

Wolf Creek Nuclear Operating Corporation Burlington, Kansas

Intern: Craig Ronnebaum
Major: Biological and Agricultural Engineering
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The Company

Wolf Creek Generating Station located near Burlington Kan. is the only nuclear power plant in the state of Kansas. The plant has one pressurized water reactor and the cooling water for the plant is provided by Coffey County Lake. Ownership is shared by Westar Energy (46%), Kansas City Power and Light Company (46%), and Kansas Electric Power Cooperative, Inc (6%). The station is operated by Wolf Creek Nuclear Operating Corporation. Wolf Creek produces more than 1.2 million kW of electricity, enough for 800,000 homes. Wolf Creek employs approximately 940 full-time employees.

Project Background

The purpose of Ronnebaum's project was to determine the composition of the trash being disposed of in the local landfill, quantify same, and then find ways to reduce or eliminate that volume of solid waste. Waste-reduction projects for the summer of 2008 included a waste audit report, finding alternatives to Styrofoam food containers, the addition of hand dryers in restrooms, recycling of plastics, recycling of wood pallets, recycling of tires, and minimizing packaging.

Incentive for Change

Wolf Creek has always worked to reduce the quantity of waste generated. Wolf Creek has developed and implemented a waste minimization plan to drop from a large quantity generator of hazardous waste to a Kansas generator classification. This goal was achieved in October of 2004. Wolf Creek is now striving to be classified as a small quantity generator of hazardous waste. This internship of 2008 was to focus on reducing or eliminating nonhazardous solid waste. Reducing waste at Wolf Creek does result in cost savings as well as reducing Wolf Creek's environmental impact.

Projects Reviewed for P2 Potential

1. Waste Audit Report

The first project Ronnebaum worked on was conducting a waste audit to identify nonhazardous waste streams as well as their composition. The audit also looked at current practices used at Wolf Creek to reduce wastes and costs associated with trash disposal and recycling. From the waste audit report, it was found that Styrofoam food containers, paper towels, and pop bottles made up the majority of trash.

2. Styrofoam

Styrofoam food containers made up the majority of the trash, 42% by volume. Two recommendations were implemented to help reduce the amount of Styrofoam. The first was a policy that the cafeteria enforced—its employees must ask customers if they are dining in or out. The second action taken was to put signs on top of the shelves where the food is served so customers waiting in line can read them and decide to use plates instead of Styrofoam if eating in the cafeteria. Research was also done on using an EcoClamshell to eliminate the Styrofoam. The EcoClamshell is a reusable take-out food container that would create a closed-loop system to help eliminate the Styrofoam food containers.

3. Paper Towels

Wolf Creek is currently sending 5.6 tons of paper towels to the landfill every year. Ronnebaum did a cost analysis for the addition of hand dryers in the restrooms and found it would be cost feasible to add hand dryers if 75% of employees would prefer to use hand dryers over paper towels.

4. Recycling Plastic Bottles

The cleaning contractor at Wolf Creek, GCA Cleaning Services, would be willing to collect pop bottles if receptacles are put in the break rooms and other places around the plant, as they also take time to collect the aluminum cans. The Coffey County Recycling Department said it would be fine to put the plastic bottles in the trailer currently on site for accumulation of cardboard at Wolf Creek. Coffey County Recycling picks up the trailer when it's full and brings it back empty. The Recycling Center said Wolf Creek could recycle all plastics from #1 through #7, as they would sort them at their facility.

5. The last three projects that Ronnebaum looked at were recycling wood pallets, recycling tires, and ways to minimize packaging. Ronnebaum found it would not be cost feasible to recycle wood pallets as Wolf Creek doesn't generate that many used pallets, and Wolf Creek would still have to pay to have a roll-off container on site for other wood wastes. Ronnebaum found that most of the used tires generated by Wolf Creek are already being recycled. Wolf Creek takes them to the county landfill, but Champlin Tire Recycling comes to the landfill to collect tires, so no changes were made. Ronnebaum found there probably isn't much that can be done to minimize packaging on engineered items due to the requirements for shipping such items. The primary concern is that the items aren't damaged in transit. However, there is a possibility to minimize packaging for non-engineered items, but further research should be done to determine feasibility and cost-effectiveness.

Project Summary

Project	Annual Cost Savings	Environmental Results	Status
Cafeteria policy of asking customers if dining in or out	Unknown	Some elimination of Styrofoam from waste stream	Implemented
Signs put in cafeteria to encourage customers to use plates	Unknown	Some elimination of Styrofoam from waste stream	Implemented
Reduction of Styrofoam (EcoClamshell)	Unknown	Would help eliminate Styrofoam from the waste stream	Recommended (Needs further research)
Addition of hand dryers	\$5,446.08 - \$21,784.31	1.4 to 5.6 tons of paper towels diverted from landfill each year	Recommended
Recycling of plastics	None	Elimination of Plastics from landfill	Recommended
Recycling of wood pallets	None	Reduction of 120 pallets each year to landfill	Not recommended
Recycling of tires	None	Same as current method	Implemented