Smart Water Fund
Round 3

Carter Holt Harvey Woodproducts Australia
Myrtleford Site

Boiler Ash Water Recycling

Final Report

1st August, 2007

Funding support provided by

Smart Water Fund
Our Water Our Future

CarterHoltHarvey

Introduction and Background

Carter Holt Harvey received Round 3 funding from the Victorian Government's Smart Water Fund to assist with the design and construction of a "Boiler Ash Water Recycling System" at its Myrtleford (North East Victoria) Facility. This Final Evaluation Report is intended to provide a complete record and overview of the project.

Carter Holt Harvey is Site that produces Sawn Timber and Plywood products. The site consumes around 300,000m³ of Plantation Radiata Pine which goes into both structural and appearance applications.

Plantation grown pine trees are processed at the Myrtleford site to produce kiln dried timber and plywood products. The production processes generate a large quantity of saw dust and wood shavings. These are used as fuel to fire boilers which produce steam, which in turn provides heat for kiln drying of timber and pressing of plywood. Burning saw dust and wood shavings generates a lot of hot ash. Water is used to "quench" the ash so that it can be safely handled before disposal. The Boilers operate on a 24 hour/7 day per week basis stopping only at Xmas time for a Maintenance shut. The quenching system is continuous while the Boiler is operating.

Prior to installation of this project, approximately 38ML/year of potable water was used to quench ash produced by the boilers. Because the quench water contained a significant amount of ash after use, it was then disposed of to trade waste. Approximately 35ML/year of ash contaminated water was disposed of in this way.

Project Aims

The primary aims of this project were to:

- Reduce potable water usage for ash quenching by 34ML/year
- Reduce trade waste discharge by 32ML/year

The project has met these aims.

Project Description

"If a stream of water containing suspended solids can be slowed to a very low speed, the solids will drop out of suspension". This project uses this principle to separate the majority of the ash from the water used to quench the ash. The water is then clean enough to use again for quenching.

This project relies on a series of settling tanks to reduce the speed of the ash contaminated quench water. The settling tanks have been formed by modifying a concrete bund which already existed adjacent to the boiler house. The bund previously housed a large diesel fuel tank.

The quench water flows across an existing separation screen (which removes approximately 90% of the suspended ash), and then into the new settling tanks. As the water flows from one tank to the next, it becomes progressively cleaner. Approximately 90% of the water from the final tank is then pumped back to the boiler house where it is reused for quenching. The flow of water back to the boiler house ash quenching system is balance to mirror the volume of water entering the settling system, as the boiler house system only stores a minimal amount of this returned water as feed stock at any one time.

A small amount of the quench water (approximately 10%) is continuously bled off to trade waste in order to prevent its pH rising to an unacceptable level. The water was monitored by the boiler operators for a period of time until a suitable bleed off rate was decided on and implemented, the other gain from the bleed off water is to act as a buffering solution in the sites trade waste to maintain it's Ph within discharge licence limits
Please see the following photographs for more detail of system operation.

Project Costs

Reusing the existing concrete infrastructure reduced the estimated cost of this project by approximately $60,000. In total, the project cost $40,000 to implement – $20,000 of this cost was contributed by The Smart Water Fund, the remainder by Carter Holt Harvey.

The major costs were as follows:

- Modification of existing tank supports/bund $3,000
- Pumps $6,000
- Electrics and controls $10,000
- Structural $10,000

- Piping and other mechanical works $11,000

Project Payback

This project saves in the order of $60,000/year in water and trade waste charges. Based on a spend of $40,000, this project paid for itself in 8 months.

System Maintenance

The system requires very little maintenance. Approximately once every three months, the system is turned off for a period of approximately two hours to allow accumulated ash to be removed from the settling tanks. The ash is then sold as a soil conditioner.

Existing Screen System

Hot ash is flooded with water as it leaves the boilers. The ash/water mix is then fed over the screens in the centre and right of the photograph. The ash collected on top of the screens drops into a bin and is sold as soil conditioner. The water exiting the screens on the left side of the photo contains fine particles of ash which can't be screened out of the water. This dirty water used to be sent to trade waste, but is now pumped to the new settling system installed by this project. The vast majority of the ash settles out of the "dirty' water in the settling system, which means the water is able to be recycled many times for further use as quench water.

Settling Tanks

The concrete structure shown in this photo used to be a bund for a large diesel fuel tank. This project installed a series of internal dividers in the structure to create 5 separate tanks, and also added a steel roof to the tanks. Water flows from one tank to the next, becoming progressively cleaner as it does. No testing of the output water from the settling tanks is required as the system is designed to run with maximum ash load with no ill effects on the process other than to slightly increase the ash load in the quenching area reclaim system .

Recirculating pump and associated controls mounted at discharge end of settling tanks.

Water from screens flows into first settling tank (top left of photo). Water then cascades from tank to tank. Each tank has a volume of approximately 15,000 litres, giving a total residence (settling) time of approximately 9 hours.

Conclusion

This water saving initiative is working as expected and is delivering significant savings to CHH and the wider Myrtleford community.

CHH will continue to operate and maintain this new system as part of normal busisness.

For further information on this project please call Mr John H Browne, Acting Facilities Manager, Carter Holt Harvey Myrtleford on Ph 03 57519232

Media Coverage

A press release issued by Fenton Communications in relation to this project received press coverage including:

- Laurie Medlock (CHH Site Manager) was interviewed by Joseph Thompson on ABC Goulburn Murray Radio on 31/7/07. Joseph described the project as a "good news story with benefits for the environment, the community and CHH".
- Laurie Medlock was further interviewed by ABC Local Radio journalist Nicki Dietz – this interview led to a segment on ABC Local News.
- Jim Martin (CEO of North East Water) and Laurie Medlock were interviewed about the project by The Myrtleford Times (local newspaper) and The Border Mail (regional newspaper covering North East Victoria and Southern NSW). A copy of an article printed by The Border Mail is attached to this report.

Prior to implementation of the project, Suzanne O'Toole of CHH was interviewed by The Myrtleford Times on 27/5/05 in relation to the project's aims.