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Bacterial Dosing Case Study: South Taranaki Dairy Farm

Background Information

This ongoing project was initiated by the owner of this dairy farm in South Taranaki. It is a 700 head dairy farm with a 2-pond system. Both ponds are 1500m³ facultative ponds. There is no added aeration to these ponds.

The Problem

The owner of the farm wants to be consistently well under Regional Council discharge consent limits. He had previously been served with abatement notices from the Regional Council for exceeding his consent limits and he also wanted to reduce the amount of time and money spent on periodically de-sludging these ponds.

The Solution

Ecogreen met with the owner at the site and examined every aspect of the problem to ensure that they fully understood the situation. After careful consideration with Ecogreen NZ's Australian based in-house microbiologist and technical staff, a dosing schedule of Ecogreen BioTab's was recommended to provide the most effective solution without going to the cost of adding aeration units.

Dosing

June 24th, 2011 - An initial dose of 10 Industrial BioTab's was added to the first pond. This is to 'kick-start' the beneficial bacteria count and in turn, would encourage and expediate the natural degradation process of the waste material.

July 1st - Start of weekly dosing of 2 Industrial BioTab's into the first pond.

September 9th - First pond shows the sludge being slowly lifted to the top of the pond.

September 25th - Regional Council samples the output wastewater from pond 2. Just prior to this, an historical rain event in South Taranaki meant many ponds in the region were overflowing into each other, mixing the wastewater and consequently the sample readings were abnormally high. This also set back the project as the high flow-through of these ponds during this unusual event meant a reduction in the beneficial bacterial count.

Dosing & Testing

November 30th - Samples tested. First pond shows an increasing level of sludge being lifted from the bottom of the first pond as well as much more biological action (small pieces of sludge being lifted and bubbling).

January 24th - Much more sludge rising to the surface in large clumps. Upon consultation with Ecogreen's microbiologist, dosing was increased to 3 BioTab's in the first pond to really accelerate the process of degradation of the waste.



First Pond
Second Pond



Sept. 9th



Nov. 30th



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February 25th - Samples tested. A huge increase in biological action taking place. Vast increase in amount of sludge rising.

March 26th, May 2nd - Samples tested. Bubbling continues with smaller clumps of sludge being regularly raised to the top and breaking down.

July 2nd - Samples tested. Samples looking much clearer. Analysis shows sludge has gone through the system from the highs of May and now the owner can maintain the pond at a low level (which is expected to reduce even further).



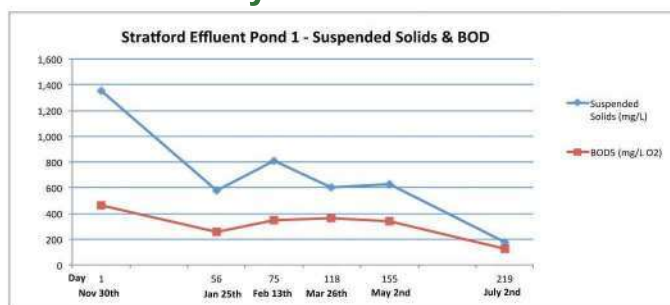
Feb. 13th



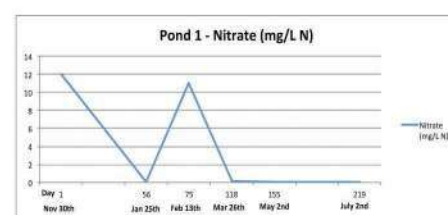
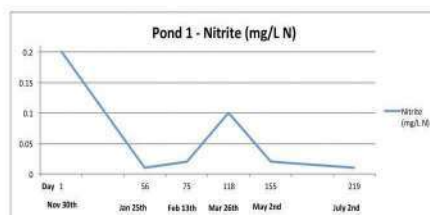
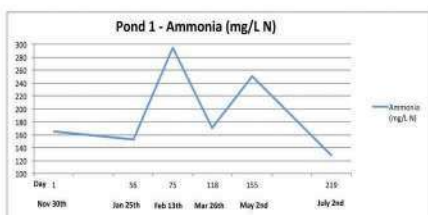
July 2nd



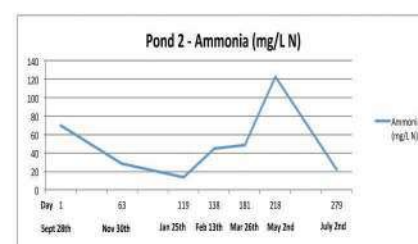
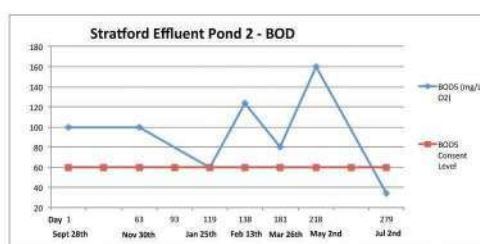
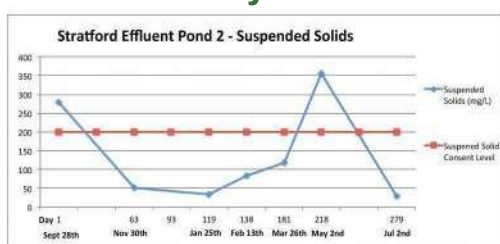
Pond 1 - Analysis



All graphs shown are from analysis conducted by an independent IANZ accredited test lab except Sept 28th which are from the South Taranaki Regional Council



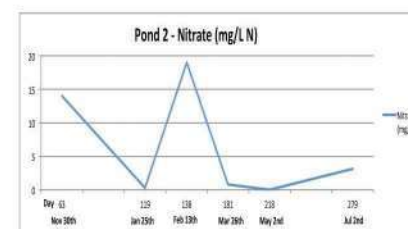
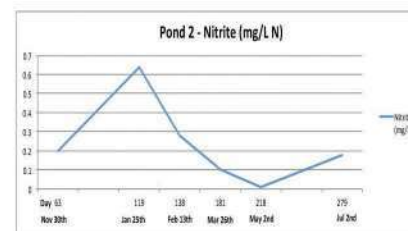
Pond 2 - Analysis



Conclusion

As the above results clearly show, Ecogreen BioTab's have been tremendously effective in accelerating waste remediation at this site and, in turn, increased the holding capacity and retention time in the ponds by reducing sludge levels. The owner can now easily maintain a clean and effective pond system that will allow him to stay well under his Regional Consent limits.

This process would have been a lot quicker to achieve without the historical weather events that occurred during the project and with added aeration.



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