Chapter 1: Project Overview

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Project Overview: Energy Assessments of Small Wastewater Treatment Facilities

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Background

Small wastewater treatment plants are responsible for the management and processing of residential, commercial, and industrial waste for smaller communities across Nebraska. Wastewater plants are major energy consumers for these small communities. These communities are committed to ensuring the highest possible levels of public health, economic growth, environmental quality, and fiscal responsibility. Therefore, this report should serve them to actively pursue opportunities of reducing their environmental impact while still meeting State and Federal regulations.

Project Description

The Department of Environmental Quality chose two treatment plants for assessment. Plant visits gave insight to where the facilities could become more environmentally aware and save on energy costs. After the plant visit, research was completed and recommendations were given for each site individually. Other investigations for the municipalities include budget distribution, electric usage, and asset management studies. Six reassessments of previous treatment facilities were also conducted as part of the project. Two out of six facilities implemented recommendations and three of the six facilities had operator changes.

Benefits and Results

Implementing pollution prevention opportunities has the direct benefits of significantly reducing energy consumption and related costs. With these direct benefits also come intangible benefits of reducing greenhouse gas emissions and providing a great marketing tool to improve the public image of the municipality. Specific recommendations include switching to more energy efficiency bubble diffuers, reducing wattage in UV light bulbs, and eliminating use of a propane heater. The table below summarizes benefits for each municipality.

Table 1. Summary of Recommendation Benefits by Site

Site	Annual Energy Savings (kWh/year)	Annual Cost Savings	Annual Greenhouse Gas Reduction (CO_2 equivalents)
Creighton WWTF	10,000	$2,000	20 metric tons
Ceresco WWTF	40,000	$3,700	60 metric tons