



Release notes – Overseer version 6.5.7

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1. Introduction

The OverseerFM model release 6.5.7 introduces new effluent methane reduction mitigation (polyferric sulphate application) in beta while an independent science review of the model implementation takes place.

This new mitigation helps farmers reduce methane emissions from effluent, supporting their efforts to align on-farm practices to meet both national and global GHG emissions reduction targets. The new mitigation has already been included into the AIM National Inventory model, and this release enables farmers and their advisors to understand the potential opportunities for the utilisation of this technology at a farm level.

The new mitigation uses polyferric sulphate application to effluent systems and is currently marketed under the brand name "EcoPond" by Ravensdown.

The application of polyferric sulphate (PFS) technology to effluent systems has demonstrated significant reductions in methane (CH₄) emissions, achieving up to a 96% decrease. This is largely due to the way PFS alters the composition of the effluent, specifically targeting methane-producing bacteria during the treatment process. Furthermore, when treated effluent is applied to land, the technology also reduces incidental phosphorus (P) loss, contributing to better nutrient management and minimizing the environmental impact, especially in high-risk areas where P runoff is a concern.

Please note: The deployment of PFS (EcoPond) in OverseerFM is currently in beta and undergoing an independent scientific review. We apply this process to all new mitigations to ensure transparency, uphold scientific rigour, and provide confidence in the solutions we deliver.

2. Implementation

The PFS mitigation can only be applied to “holding pond” and “2-pond+discharge” effluent systems in OverseerFM.

If PFS technology is applied to one of these effluent systems, only the effluent from dairy cows is modelled as having it applied to it.

Effluent system details are entered within the “Structures/Effluent” screen in OverseerFM when modelling a farm. There is now a checkbox under the “Management system” called “Effluent is treated with polyferric sulphate (BETA)”. If the user selects this check box it is deemed the PFS technology is being added to the effluent.

If the PFS technology is applied, a new line item called “Effluent treatment (eg Polyferric sulphate)” will be visible within the farm level nutrient budget “Nutrients added” section which will include the additional sulphur (S), magnesium (Mg), and sodium (Na) which are applied to the effluent

These additional nutrients will be managed and transferred within the farm system the same as any other nutrient from the effluent system therefore all other existing functionality remains the same.

3. Overall impact on modelled results

There is no impact on OverseerFM results in version 6.5.7 as currently no farm analyses in OverseerFM include this new technology.

4. Conclusion

The implementation of PFS technology in effluent ponds has demonstrated notable environmental benefits. Most significantly, it contributes to a substantial reduction in CH₄ emissions, with reductions of up to 96% observed in farms utilising holding pond or 2-pond+discharge systems. Additionally, PFS offers the potential for modest reductions in incidental P loss when the treated effluent is applied to land.

From a nutrient budget perspective, the PFS-treated effluent enriches the soil with S, Mg, and Na. While the reduction in fertiliser requirements for Mg and Na is marginal, the impact on S is more pronounced. No changes were observed for other nutrients, and the lime requirement remains unaffected, as confirmed by the observed data.

Overall, PFS serves as an efficient mitigation strategy for reducing GHG emissions and enhancing nutrient management in farm systems with significant effluent production, particularly those with extended use of pads and effluent treatment structures.

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