

West Bretton WwTW £1.2m Rebuild

'lean working' pilot scheme delivering success

by Veronica Flint BEng (Hons), CEng, MICE

Yorkshire Water's West Bretton WwTW required upgrading to achieve a future consent of BOD 25mg/l SS70mg/l and Ammonia 20mg/l based on UWWTD, FFT and RQO. The site serves a population of 2,200 via two separate conventional treatment streams. One serves the village and the other serves a college population. Due to land constraints it was not possible to extend the site beyond its existing boundaries. The agreed solution was to rebuild the works and combine the inlets. The risks for a number of solutions were considered and combining the streams was believed to provide the most appropriate level. The work to rebuild within the existing site boundaries meant that the construction has to be done in a phased manner, to ensure continues operation of the existing works so that the works performance is not compromised.



West Bretton WwTW: Two into one would only just go = a very tight fit for upgrade

courtesy: MWH

Wastewater West (MJ Gleeson and MWH, together with their strategic Partners) who undertake work for Yorkshire Water in the West Area used the project as a pilot where Lean Working techniques were used throughout the project lifecycle from design to commissioning.

This project was a complex undertaking and careful phasing of construction work was required to ensure that the project could be completed successfully. The scheme was chosen as a suitable subject for **Lean Working**, a method previously used by MJ Gleeson on construction projects. However, the aim in this instance was to integrate this technique into the entire delivery process including MWH design and Project Management and Yorkshire Water Services client activities.

How we did it

The project activities were programmed in detail. Activities were

pared down to the minimum time to complete, but an allowance was made for a 'buffer' at the end of the chain of activities. The programmed completion time was, therefore, at the same time as in the traditional version of the programme.

Each week the project team met for an update meeting, to review what activities had been completed, and how long to complete the next activities on the programme. It was possible to see from the 'look ahead' list what items were the most critical to project delivery. It then allowed the project team to clearly see when they were falling behind programme and consider together the best way to improve progress. The reasons for delays were also categorised to understand the main reasons why the project had not performed at its optimum.

Is lean working different to our normal working?

Initially, there was much discussion that this was really nothing



West Bretton WwTW: View over new primary tanks

courtesy: MWH

new, just the way projects should be managed. Lean working was really just new jargon for old ways. It is believed that many projects have been managed by lean methods for years, but what lean working delivered was ‘good practice’ formalised into a rigorous routine that gives useful information to the team on how to succeed. There is still considerable waste and inefficiency within the construction industry as identified by Sir John Egan in his report ‘Rethinking Construction’

- * 30% of construction is rework;
- * 40%–60% of labour input wasted through inefficiency;
- * 3%– 6% of project costs result from accidents;
- * 10% of materials are wasted.

Lean is a way of thinking, an approach to driving a project through to its completion. The project team avoided the terminology ‘lean thinking’ as it implies pondering not doing. The thought process must be translated into appropriate action. The simple philosophy has proved invaluable to maintaining clear focus in the project team, and also uniting the team to achieving a positive outcome.

Would we use this again ?

There is no doubting the additional work involved in undertaking a project using lean working practices. However, what it delivered to the project was absolute clarity of what the team members were expected to undertake over the next few days. It also ensured that the project team members really understood the impact of their actions and what actually was important, rather than what they thought they ought to do next.

West Bretton WwTW project is currently on site, so the final benefits are not totally quantified.

MJ Gleeson and MWH will both use lean working again, together as a joint venture ‘Watermark’ who have won the next five years work in the ‘South’ Yorkshire Water area. Lean working is fully



Placement of filter media

courtesy: MWH

integrated into how projects are delivered in this programme of work. This pilot has demonstrated the powerful potential to drive efficiencies into the delivery process, and how it would not be possible to deliver against tough targets without this tool at our disposal. ■

Client Solution Manager: Ronney Vas; Project Manager: Dave S. Young; Consultants & Contractors: Gleeson MWH JV a JV between MJ Gleeson and MWH with strategic partners Mowlem Johnston Ltd & Peter Duffy Ltd

Note: The author of this article, Veronica Flint, is Project Manager, with MWH.