

# HY-VEE DISTRIBUTION CENTER

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## COMPANY BACKGROUND



CHARITON

The supermarket chain Hy-Vee, Inc. sells groceries and products to customers in Iowa and the surrounding states. In 2009, sales topped \$6.4 billion and 2010 marked the company's 80th year of business. Its more than 56,000 employees operate in corporate offices in Des Moines, two distribution centers and 229 stores. Most distribution activity is based in the larger center in Chariton, Iowa. The complex consists of more than 1.5 million square feet of warehouse space and employs a fleet of 125 tractors and 270 trailers.

## PROJECT BACKGROUND

The intern examined truck washing activities and compressed air leaks at the Chariton distribution center. The truck wash project included updating the aging on-site wash and determining impacts of the recently introduced off-site washing operations. Additionally, recommendations for a new wash system were made, for future remodeling of the area. The intern also explored and quantified the effects of compressed air leaks.

## INCENTIVES TO CHANGE

Hy-Vee's sustainability policy addresses four key areas: store construction and design, energy and resource conservation, waste reduction and recycling, and product

sourcing and packaging. This project shows customers that Hy-Vee acts on its policies. Additionally, rising utility costs and the new off-site washing costs invite changes to current practices and systems. Hy-Vee recognized the benefits that recommendations from Pollution Prevention Services could bring to the distribution center.

## RESULTS

**Control & Wash Cycle Updates:** Most of the distribution center's truck washing needs are satisfied by an on-site wash. Cycle test results showed that utility use could be reduced through a change in process control. Replacing the fixed timer controllers with a series of simple on/off photoelectric emitters will result in water, natural gas, and electricity savings and waste reduction.

Other issues with the wash bay remain. First, additional labor is required for cleaning clogged nozzles and for adding solid detergent to the wash tank. Secondly, trucks are not being cleaned to the level desired. By replacing the current wash arch with a two-step liquid detergent application, both problems can be solved. Additionally, utility use will be further reduced and wastewater will become less hazardous.

**Off-Site Wash Reduction:** Off-site washing began because of two key issues with the on-site wash: it was used to wash out trailers in the winter, making it unavailable for truck washing, and vehicles were not being cleaned as well as desired. Since the inadequate cleaning will be addressed by the wash cycle upgrade, the off-site washing period can be reduced to winter months only.



**On-Site Wash with Water Reclaim:** Present plans are to construct a new fuel island, truck shop and truck wash structures in the near future. The company intends to install a modern wash system during the remodeling. The intern recommended a specific system and defined useful features to consider in alternate applications if the suggested system were not implemented.

**Compressed Air Leaks:** Using an ultrasonic leak detector, the intern located, tagged and logged leaks found in the various compressed air systems in the center. Although only a small portion of the total circulation system was examined, results show that significant savings could be achieved by repairing the discovered leaks. A comprehensive study of compressed air distribution should be completed to discover all areas of air escape.

**Ongoing Leak Detection Program:** Without a leak detection program, significant losses from leaks will continue to plague the distribution system. Investing in one or more leak detectors and developing a formal program would aid the center's employees in locating and repairing costly leaks.



## CONVENTIONAL AIR POLLUTANTS AND GREEN HOUSE GASES DIVERTED IN STANDARD TONS

Total for all sectors					
CO <sub>2</sub>	SO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CFC	PM-10
140.81	0.63	184.97	78.50	1.68	0.02

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
CONTROL & WASH CYCLE UPDATES	\$22,000	2 MILLION GALLONS WATER 9,000 THERMS 9,000 KWH	IMPLEMENTING
OFF-SITE WASH REDUCTION	\$30,000	2.7 MILLION GALLONS WATER* 12,240 THERMS* 12,240 KWH*	RECOMMENDED
NEW ON-SITE WASH WITH WATER RECLAIM	\$32,412**	3.1 MILLION GALLONS WATER*** 12,670 THERMS*** 8,240 KWH***	RECOMMENDED WITH FUTURE REMODELING
REPAIR COMPRESSED AIR LEAKS	\$6,000+	84,000+ KWH	RECOMMENDED
ONGOING LEAK DETECTION PROGRAM	\$1,500+	21,000+ KWH	RECOMMENDED

\*Estimated emission reductions from off-site facility

\*\*Assumption that Control & Wash Cycle Updates and Off-Site Wash Reduction recommendations have been implemented

\*\*\*Includes environmental and cost savings from off-site wash reduction and estimated emission reductions from off-site facility

