ABENGOA BIOENERGY

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Project Overview

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Company Background

Abengoa Bioenergy Corporation in York, Nebraska (ABC-York) is an ethanol plant with a production capacity of 55 million gallons of ethanol each year. The facility runs continuously all year with the exception of maintenance shutdowns. They bring in approximately 520,000 tons of corn annually, mostly from local co-ops and some by rail, to produce ethanol and have by-products such as CO2, wet and dry distiller's grains with solubles (WDGS and DDGS), corn oil, and syrup. ABC-York draws all of its water from private wells and treats their process wastewater before returning it to the York Wastewater Treatment Plant. This treatment process also generates another by-product which is called sludge.

Project Description

ABC-York desired to reassess its sludge management plan in 2013 due to a lack of sustainability in their current plan. Evaluating the various disposal and reduction options for ABC-York's sludge was the main focus of the project. Capital and operating costs of possible alternatives as well as the approximate lifetime of the original plan were calculated. Investigation into any regulatory issues that may be involved with the various methods was also completed.

Pollution Prevention Benefits

Disposal alternatives for sludge as compared to using a landfill will help ABC-York keep its sustainability focus. There is a mix of low and high capital projects but all are methods that, overall, prevent pollution. All plans would reduce total emissions by at least 1,000 $MTCO_2E$. Most recommendations may require some training of employees and the WDGS method would require product testing. Suggestions have anticipated lifetimes longer than that of the current field application with most over 5 years.

Results

As a result of P2 suggestions the following results could be reaped by ABC-York.
Greenhouse gas reductions listed are the P3 calculations, ABC-York tracks emissions as well and the values reflected by their tracking procedures are noted with each plan as well as in the impact section.

Table 1: Benefits of P2 Suggestions Compared to Landfill Disposal.

P2 Opportunity	Annual Cost Savings	MTCO2E Reduction
Land Applied Off-Site	$246,000	4,760
Land Applied On-Site	$281,000	4,760
Mixed in WDGS	$789,000	3,820
Methanation	$103,000	1,120

More benefits, that can't be quantified, include but are not limited to:

- Reduced risk of groundwater contamination
- Prevented disposal of organic waste at landfill
- Proven commitment to sustainability