

## CASE STUDY

CLIENT: Wessex Water

Site: Minehead STW

Date: June 2012

### Background

Wessex Water's inlet works at Minehead had been experiencing significant operational problems due to a high number of breakdowns across a pair of ageing wash presses. This was creating excessive downtime and resulting in consistent high maintenance costs.

Further to this, the high-energy load that was required to drive the motors servicing these units needed to be addressed.

### Challenges

- Any new wash presses were to be sited indoors in a lowered pit
- New units needed to be suitable to fit into pit layout
- Limited access for maintenance
- Placement of discharge chutes would be problematic due to pit depth
- Replacement applications needed to manage peak screenings & launder loads as standard
- Operational downtime needed to be minimised
- New applications needed to fit seamlessly into the existing Minehead STW infrastructure



## Implementation

M&N engineers input the pit location and dimensions into our in-house 3D design software. This enabled us to test various options that would work efficiently within the location layout and enable easy access to the units to carry out routine maintenance tasks.

The virtual modelling highlighted a number of issues that would need to be addressed to ensure the new units could maintain operational requirements, namely:

- The angle of the discharge chutes meant that a high torque motor was required to push the screenings up the discharge chute. (A standard motor would struggle to achieve this and the angle was close to the Kuhn GmbH recommended maximum).
- A hardened shaft would need to feature within the new unit to deal with the significant grit loads, ensuring the best whole life costs for Wessex Water
- To suit the existing drainage infrastructure M&N would need to modify the Wash Press drain pan
- A level sensor would need to be incorporated within the installation to operate the launder pump when a suitable amount of screenings had accumulated within the launder channel.

Following extensive simulation tests our engineers selected 4 Kuhn KWP400/1200 (8m<sup>3</sup>/hr) and 2 Kuhn KWP300/1200 (4.5m<sup>3</sup>/hr) Wash Presses to meet the operational requirements of the Minehead works.

As sole representatives for Kuhn GmbH in the UK, M&N works closely with their German design team. The findings from our 3D modelling were forwarded to the Kuhn offices for their consideration and approval that such practicalities could be implemented when utilising one of their Wash Presses.

Upon approval M&N forwarded plans to Wessex Water and installation was carried out in accordance with the works operational requirements and Kuhn GmbH's commissioning schedule. This included Control Panel set-up, over current checks, level controller checks and alarms, alongside the manufacturer's strict control philosophy.

In keeping with the need to meet increases in flow rates where appropriate M&N undertook shock loading of the Wash Press. Allowing screening levels to build up, the Kuhn Wash Press was tested to meet actual storm conditions, successfully establishing actual working conditions rather than theoretical ones.



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