The AQUABION® Test site: MOD base near Winchester

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The situation

The location
A busy Army training base for new recruits

Birds eye view of the base

The problem

This particular MOD site near Winchester in the south of England suffered heavy lime scale problems for many years. Different water treatment systems were installed and tested trying to reduce the problems with hard scale as the Plate Heat Exchangers had to be serviced and descaled regularly on a 6 months basis.

Shower heads also caused a severe problem and were in constant need for non aggressive water to function properly as they needed constant descaling every 3 months.

The set up

At the MOD site the main water supply pipe for the hot water feed is coming through a 54mm pipe.

There are also 2 secondary hot water return pipes on the hot water system plumbed in 22mm pipes.

Water hardness was measured at **252.5** ppm (18 degree English hardness and 14 degree German hardness) supplied by Southern Water


Other water treatment systems did not stop the Plate Heat Exchangers from scaling up


The Plate Heat Exchangers were under a constant costly repair program with a regular 6 monthly descaling program.

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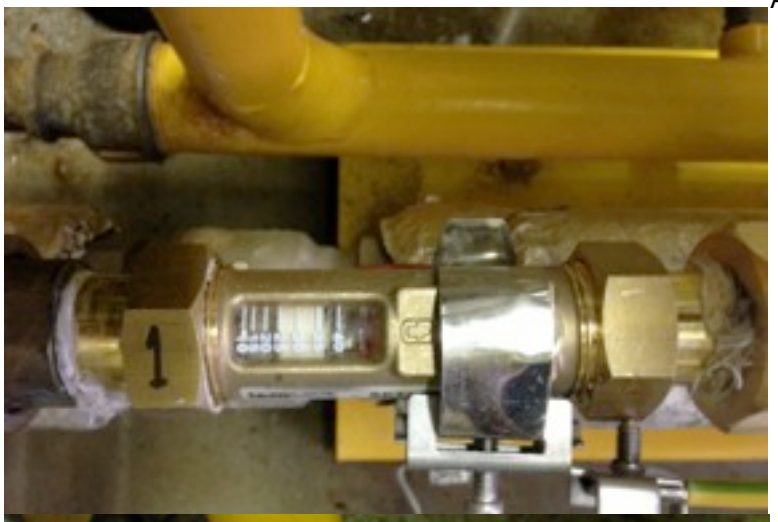
The testing procedure

JFK Plumbing & Heating came up with a special procedure to monitor limescale buildup in plate heat exchangers. The was idea was to monitor the flow of water going through the Plate Heat Exchangers would indicate the limescale build up. By monitoring the flow you will clearly prove the amount if any of limescale build up. The combined flow through the heat exchangers will be monitored over a 6 month period. If there is no significant drop in flow over the 6 months the test would prove the successful treatment by Aquabion®.

JFK Plumbing & Heating Ltd installed the patented AQUABION®' water treatment systems



2 flow meters were installed after each pump. The readings show the flow after the scale build up BEFORE and AFTER AQUABION®.

The Solution

Before the test started at the beginning of January 2013 a total descaling process took place to clean the Heat Exchangers and 2 flow meters were installed by JFK Plumbing & Heating Ltd plus the AQUABION® systems. 1 system AQUABION® H40 was installed on the cold water mains as well as 2 systems AQUABION® S20 on the secondary return, after the pumps.

The test started on the 7th of January 2013.

Before the descaling process and installation of the AQUABION® systems the combined flow through the heat exchangers was measured at 20 L/pm. There was also a lot of noise and the flow was erratic. The individual recording was pump 1 = 10 L/pm and pump 2 = 10 L/pm.

After the descaling process the pumps ran smoothly with a combined flow of 47 L /pm. The individual recording was pump 1 was 25 L/pm and pump 2 was 22L/m.

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The Result after 6 months

Before the descaling process in early January 2013 the combined flow through the Heat Exchangers was 20 L/ pm. The pumps made a lot of noise and the flow was erratic.

After the descaling process the pumps ran smoothly with a combined flow of 47 L/ pm.

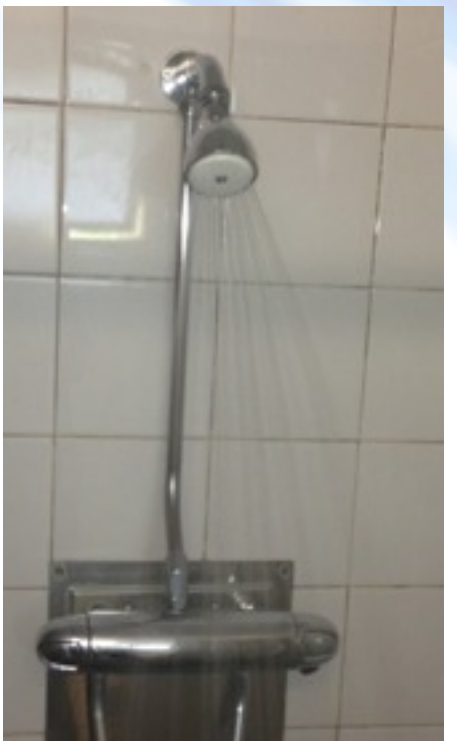
The last descaling process before this was 5-6 months pervious. It can be assumed that the flow rate after that previous descaling was also around 47L/ pm.

