

John Deere Ottumwa Works

COMPANY BACKGROUND



Deere & Company, founded in 1837 and collectively called John Deere, has grown from a one-man blacksmith shop into a corporation that conducts business around the world and employs approximately 56,000 people. John Deere consists of three major business segments: agriculture and turf, construction and forestry, and credit. The company's three support operations (parts, technology systems, and power systems) help customers be more productive as they improve the quality of life for people worldwide.



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PROJECT BACKGROUND

John Deere is guided by four main core values which are commitment, innovation, integrity, and quality. These values help the company as it conducts its business and protects employees, customers, suppliers, and the environment. The environmental department of John Deere Ottumwa Works (JDOW) strives to meet or surpass environmental expectations on company and governmental levels. The company's 2008 Environmental Goals and Objectives include hazardous and solid waste reduction. JDOW's main goal is to lower its hazardous waste generator status to a small quantity generator, which produces less than 1,000 kg of hazardous waste per calendar month.

INCENTIVES TO CHANGE

JDOW spends an estimated \$31,000 per year to purchase solvents to clean the paint gun lines. On-site solvent distillation has been under consideration for many years at JDOW. Solvent distillation would recover the solvent that is used to clean and flush the paint gun system. However, due to the lack of time and initial investment required to purchase, install, and use a distillation unit, the plant had resorted to another method to dispose of its paint and solvent waste. Used paint/solvent waste is currently shipped out as hazardous waste through a certified hauler, costing the company an estimated \$15,000 per year. Not only is this an excessive cost for JDOW; the manufacturing of this solvent contributes to releasing greenhouse gases into the atmosphere.

RESULTS

Solvent Substitution:

One option for reducing the hazardous waste generated by the facility is to replace the existing hazardous solvent with one that is safe and environmentally friendly. Solvent substitution is an ongoing project at JDOW. The company is currently testing alternate biodegradable solvents as replacements. When this is accomplished, it will help JDOW move a step towards reducing its hazardous waste generator status.

Solvent Distillation: Periodically, waste solvent must be removed from the site to a disposal facility. Currently, about 4,000 gallons of solvent is purchased per year to clean the paint gun lines. By using a distillation unit to recover solvent from the spent material, an estimated 3,500 gallons annually could be reduced. There would also be a reduction of greenhouse gas emissions and conventional air pollutants associated with the manufacturing and transportation of the solvent and hazardous waste.

Waste Monitoring System: Currently, JDOW's solid waste compactor is picked up weekly and taken to the local landfill. However, when this is done, the compactor is only 60 percent full, on average. If a waste monitoring system for JDOW's compactor were installed, the landfill waste would no longer need to be picked up weekly. This would allow the trash compactor to reach full capacity before it is picked up, which would reduce the number of waste hauls by 40 percent. This would save JDOW roughly \$3,000 dollars annually in transportation and fuel costs and would reduce conventional air pollutants and greenhouse gas emissions by 40 percent.



Office Paper: JDOW currently recycles office paper throughout the facility. However, starting August 1, 2009, if office paper comprises more than 10 percent of JDOW's waste going to the landfill, the overall price of waste per ton will double. To optimize recycling of office paper, every office employee has a saddle basket connected to his or her trash bin for paper recycling. In addition, 23-gallon recycling bins were placed by every major copier, printer, and fax machine. By recycling as much office paper as possible, JDOW will avoid extra landfill costs.



AIR POLLUTANTS DIVERTED IN TONS

Total for all sectors	
SO2	0.073
CO	0.332
NOx	0.066
VOC	0.095
PM10	0.024

GREEN HOUSE GASES DIVERTED IN TONS (CO2 Equivalent)

Total for all sectors	
CO2	27.82
CH4	4.00
N2O	2.02
CFC	0.89

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
SOLVENT SUBSTITUTION	N/A	HAZARDOUS WASTE REDUCTION	UNDER EVALUATION
SOLVENT DISTILLATION	\$49,000 – \$65,000	HAZARDOUS WASTE REDUCTION 24.9-30.8 TONS CO2E	RECOMMENDED
WASTE MONITORING SYSTEM	\$3,000	2.39 TONS CO2E	RECOMMENDED
OFFICE PAPER RECYCLING	N/A	SOLID WASTE REDUCTION	IN PROGRESS