

Hospital Environmental Circuit Rider

COMPANY BACKGROUND



The healthcare industry is one of the most heavily regulated industry sectors with several government agencies providing oversight. To assist this sector, U.S. EPA Region 7 provided funding to the Pollution Prevention Intern Program for an intern to conduct on-site visits at hospitals to identify sources of mercury that might exist and opportunities to reduce energy consumption. Hospitals for a Healthy Environment (H2E) was a source of technical assistance for this project.



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PROJECT BACKGROUND

The Iowa DNR's Pollution Prevention Services intern worked with hospitals in Iowa and Nebraska to identify and remove mercury-containing devices and complete an Energy Star baseline. Likewise, grant funding for Kansas State University's Pollution Prevention Institute allowed an intern to assist hospitals in Kansas and Missouri. Thus all four states in U.S. EPA Region 7 received assistance.

INCENTIVES TO CHANGE

Healthcare is the fourth largest source of mercury in the environment. Studies have linked mercury to neurological and muscular impairments, birth defects and even death. Methyl mercury accumulation in fish can cause harm to those who eat fish regularly and has prompted consumption advisories in many bodies of water throughout the United States.

U.S. EPA statistics indicate that energy improvements have multiple financial implications including direct savings on utilities, increased occupancy rates, and greater building asset value. Per the U.S. EPA Energy Star projections, an energy reduction of 5 percent for each of the facilities would result the equivalent of more than \$5.55 million in new revenue for these hospitals.

RESULTS

A mercury assessment was conducted at 11 Iowa and Nebraska healthcare facilities. These eleven facilities contained 145.84 lbs. of mercury in both patient care and physical plant areas.

In patient care departments, mercury was identified in fever and laboratory thermometers, sphygmomanometers for taking blood pressure, barometers for calibrating instruments, bougie and esophageal dilators and laboratory chemicals and stains. Some facilities maintained a stock of bulk mercury used to repair sphygmomanometers.

In the physical plant, mercury was located in tilt-switches and water cut-off switches on boilers and water heaters. Additionally, thermometers were located on chilled water lines, air handling units and water heater tanks. Fluorescent lighting is used in nearly every healthcare facility also contains a small amount of mercury.

An Energy Star baseline was created for nine facilities. The baseline uses energy records from each facility as well as other attributes such as services offered,



number of licensed beds, number of floors and square footage of each facility to compare each hospital to similar hospitals. Factors such as extreme weather conditions and physical location are accounted for by the program.

A rating, 1 – 100, is generated for each hospital, indicating how well the hospital uses energy in comparison with other facilities. A rating of 50 indicates the hospital is average and a rating above 75 qualifies the facility for an Energy Star Award. The facilities completing the baseline earned ratings from 2 – 82, with an average rating of 39.

A cardboard recycling program and a food waste diversion project were researched at two facilities. The cardboard recycling project was submitted as a Solid Waste Alternatives Program (SWAP) grant. The food diversion project will be further investigated as a possible SWAP-eligible project.

Project	Annual Cost Savings	Environmental Results	Status
MERCURY REDUCTION	NONE	145.84 POUNDS IDENTIFIED FOR REMOVAL	RECOMMENDED
5 PERCENT ENERGY REDUCTION	\$277,319	2,637,416 kWh ELECTRICITY 90,363 THERMS NATURAL GAS 9,231 KLBS STEAM	RECOMMENDED
CARDBOARD RECYCLING PROGRAM	\$2,355	23 TONS RECYCLED	RECOMMENDED
FOOD WASTE RECYCLING PROGRAM	\$7,890	104 TONS DIVERTED FROM LANDFILL	FURTHER RESEARCH NEEDED

Air Pollutants Diverted in Tons

	Total for all sectors
SO2	21.62
CO	3.33
NOX	9.70
VOC	.84
PM	.54

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	4024.51
CH4	278.01
N2O	9.28
CFCS	49.40