At the end of the 6 month test in June 2013 - 6 months after the AQUABION® water treatment systems were installed - there has been an increase of 4L/ pm!

Individual readings are:

Pump 1 = 29L/ pm an 4L/ pm increase in flow rate.

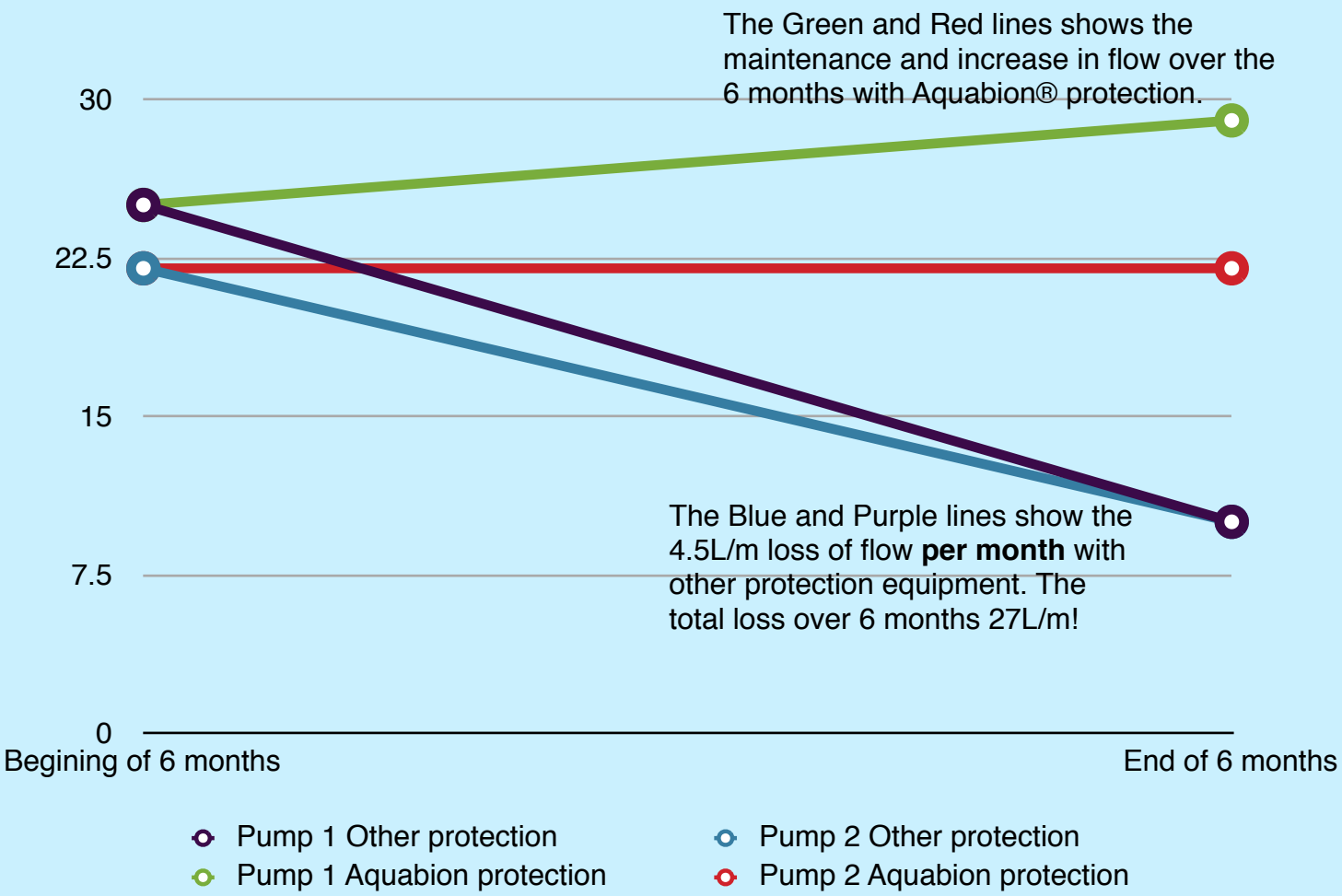
Pump 2 = 22L/ pm with no loss in flow rate.



After 6 months: The showers are clean and were in no need to be serviced and descaled.

The 2 flow meters next to Aquabion® water treatment systems. They are installed after the pumps and they show the increase in flow rate.

This Graph shows the water flow through the Plate Heat Exchangers over a 6 month period between 7/1/2013 and 30/6/2013



The flow at the beginning of the other protection had to be estimated

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