HCT.



Thermal image of hot coal

HCT arrived on the scene the morning of August 4 and proceeded based on "Recommended Practice" of the PRB Coal Users' Group. Readings were taken with a thermal imaging camera to locate the hot spot and determine its severity.

The first step was a complete washdown of the area above the dust collector to prevent blowback in case the coal ignited. F-500 Encapsulator Agent was used with a handline and eductor at 0.5%. All personnel involved were wearing Personal Protective Equipment. The area was ventilated to prepare for the removal of any smoke. A fog pattern was used to clean the area because a stream misdirected at the coal could cause an explosion.

Piercing Rod Systems with carts are available from HCT

After cleaning, the piercing rod operation could begin. The piercing rod penetrates the coal and allows a proportioned F-500 Encapsulator Agent solution to be injected into the hot spot. A spotter was on the ground with the thermal imaging camera, directing the placement of the piercing rod. As the piercing rod entered the hot spot, the piercing rod team injected the 1% solution of F-500 EA. The thermal imaging camera showed the temperature drop to a safe level in minutes. The coal was safely emptied from the dust collector.

Afterwards, Ghent Generating Station asked HCT to provide formal training on coal hazards and the techniques used to mitigate this hot spot.

Complete training on handling PRB coal fires and a copy of the PRB Coal Users' Group *Recommended Practice - Coal Bunker, Hopper and Silo Fire Protection Guidelines* can be obtained by contacting Hazard Control Technologies.

Thermal imaging camera identifies and locates the burning coal in the silo.

The piercing rod injects F-500 EA. The thermal imaging camera will confirm the fire is out.

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