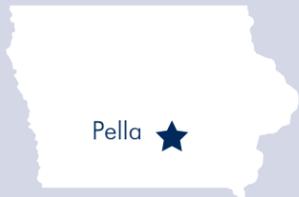


Vermeer Manufacturing Company

COMPANY BACKGROUND



Vermeer Manufacturing Company is a successful privately owned company, incorporated in 1948. Since its inception, Vermeer has grown from a one-person Iowa operation to a leading international organization that manufactures agricultural, construction, environmental and industrial equipment such as large round hay balers, tree spades, stump cutters, brush chippers, and trenchers. Vermeer is dedicated to “taking care of customers worldwide with better solutions.” Vermeer corporate offices and manufacturing facilities are located in Pella, Iowa, with more than 2,000 employees and 150 dealerships worldwide.



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PROJECT BACKGROUND

Vermeer has demonstrated a strong commitment to waste reduction through the implementation of Pollution Prevention methodologies to reduce wastes by diverting many land-filled waste streams to a recycling program. Currently, Vermeer recycles 19 percent of its wastes generated in the facilities. This saves approximately \$114, 931 per year on landfill costs. Vermeer conducted an environmental audit and proposed to further reduce the amount of its land-filled solid waste streams and recycle this waste into useful materials.

INCENTIVES TO CHANGE

Previously, Vermeer land-filled the wastewater sludge and iron oxide generated from treated process wastewater and metal cuttings respectively. Vermeer was actively searching for an alternative use for these land-filled waste streams.

RESULTS

Wastewater Sludge

Raw wastewater, filter cake sludge, and slurry sludge were analyzed for their composition contents to find alternative uses for wastewater sludge. Upon evaluation of the analytical results, it was determined that the levels of iron, phosphorus, potassium, nitrogen and other metals allowed the slurry sludge to be suitable for land application in accordance with Iowa Administrative Code (IAC 567-121.6). The potential use of the slurry sludge for land application led to developing a plan for Vermeer to continuously land apply its industrial wastewater sludge. The land application of the slurry sludge will divert about 60 tons per year from the landfill. The landfill diversion reduces the landfill disposal costs, service and fuel costs and also reduces the emissions from about 45,210 therms to the environment. Land application of the slurry sludge also eliminates the automatic filter press operation, thus saving energy costs, operating time, operating costs and the need for the roll-off dumpster and rental cost.

OTHER PROJECTS

To expand Vermeer’s commitment to recycling, Iowa-based cement companies were identified as potential users of the iron oxide waste stream. It is recommended that the solid waste management personnel follow up on this potential reuse opportunity. A suggestion to replace the current restroom



paper towels with automatic hand dryers was made through the company’s “Expect the Best” program. This can reduce landfill costs, paper towel purchasing costs, and protect the environment. Additional analysis of waste reduction potential is recommended to determine estimated return on investment.

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	6.19
CH4	2.25
N2O	0.00
CFCS	0.00
PM	0.10

Project	Annual Cost Savings	Environmental Results	Status
WASTEWATER SLUDGE LAND APPLICATION	\$3,164	45210 THERMS	IMPLEMENTED
ELECTRICITY (FILTER PRESS)	\$1.15	19.2 kWh	IMPLEMENTED
IRON OXIDE REUSE	\$2,010	7.82 TONS	IN PROGRESS
HAND DRYER	TO BE DETERMINED	TO BE DETERMINED	SUGGESTED