

Nevada Small Business Development Center Business Environmental Program

CS-FY9401003

ALTERNATIVE CLEANER SUBSTITUTION AT FLETCHER JONES IMPORTS Waste Reduction Case Study

PROJECT

Fletcher Jones Imports, a 22 employee firm located in Las Vegas, received grant funding from the Nevada Division of Environmental Protection (NDEP) to switch from a low-flashpoint/hazardous waste solvent to a high flashpoint alternative cleaner to be used in de-greasing operations for routine automotive maintenance and repair work. Prior to switching to an alternative cleaner, Fletcher Jones was using solvent in a parts cleaning sink and had the entire batch of solvent removed and disposed of on a bi-monthly basis. Along with the alternative cleaner, Fletcher Jones purchased a new solvent sink system that constantly filters the high flashpoint solvent. The filtration system removes the suspended solids and contaminants, which drastically extends the bath life of the solvent. Not only does this process allow Fletcher Jones to save money on the amount of raw product purchased, it also dramatically reduces the amount of hazardous waste generated and disposed of.

BACKGROUND

The majority of waste solvents used for de-greasing in the automotive industry are managed as a hazardous waste due to the low flashpoint of the solvent as well as the oils, greases, and heavy metals pulled off the parts through cleaning. Under Federal and State regulations, if a waste has a flashpoint of less than 140 degrees Fahrenheit, it is considered an ignitable hazardous waste. The flashpoint of most naphtha-based solvents used in automotive degreasing is between 105 and 120 degrees Fahrenheit, hence they are considered ignitable hazardous wastes. Many automotive repair facilities contract with an outside solvent management firm that supplies raw solvent and disposes of the waste solvent. Under this management contract, a business' choice is limited as to how often the waste solvent is changed out and raw solvent is supplied. Each time a solvent sink is changed out under these arrangements, a business is paying for both the new raw solvent provided and for the waste solvent to be recycled and disposed of. Even though the business hires an outside firm to provide raw solvent and manage waste solvent, the business is still responsible for the hazardous waste generated.

From November 1993, to September 1994, Fletcher Jones had six Safety-Kleen tanks at the facility for de-greasing operations. The solvent was changed out every month by the solvent management firm. In 1994, Fletcher Jones switched the change out schedule to once every 60 days, thus cutting the waste generation in half. Fletcher Jones spent approximately \$4000 a year and generated approximately 350 gallons of waste solvent that was managed as a hazardous waste. Fletcher Jones wanted to save money, have more control over how often and which solvent sinks were changed out, and they wanted to cut down on the amount of hazardous waste they were generating.

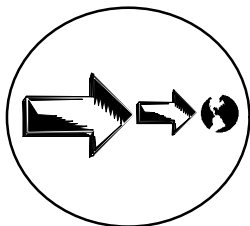
TECHNOLOGY

Fletcher Jones purchased seven of Inland Technologies Edge Tek solvent tank and filtration system and Inland's Skysol alternative cleaner. Inland's Skysol solvent has a flash point of 152° F (PMCC). The Inland system provides a traditional solvent sink to hold the solvent for de-greasing but also supplies a compact ultra-filtration system that attaches to the side of the tank. When the tank is in use, the solvent is constantly being filtered to remove suspended particles and contaminants. When the filters become loaded with contaminants, they are replaced but the alternative cleaner is constantly polished and does not need to be changed out on a regular basis. Many businesses that have switched to an alternative solvent, use the solvent for 18 to 24 months or longer before change out. Instead of purchasing new solvent and paying to dispose of waste solvent on a monthly or bi-monthly basis, Fletcher Jones disposes only of spent filters (approximately one filter for every 240 cars serviced) and adds half a gallon per month per sink of make-up cleaner due to drag-out and evaporation.

WASTE MANAGEMENT

Prior to switching over to an alternative cleaner, Fletcher Jones was generating approximately 350 gallons of

"I feel it is important for automotive repair shops to be proactive with environmental issues. I would highly encourage all repair shops to participate in a similar project because it not only eliminates a hazardous waste stream, it also makes the work place a little safer by the elimination of a combustible solvent," says Ian Kirk of Fletcher Jones Imports.



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.



spent solvent per year which was handled as a hazardous waste. Fletcher Jones had a spent filter from the new filtration system analyzed by the 7-11 Toxicity Characteristics Leaching Procedure (TCLP). Laboratory results indicate that the filters are not a hazardous waste so Fletcher Jones is able to dispose of their waste filters as normal trash. Business that generate waste filters from a solvent filtration system should have a spent filter tested by a laboratory to determine if the used filters are hazardous waste. After using their new alternative cleaner system for a year, Fletcher Jones has not had to dispose of any alternative cleaner. When they do generate spent alternative cleaner, they will have a laboratory run a 7-11 TCLP on the waste solvent. If the laboratory results indicate the waste passes the TCLP, and since the alternative cleaner has a flashpoint greater than 140 degrees Fahrenheit, it can be picked up by a used oil hauler.

