

LANDSVIRKJUN, KRAFLA - WELLHEAD

2004

Application of Hot Pipe Coating and SuperTherm



Krafla - the Geothermal Power Plant is the first and only Geothermal plant in Iceland that was built solely for generating electricity. For a while it was uncertain whether Krafla would ever actually enter operation, when large-scale volcanic eruptions started only 2 kilometers away from the station, posing a serious threat to its existence. Work continued, however and the station went on stream early in 1977.

Problem:



A wellhead consisting of 300mm pipes and a valve is 220C hot. The surface, which is ca. 7m², heats up the environment and the walls of a shed, which is dome of steel and fiberglass. The heat causes damage to the fiberglass and makes work within the shed uncomfortable. The high heat also causes threat of injuries to the workers.

Solution:

Insulate the wellhead and reduce the surface heat.

Task:



Apply HOT PIPE COATING (HPC) which throws back the heat in thickness of ca. 7mm and topcoat with SUPER THERM as reinforcement.

Process:

It was not necessary to shut down the well by closing the valve. After preparation the HPC was sprayed directly onto the surface, the effect of the HPC was instantly felt after the first coat. The HPC was sprayed in several layers until the desired thickness was reached. When finished the heat of HPC surface was measured and readings showed 60-70C. The head had therefore dropped by 150-160C. (It should be noted that readings from infrared meters are inaccurate when measuring HPC and SUPER THERM. This is due to ceramic particles that stop infrared waves). By physically touching the surface the heat seemed even lower. It was possible to hold the hand to the surface for a long time without burning.

As reinforcement a thin layer of SUPER THERM was sprayed on top of the HPC. This caused an increase of the surface heat to 70-80C.



Finally, RUST GRIP was applied to supporting beams.

It was especially noted how much noise from the wellhead was reduced.

Material Description:

HOT PIPE COATING (HPC) is a unique water based formula with 8 different ceramics designed for extreme heat.



SUPER THERM is a unique combination of ceramics. Two are reflective, one acts as a dead air space between the coating surface and the substrate and the 4th blocks 99.5% infrared.

RUST GRIP is a silver-grey solvent-based formula with metallic additives. It is a unique blend that fights corrosion. Designed for metal and concrete surfaces. It penetrated into pores and cracks of the substrate where it swells and bonds thoroughly.