



## Santa Fe County Public Works Boiler and Evaporative Cooler

### Site Visit and HydroFlow Application Evaluation

September 1, 2011

We had a site visit on Tuesday at the Santa Fe County Public Works complex out on hwy 599. As a result of the significant hardness of the water from their on site well, they have had to rebuild their primary boiler twice since the building opened two years ago. To help them deal with this problem, we installed a HydroFlow S120 on the boiler to deal with their water hardness issues. On Tuesday morning they opened the boiler for inspection to evaluate the effectiveness of the S120 in dealing with their problem. We were delighted to find the boiler absolutely "scale free".

A Hydroflow C100 was also installed on their main water supply line at the well house. This was installed to deal with general hardness issues throughout the complex buildings. The complex includes 20 evaporative coolers which were also negatively affected by their water hardness issue. They were experiencing the following problems:

- The float valves were constantly requiring attention and replacement as they stopped functioning as a result of limescale build-up.
- The airflow needed to be cut back to avoid blowing the water off the evaporative pad. This was caused by scale build-up on the pads restricting and concentrating the airflow through the pad. The blow-off became so significant that in one instance it caused water leakage and damage to the office space below the evaporative cooler.
- The evaporative cooler manufacture recommended continuously bleeding off 5% of the water supplied to the cooler pan. (creating a significant amount of wasted water)

This spring, a HydroFlow C100 was installed at the well house which is approximately 700 feet from the furthest evaporative cooler. At that time, the bleeding was stopped and the airflow was returned to full airflow. The following changes were observed:

- Over this summer season, NO limescale has built up on the floats.
- The pumps were completely encrusted with limescale from the previous season. ALL limescale had dissolved from the submerged portion of the pumps and they were scale free.
- Maintenance requirements were reduced to virtually nothing.
- The units were operated at full air flow without water being blown off the pad as experienced in the previous year.
- It was calculated by the County that the water savings over this summer has resulted in more that 2,000,000 gallons saved.

This documented change is very significant. The cost savings realized in decreased water usage, reduced maintenance and replacement costs have been substantial. The Hydroflow product lives up to its reputation.



Santa Fe County Public Works Complex Photos



Heat exchanger tub viewed through inspection port. Absolutely NO SCALING was observed



One of 22 evaporative coolers serving the complex



Evaporative cooler floats observed after a full season of operation. NO SCALE present



Pump and evaporative pad. Scale on the pump is from the previous season. Observe ALL SCALE below the water line is gone. Also observe pad is clear of scale build-up.



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### Follow-up Evaluation May 18, 2012

On May 18, 2012 we revisited the application to evaluate the boiler after a full heating season. Chris Anaya, their Mechanical HVAC Technician removed two of the inspection plugs so we could inspect the heat tubes of the heat exchanger. On looking into the heat exchanger, Chris's first words were "Wow". The boiler tubes looked absolutely new as can be seen by the following picture.

