



POLLUTION PREVENTION WORKS FOR IOWA

CASE STUDY

COMPANY	Norand Corporation
LOCATION	Cedar Rapids Linn County
PRODUCT/INDUSTRY	Radio & TV Communications Equipment (Hand Held Computers) (SIC Code 3663)
WASTE STREAM	Freon.
MODIFICATIONS	Source Reduction/Technology Change: Installed alternative soldering equipment utilizing low solids flux.
BENEFITS	Eliminated use and air emissions of Freon. Saved \$65,000/year in waste disposal, operating and supply costs.

Norand Corporation manufactures sophisticated hand systems and related equipment. The company manufactures virtually all components and products, through machining, fabrication, assembly, plating, soldering and finishing operations. Previously, Freon was used to clean board prior to the wave soldering and some manual operations. The company had worked to reduce use and emissions of Freon; however, approximately 1,000 gallons per year of this chlorofluorocarbon (CFC) were still being emitted to the atmosphere. Sludge from clean out of the machines also required disposal as hazardous waste.

Change

The company performed a comprehensive study of alternatives and identified two European technologies that incorporated low solids-flux and did not require Freon cleaning. WRAP performed an on-site assessment after the technologies had been identified and concurred with Norand's decision to install whichever appeared superior after the company's final evaluation. Upon further evaluation, Norand installed the better process along with 70 new high technology hand soldering guns.

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The Iowa Waste Reduction Assistance Program is a non-regulatory technical assistance program offered by the Waste Management Assistance Division of the Iowa Department of Natural Resources.

Savings/Other Benefits

The company has documented the following project analysis:

• Maintenance labor savings with new machines	\$ 7,800
• Reduction in utility costs	3,000
• Avoided waste disposal costs	1,000
• Elimination of Freon purchase costs	48,400
• Reduction in flux and thinner costs	<u>4,800</u>
TOTAL ANNUAL SAVINGS	\$ 65,000
• Investment - new wave solder machines	\$ 155,000
• 70 new manual soldering guns	<u>35,000</u>
TOTAL INVESTMENT	\$ 190,000
Payout	2.9 years

Norand reports superior quality soldering from the new equipment (details are withheld at the company's request).

CFCs will not be available within a few years. WRAP recommends alternative cleaning technologies to replace CFCs to Iowa businesses where appropriate. In this case, WRAP was able to transfer the technology to a non-competing out-of-state computer company through a sister technical assistance program in another state.