

Project Review:

Fluoride Gas Scrubbing System Upgrade for BAN Awarua Fertiliser Plant

Date Installed: July 2003

Review Date: Oct 2004



"Exceeded All Expectations"

Neil Miller, Operations Manager at the Ballance Agri-Nutrients Ltd (BAN) Awarua fertiliser manufacturing plant, made the following comments in October 2004 just over 12 months since the project was completed and commissioned: "The upgraded scrubbing system has exceeded all our expectations. Since starting the new scrubber system, we haven't put a drop of HFA down the drain and haven't had one stack resource consent breach." "Our plant availability is way up now and our production rate has increased. The scrubbing system is no longer the production limitation."

Project History: 2003 Installation

The Awarua fertiliser plant has had difficulties in meeting environmental resource consents for fluoride discharges to both air and drain. As a result the plant fertiliser manufacturing rates had to be reduced and this led to both higher production costs and difficulties in meeting delivery schedules to customers. Armatec was contracted to take responsibility for the entire scrubbing system, and design and install the upgrade to overcome the difficulties. The turn key project included design, fibreglass fabrications, steel work, pumps, piping, installation and commissioning.

High Performance Void Towers

Central to ARMATEC's design is the use of high performance void towers in the scrubbing process. These void towers are based on traditional design but incorporate many ARMATEC design features to raise the number of mass transfer units per tower. Existing ARMATEC supplied fibreglass fans, cyclone, stack, void tower and ducting were used with only minor modifications. Older void towers at the site were re-engineered to provide improved performance. The re-engineered scrubbing system now provides the scrubbing performance needed to meet the stack resource consent limits with margin to spare.

No Fluoride to Drain

To achieve the plant's requirement of no liquid to drain, all fluoride scrubbed from the gas discharge is recycled to the den and thus re-incorporated in the fertiliser. The recycling of fluoride has the effect of greatly increasing the fluoride load on the scrubbing system and hence the need for the extra high efficiency void tower scrubbers.



BAN Awarua fertiliser plant fluoride scrubbing system



High efficiency void tower in fluoride scrubbing train

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