

NEVADA SMALL BUSINESS DEVELOPMENT CENTER BUSINESS ENVIRONMENTAL PROGRAM

CS-FY9401001

CABINET PARTS WASHER AT COEUR ROCHESTER

Waste Reduction Case Study

PROJECT

Coeur Rochester, a division of Coeur D'Alene Mines, is a 295 employee mining firm located near Lovelock, Nevada. Coeur Rochester received grant funding from the Nevada Division of Environmental Protection (NDEP) to purchase a cabinet parts washer and reduce solvent usage in their heavy equipment maintenance shop. The cabinet parts washer can eliminate or reduce the need for solvent cleaning and save costs associated with purchase and disposal of the solvent.

BACKGROUND

The majority of waste solvents used in degreasing operations in automotive or equipment maintenance shops are managed as hazardous waste due to the low flashpoint of the solvent and contaminants from the oils, greases, and heavy metals pulled off the parts through cleaning.

Coeur Rochester previously used a petroleum naphtha based solvent in a traditional solvent tank with an attached filtration unit. When the tank is in use, the solvent is constantly being filtered to remove the suspended particles and contaminants from the solvent. Coeur Rochester generated an average of 110 gallons of spent solvent per month.

TECHNOLOGY

Coeur Rochester purchased the Jet Parts Washer, model 200P manufactured by Better Engineering. The cabinet parts washer uses a high temperature, high pressure spray of water and detergent to clean parts. After the spray hits the parts, the water is directed into a baffle/filter oil separator system where the water is passed through a series of coalescing plates. The floating oils rise to the surface where they adhere to the rotating disk of the skimmer and subsequently wiped off and channelled into a container. The oil skimmer is designed to remove 1.5 gallons of oil per hour. Other contaminants are trapped at the bottom of the plates where a sludge forms which is removed on a routing basis. Water which passes through the system is reused. Every day fresh water equivalent to 10-20% of the tank capacity is added to compensate for evaporation.

The model 200P has a turntable diameter of 27", the main tank can hold 65 gallons of water and the filter system capacity is 25 gallons. The turntable weight capacity is about 500 pounds and on a full load consumes 38 amps of electricity. The turntable rotates at 3 RPM.

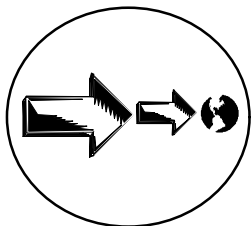
Coeur Rochester uses Tub Mate all purpose cleaner detergent which is available in a powder form. The detergent can be used to clean and degrease iron, steel, soft metal and plastic parts. The detergent is a blend of an alkaline base, surfactants, defoaming agents, and corrosion inhibitors that work effectively under a relatively low temperature of 110°F.

WASTE MANAGEMENT

Prior to purchasing the parts washer, Coeur Rochester generated 110 gallons of spent solvent a month and managed it as a hazardous waste. The cabinet parts washer has reduced Coeur Rochester's solvent cleaning requirements and reduced their waste solvent generation by 27 gallons a month. Coeur Rochester analyzed the sludge from the parts washer for toxicity characteristics under the 7-11 Toxicity Characteristic Leaching Procedure (TCLP) to determine how to handle it properly. Laboratory results indicate that the sludge is not a hazardous waste, and Coeur Rochester is able to dispose of the sludge as a non-hazardous waste. Each business that generates waste sludge from a parts washer system should have their sludge tested by a laboratory to determine how it should be disposed of.

COST SAVINGS

"It is well worth the money. Not only does the project reduce the quantities of used solvent generated, but it also saves on labor as mechanics are free to perform other tasks while the machine is in use," says Randy Weimer, corporate environmental engineer, Coeur D'Alene Mines.



This case study was developed by the Business Environmental Program of the Nevada Small Business Development Center with funding provided by the Nevada Division of Environmental Protection.



By installing a parts washer, a business can save not only in waste disposal costs, but also on virgin solvent purchase. Major savings in this project comes from labor time. "Labor savings are tremendous as mechanics are free to perform other tasks while the machine is in use," says Randy Weimer. Prior to purchasing the parts washer, Coeur Rochester was generating approximately 1,320 gallons of spent solvent per year that was managed as an ignitable hazardous waste at the cost of \$7,248. The initial costs associated with purchase and installation of the parts washer was \$10,470. NDEP provided half the amount in grant money. By installing the parts washer, Coeur Rochester now generates 996 gallons of waste solvent per year with a disposal cost of \$5,496. They save \$1,752 per year on waste disposal costs alone. By purchasing less virgin solvent, they are saving an additional \$996 per year. Coeur Rochester reports huge savings on employee time. They estimate an average of 59 man hours a month saved by using the parts washer. At an average hourly rate of \$16.43 per employee, Coeur Rochester is saving \$11,632 on labor per year. With a total savings of \$15,350 a year, it took Coeur Rochester less than one year to break even. The detergent used costs \$120 for a 45 pound bag and Coeur Rochester purchases one bag a year. The oil is mixed with their used oil and handled through a waste oil hauler.

COMMENTS

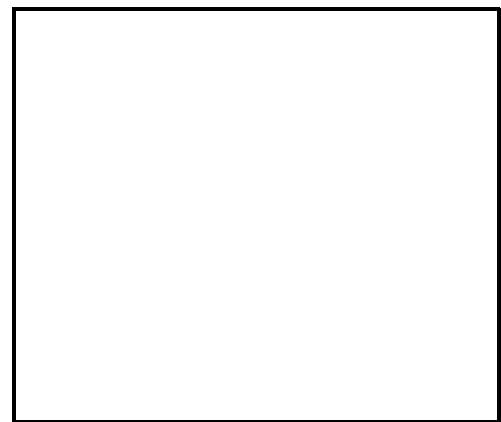
By purchasing the parts washer, Coeur Rochester has not completely eliminated the use of solvents. "Purchasing the right capacity of the parts washer to handle the type and size of parts to be cleaned is an important consideration," says Randy, "With all the heavy equipment parts we clean, the capacity of the parts washer available is not adequate to eliminate our solvent waste stream." Congratulations, Coeur Rochester; Randy Weimer of Coeur D'Alene Mines can be reached at (208) 667-3511. There are different cabinet sizes available with turntable diameter varying from 25" to 75" and handle loads of 500 pounds to 2000 pounds. It is important to purchase a cabinet parts washer that can hold the biggest part cleaned so that one can successfully eliminate the use of solvent. "If I had the opportunity to do this project all over again, I would purchase a larger machine, perhaps model M400LX-P which is capable of holding larger and more parts during operation," says Randy. Of course, most automotive shops will not be cleaning parts as large as those found in mining equipment.

CABINET PARTS WASHERS AND DETERGENT VENDORS

Electro-Magic Ace Automotive Machine Sales
(702) 786-3098 (510) 352-3790
Glen Silva Art Hernandez

Lee, Inc. ESP. Safe Products
(702) 331-1911 (702) 333-6518
 Jay Webber

Precision Cleaning Systems Inc.
Hotsy Cleaning Systems
(916) 731-4489



Jet Cabinet Parts Washer Model 300

Note: The above listing of vendors and manufacturers is provided for informational purposes only. This list is provided as a service to Nevada businesses in order to assist them with waste minimization. This listing of businesses is not to be construed as actual or implied endorsement of their products or services. Additionally, other business which provide similar products and services may not be listed; this omission is not to be construed as an actual or implied denouncement of those businesses.