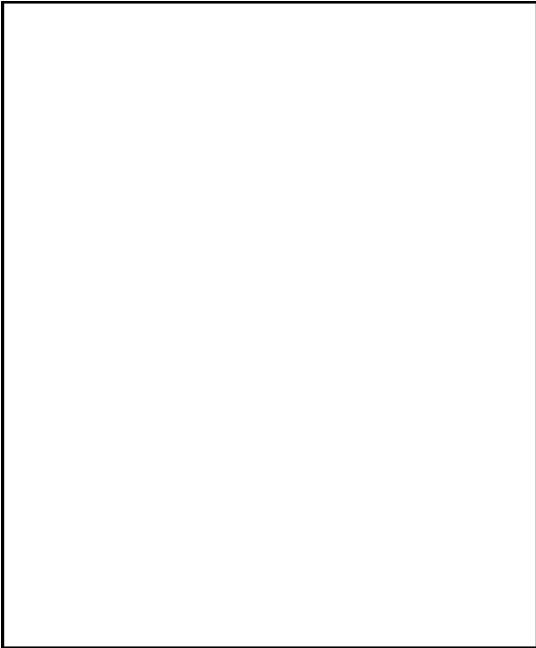
COST SAVINGS

In 1993/1994, Fletcher Jones Imports was generating approximately 350 gallons of waste solvent per year that was being managed as an ignitable hazardous waste at a cost of \$4000. The initial costs associated with switching over to an alternative cleaner included seven Edge Tek filtration units (\$1000 per unit for a cost of \$7000) and 210 gallons of Skysol cleaner (210 gallons @ \$20 per gallon for a cost of \$4200) was \$11,200. NDEP provided half the amount in grant money. It will take Fletcher Jones approximately 4.5 years to break even on the investment made in the new equipment and alternative cleaner. After that, they will save approximately \$3,160 per year. A pack of 10 filters costs \$150 and the 0.5 gallons of make up solvent per sink for seven sinks adds up to \$70 per month. Fletcher Jones also reduced their generator status to Conditionally Exempt Small Quantity Generator (CESQG) which resulted in significant recordkeeping and reporting cost savings.

COMMENTS

There are a variety of alternative cleaners on the market. They range from pure water, to combinations of water, hydrocarbons, detergents, saponifiers, surfactants, corrosion inhibitors, and special additives. Ideally, an alternative cleaner will have a flashpoint above 140 degrees Fahrenheit so that it will not need to be managed as an ignitable hazardous waste. Selecting an alternative cleaner can be a challenge; what works for one shop may not work for another and what some employees are happy with, others may not be. As Ian Kirk from Fletcher Jones says, "The secret is to test samples of various alternative cleaners and get feedback from the employees prior to switching over to any one alternative cleaner. Involving employees in the process and educating them on why the business is trying to make the change over to an alternative cleaner will really help things flow smoothly. Also, communicate with employees that the alternative cleaners they are testing are safer from a health perspective than the traditional naphtha-based solvent."

The 4.5 year payback period for the project could be reduced by other businesses by considering the number of solvent sinks required and the alternative cleaner to be used. It is important to evaluate the number of solvent sinks required since the initial setup costs are higher for the alternative solvent systems. Fletcher Jones has 7 work bays. If Fletcher Jones had switched to 4 sinks instead of 7, the pay back period would have been a little over two years since they would have saved \$4800 in project implementation costs. Ideally, one should look at purchasing one sink for every 3 to 4 bays depending on the work load. If Fletcher Jones Imports had purchased 2 sinks and switched to a \$10 per gallon alternative cleaner, the pay back period would have been less than a year. It is also important to look at the cost per gallon of alternative solvent. The cost of alternative solvents range from anywhere between \$8 to \$20 a gallon or higher. Other automotive and heavy equipment shops have successfully utilized lower priced solvent alternatives.



Alternative solvent sink at Fletcher Jones Imports

* Project implementation cost includes cost of the sink at @1,000 each, cost of 30 gallons of solvent per sink, and one time TCLP test on loaded filter at the cost of \$250.

** Monthly operating cost is based on one filter change per every two months at \$15, 0.5 gallons of make up solvent per sink; does not include any power costs.

*** Pay back period is based on a \$4000 saving less the annual operating cost of the alternative cleaner system.

A business which generates primarily spent solvent as hazardous waste, has a good chance of reducing generator status by switching to an alternative cleaner. A lower generator status reduces the regulatory burdens including, storage time limits, recordkeeping and reporting requirements and associated costs. Ian Kirk with Fletcher Jones says, "I feel it is important for automotive repair shops to be proactive with environmental issues. I would highly encourage all repair shops to participate in a similar project because it not only eliminates a hazardous waste stream, it also makes the work place safer by the elimination of a combustible solvent and hazardous chemicals." Congratulations to Fletcher Jones Imports; Ian Kirk of Fletcher Jones can be reached at (702) 364-2750.





ALTERNATIVE CLEANER SUPPLIERS

Inland Technology
401 East 27th Street

Zep Manufacturing
POB 15404

Ecolink-Sentry
1481 Rock Mountain Blvd.

| No of sinks | Project implementation cost* | | Monthly operating cost** | | Pay back period*** | |
|-------------|------------------------------|--------------|--------------------------|--------------|--------------------|--------------|
| | \$20 solvent | \$10 solvent | \$20 solvent | \$10 solvent | \$20 solvent | \$10 solvent |
| 7 | \$11,450 | \$9,350 | \$122.5 | \$87.5 | 4.5 years | 3.2 years |
| 4 | \$6,650 | \$5,450 | \$70 | \$50 | 2.1 years | 1.6 years |
| 2 | \$3,450 | \$2,850 | \$35 | \$25 | 0.9 years | 0.78 years |

Tacoma, WA 98421
(800) 552-3100

Las Vegas, NV
(702) 367-4288

Stone Mountain, GA 30086
(800) 886-8240

PurChem
614 Chris Ave.
Elko, NV
(702) 753-7033

Enviro-Motive Service Institute
220 W. Santa Ana Street
Anaheim, CA 92805
(714) 778-5155

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.