

## Going Soft (Part 2)

In Part 1 of these articles I suggested that we should consider the installation of a water softener at the Park to reduce the problems of boiler scaling and benefit all loco owners. I further suggested that we would benefit from canvassing a wide range of views and experience.

At the time I wrote the article I started this process of establishing views from the club membership and beyond. In mid February I was fortunate in being put in touch with Ray Parsons, a member of the Beech Hurst club and a professional in the field of water treatment.

Ray spent many years with the CEGB at Shoreham Power Station and very kindly commented on my original paper making some observations that are worthy of reprinting here. In addition he provided me with a copy of a paper he wrote for the Beech Hurst News in the late 60's and which he subsequently used for a lecture to S.M.E.E. Here I summarise the key points from Ray's correspondence with me, which relate to model loco boilers, and provide his original paper verbatim to give a very full picture of the technical approaches and experiments he undertook and avoids any possibility of quoting parts of it out of context.

### Observations on Part 1

- When descaling a model loco boiler, if all the scale is detached from surfaces then thorough washing out (a long tedious process) will remove it. It is best to use a descaler that dissolves scale BUT all descalers must be thoroughly washed out after use, any left in cracks can be harmful. 'Boiling Out' is needed as well as washing out cold.
- All three of the methods for treatment mentioned in Part 1 will increase Total Dissolved Solids (TDS) in the water since while water softeners stand unused, salt will dissolve in the water.
- Generally Ray agreed that the ideal water for loco boilers is soft water. However such water needs to be treated when we want it (high demand for short periods) and this duty cycle is incompatible with the design of many commercial softeners which require a steady, frequent use. Ray observed that a club's needs would best be served by either a very large softener, primed ready for use just when we want it, and recycled ready just before the next session; or a small unit running for a long time with a large storage tank. Neither of these approaches is particularly practical for the average club.
- Finally Ray recommended talking to Worthing S.M.E. who did install a domestic type softener and had a bad experience. The weekend it was first installed and commissioned it was a great success but, one week later when the unit had been left to stand unused, a member "filled his boiler, raised pressure, opened regulator and emptied his boiler out of the chimney within one minute, dumped fire quick". The problem was that with the softener standing idle for a week the Total

Dissolved Solids (TDS) was so high due to the dissolved salt etc. in the water that all the water surface tension was lost, hence complete priming!

In summary, we **would** benefit from using soft water in our boilers. However, ion exchange commercial water softeners are **not** for us, their design does not fit with our service requirements.

Ray's experience of his SADS (chemical treatment) method as stated in the section of his article "Treatment in Practice on 'Henry'" suggests that at least one tried and tested method is within our grasp. I have now located a source of supply of SADS, as used by Ray, with a view to trying it out late this season. It is available from distributors for the British Drug Houses (BDH), our local distributor is Parris and Greening in Hove, and should be ordered as:

- Ethyl Emediaminetetra Acetic Acid Disodium Salt, from the General Purpose Reagent (GPR) series, reference 280254D.
- The current price is £36.00 per 500g

If there is any member (or members) that would be prepared to share the cost of a 500g (just over 1lb) pack of the material so that we can make the SADS solution, I would like to hear from them and perhaps we can start a controlled trial?

Interestingly there is virtually no literature available about the behaviour of magnetic conditioners which I referred to in my previous article - It occurs to me that this is an area that is certainly worthy of further research.

Whether we should install a chemical or magnetic conditioner to routinely treat the water crane supply remains a moot point - In future articles I hope to keep you informed of my progress on establishing the effects of magnetic conditioning.

Andy Clark