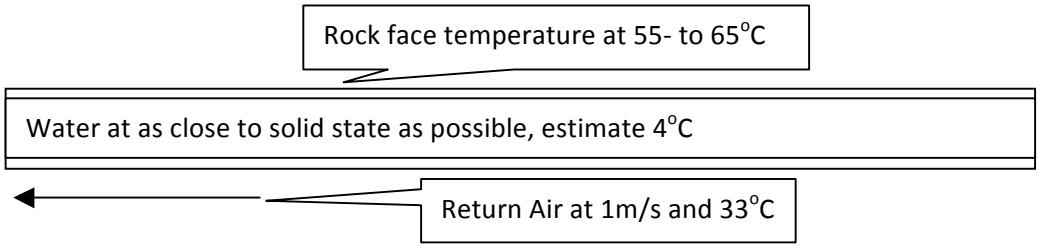
Proposed Tests to Introduce Metaltec TC Paint into an Underground Application

1. Introduction

Ro be able to effectively simulate what happens with water in a pipe in an underground mine it is important to simulate the situation as close as practically possible. In short the following happens with water in the pipe:

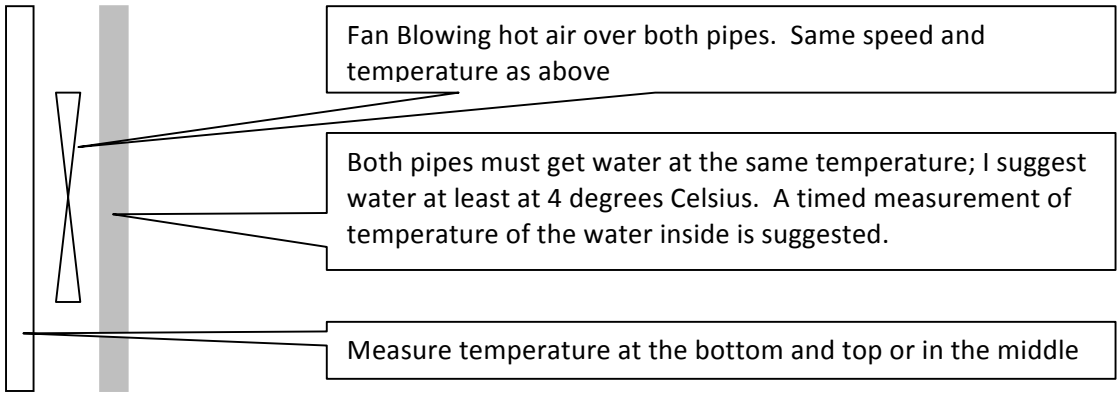
1. The water gets fed with gravity down the mine and travels at 3.5m/s. In translation this means a 12km end point will take about one hour to reach.
2. This water is exposed to external heat along the way. Depending on the shaft and the ambient rock temperature it will have various amounts of exposure, but the largest impact would be from the airflow. The transfer coefficient of moving air is high, if the air flows at 1m/s this and the temperature of 33°C will have the largest impact.



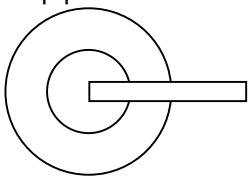
2. Proposed simulation

As discussed here with the suggested tests we can do to determine the impact.

Test runs with pipes:



Marius, note, that infrared or surface temperatures will give you the wrong indications. It is important to measure the water temperature in the pipe. Ideally, the temperature should be taken in the centre of the pipe.



Painting of the fridge units:

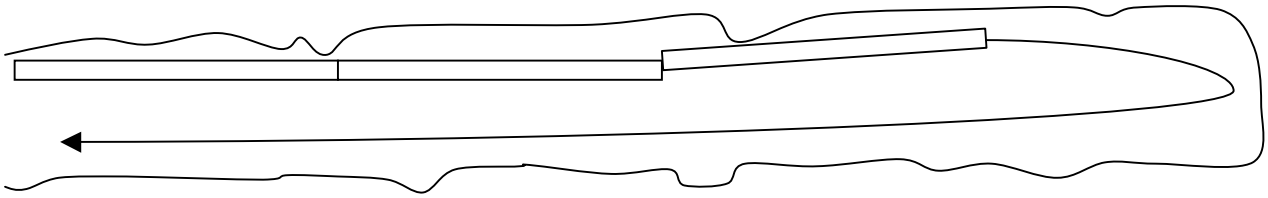
Marius in this application I honestly cannot see how they would want to do this with another system. There is no other paint that will stick in this application and this paint will. I would not try to clad these vessels with conventional insulation as I am familiar with conditions underground and you will have a constant battle to keep the insulation on and a continuous health hazard with fibres that is airborne in the tunnels.

This TC paint will protect it against corrosion and insulate the vessel. It will pose no health hazard and the normal handling nicks and scratches could be repaired with minimum surface preparation.

In terms of measuring insulation effectiveness, I suggest we also measure the temperature present and after paint.

The next test in the Tunnel:

I suggest we start working on the tunnel test.



Marius will take decision with his team after they consider these informations.

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