

Jerald Lim

Project Abstract - Roseau & Warroad Wastewater Treatment Ponds



INTERN

Jerald Lim

BS Chemical Engineering; University of Minnesota
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PROJECT FOCUS

Waste, Water

ADVISOR

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COMPANY

**Roseau & Warroad Wastewater Treatment Ponds,
in partnership with Minnesota Rural Water
Association, the Minnesota Pollution Control
Agency, and Legislative Citizens Commission on
Minnesota Resources**



COMPANY DESCRIPTION

Roseau and Warroad are two small towns in northern Minnesota with populations of

several thousand people. In small towns, wastewater is often treated in stabilization ponds.

INCENTIVE

In these pond systems, solid wastes and nutrient pollution are broken down and harmful pathogens are treated through natural processes before water is discharged to naturally occurring waterways. Although these steps do take place, oftentimes nutrient removal does not reach its maximum potential. This leads to the discharge of nutrient pollution loaded waters into natural waterways. This nutrient pollution has the potential to create massive algal blooms and the subsequent depletion of oxygen in the water through a process known as eutrophication. As a result, natural ecosystems are thrown off balance as fish and other aquatic life can no longer survive in these oxygen-depleted dead zones.

APPROACH AND FOCUS OF RESEARCH

The goal of this project is to assist the wastewater treatment ponds in the towns of Roseau and Warroad with nutrient pollution removal optimization through low-cost, easy-to-implement strategies involving operational changes, waterfowl prevention, and chemical additions in order to prevent excess nutrients from entering Minnesota's water bodies.