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APPLICATION REPORT

29th May, 2009

Industry : Power

Company: CS ENERGY CALLIDE POWER STATION BILOELA

Application: Boiler 2 Unit, Penthouse Refractory Repair

Product Applied: Thermbond Formula 3L castable

Method of installation: vibratable castable

Equipment Used: Paddle mixer, vibrator, concreting finishing tools

Problem: The Refractory in B2 Penthouse around the tube penetrations is in poor condition & in need of repair to minimise the ingress of fly ash and hence reduce the clean out time for the Penthouse in future outages.

Solution: Used Thermbond Formula 3L castable to provide a solution to the current damaged conventional refractory around 137 tubes x 48mm diameter. Thermbond was applied to areas of existing damaged conventional refractory for a permanent repair and rapidly cured and dried within a couple of hours to go back into service.

Product being replaced: conventional refractory

Safety Advantage: This permanent Thermbond repair to existing fired refractory will reduce high risks of burns to cleaning operators as the dust can flow through cracked conventional refractory and burn personnel as experienced in the past.

Scope of Work: The Penthouse would need an industrial vacuum and tidy up of any loose existing material, glue the 2mm thermal insulating paper around the steel penetrations to allow for some expansion and contraction due to temperature variations. An average of 60mm depth and some exposed anchors were evident. Some insulation blanket was laid down and the Thermbond refractory cast and vibrated into place.

Plant Engineers comment after the installation: "The Thermbond repair work is complete, the refractory went in quite well & there were no problems at all. All the damaged refractory was removed down to the super wool layer, the super wool was replaced, ceramic paper was wrapped around the tubes. TRM were very professional in their work. If the product performs well in these conditions, I will look at doing the rest of the penetrations."



The Boiler penthouse floor was badly eroded. A heavy layer of fly ash dust was removed by vacuum, all loose broken refractory removed before the Thermbond refractory repair commenced.



Completed area of Thermbond Formula 3L castable repair showing the thermal insulation paper wrapped around the tubes.



Completed area of Thermbond Formula 3L castable repair, there were 137 tubes repaired on this outage and the remainder would be done on the next outage.



Prepared tube penetration with 2mm thermal insulation paper adhered to the tubes with Maxigrip adhesive (rated 1000degC) for expansion allowance. Bio-soluble blanket layed down to prevent loss of refractory material through the Penthouse floor