

Archer Daniels Midland

CASE
SUMMARY

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ARCHER DANIELS MIDLAND COMPANY

Clinton, Iowa
Clinton County
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The Company

Archer Daniels Midland Company (ADM), a world leader in agricultural processing, is one of the world's largest processors of soybeans, corn, wheat and cocoa. ADM is also a leader in the production of soy meal and oil, ethanol, corn sweeteners and flour. In addition, ADM produces value-added food and feed ingredients. Headquartered in Decatur, Illinois, ADM has over 26,000 employees, more than 260 processing plants and net sales of \$36.2 billion for the past fiscal year. The facility at Clinton is a major manufacturing plant producing large quantities of a variety of corn products.

Project Background

ADM-Clinton is a major facility, manufacturing various corn products. Although very little of the corn is left as waste product, the plant has air emissions, treats wastewater, uses many materials to support production, and has utility usage and by-products to manage. ADM has made a major commitment to modernize the Clinton plant and reduce its emissions. As a result, ADM has several active projects associated with emission/waste reduction and facility modernization. A common need of these projects is the effective use of materials and appropriate monitoring for pollution control.

Incentives to Change

ADM-Clinton is already updating its monitoring systems from manual logs to electronic monitoring and storage of key pollution-related parameters. Hence the need exists for a software tool to manage and track this data efficiently.



Results

Three opportunities for potential annual savings were researched and are summarized below:

1. Efficient data management and monitoring system – The ADM-Clinton plant holds permits with the Iowa DNR as a major emission source. Some of the plant's pollution-related parameters are being monitored and stored electronically. It is expected that eventually all the parameters related to various emission units will be switched to this system. However, a system had not

been implemented that would allow the company to keep records in a single database that is easily accessible by personnel. A software system was developed with a database of all the emission units, and the corresponding pollution-related parameters are monitored to document compliance with operating limits. The software will also allow users to retrieve data corresponding to each parameter for a specific user-defined time interval. This software tool will allow efficient monitoring of the pollution-related parameters and optimize operating values, which in turn will reduce air emissions.



The project will result in potential savings of approximately 1,600 tons per year of air pollutants going to the atmosphere and generate annual savings of \$57,000. The project also saved the company the cost of developing the software, which is approximately \$12,500. The total savings from the project are \$69,500.

2. Reuse of boiler ash – The Clinton facility is evaluating a potential boiler upgrade. One option is the use of CFB boilers. The main objective of this project was to collect and summarize information related to CFB boilers. During research it was found that approxi-

mately 25 to 30 percent of the ash related to the CFB boilers ash reuse options could be used as raw material in cement, concrete blocks, soil stabilizers and other products. Depending upon demand, approximately 57,500 tons of ash could be reused annually. The potential savings associated with this project would be approximately \$250,000 per year.

3. Cardboard and metal scrap recovery – The Clinton facility has various recycling programs in place and a review of waste management activities was completed to determine additional program options. From a survey of trash containers located at the facility, it was observed that significant quantities of cardboard are not recycled. It was also found that as much as three tons of steel may go into general trash containers in one week. Efforts to start a recycling program were initiated and it is expected that the program will be implemented in the near future. Initial estimates indicate a potential savings of approximately \$40,000 per year from recycling cardboard and \$104,000 per year from metal scrap recovery, creating a total savings of \$144,000 per year.

Metal scrap recovery would require placing five forklift trash containers in the plant with a total investment of \$15,000 and a possible payback period of approximately two months.

Project Summary Table

Pollution Prevention Opportunity		Waste Reduced	Cost Savings	Status
Efficient monitoring of pollution prevention parameters using the software developed	Reduced air pollution	1,600 tons/year	\$69,500/year	Implemented
Reuse of boiler ash	Reduced solid waste	57,000 tons/year	\$250,000/year	Recommended
Cardboard recycling	Reduced solid waste		\$40,000/year	Recommended
Metal scrap recovery	Reduced solid waste	150 tons/year	\$104,000/year	Recommended
Total			\$463,500/year	