

Vocational Wet Cleaning Prison Pilot Program

WHITE PAPER

Produced By:

The Environmental Finance Center, Region IX
Building 7, Alameda Point
851 West Midway Avenue
Alameda, CA 94501

phone: (510) 749-6867
fax: (510) 749-6862
email: efc9@greenstart.org

February, 2000

Environmental Finance Center Region IX

The Environmental Finance Center for Region IX (EFC9) works for cleaner communities through cleaner business. Our mission is to help business and government achieve environmental goals and compliance, without adversely affecting economic growth. We use tools such as innovative financing, charrettes, small business outreach, and information directories to help implement pollution prevention, sustainable economic development, environmental business creation, environmental technology transfer, smart-growth and brownfield development.

EFC9 is affiliated with California State University, Hayward (CSUH), and is supported by the US Environmental Protection Agency (US EPA). The Center serves US EPA Region IX, which includes Arizona, California, Hawaii, Nevada, Guam and the Marshall Islands.

EFC9 is part of a growing network of Environmental Finance Centers affiliated with universities throughout the United States. EFC9, also serves as an expert witness to the Environmental Finance Advisory Board (EFAB). The EFAB provides authoritative analysis on environmental finance issues to the EPA Administrator.

Vocational Wet Cleaning Prison Pilot Program

WHITE PAPER

Overview

In the Fall of 1997, the Environmental Finance Center, Region 9 (EFC9) received a US EPA financed grant from the Environmental Finance Center, Region 5 (EFC5), to produce a plan for stimulating more pollution prevention (P2) activities in a specific San Francisco Bay Area industry. After consultation with EFC5, US EPA Region 9 and the Bay Area Hazardous Waste Reduction Committee, EFC9 determined that the dry cleaning industry – which relies heavily on perchloroethylene, a toxic air contaminant – would make the most suitable target. In response, EFC9 hosted two Dry Cleaning Industry Charrettes. The charrettes revealed that to motivate dry cleaners to adopt the most environmentally benign pollution prevention alternative – wet cleaning – there needs to be increased consumer awareness of and demand for this alternative and more and better-trained labor.

Using the charrette results as guidance, EFC9 implemented several programs to support and promote wet cleaning throughout the Bay Area and California. In 1999, the major focus of EFC9's promotional efforts was the establishment of a Vocational Wet Cleaning Prison Pilot Program at two State Correctional Facilities (SCFs) in California. The goal of this program was three-pronged:

- To establish a State Correctional Facilities vocational wet cleaning demonstration training program at two State Correctional Facilities (SCFs) which currently run vocational dry cleaning programs, specifically Soledad and Corcoran Correctional Facilities,
- To reduce perchloroethylene (perc) usage by State Correctional Facilities vocational dry cleaning programs, and
- To provide trained wet cleaning and finishing operators to the dry cleaning community.

Throughout 1999, EFC9 identified all necessary tasks and insured that the work was accomplished. We coordinated the vocational education instructors' efforts, tracked their progress, determined their needs, and solicited their input. In addition, EFC9 worked with the vocational dry cleaning instructors at Soledad and Corcoran State Correctional Facilities (SCFs) to determine their exact equipment and training needs. Finally, we provided them with up-to-date information on wet cleaning and tensioning equipment and training and their associated costs. As a result, the Environmental Finance Center, Region IX (EFC9) helped establish the first California Vocational Wet Cleaning Prison Pilot (CVWCP) Program which should be fully operational by late 2000.

The following report describes the Program, its history and EFC9's role in the process of establishing vocational wet cleaning programs at two state correctional facilities in California.

Background

Dry Cleaning

Dry cleaning – developed in the late 1800's to clean garments that could not be cleaned in water – is not dry; it uses a liquid chemical solvent. In the modern dry cleaning process, clothes are cleaned in a large "washer" which functions much like a home washer to remove oil, dirt, and stains. Once cleaned, the machine essentially becomes a dryer, and the clothes are dried without having to transfer them to a separate dryer, thus reducing the loss of solvent vapors and worker exposure to those solvents.

"For more than forty years, the vast majority of dry cleaners have relied on perchloroethylene (PCE or perc) as the solvent used to clean clothes as part of the dry cleaning process. This use has made dry cleaners the single largest market for PCE."

While there is not a clear consensus as to the exact toxicity of perc, it has been deemed potentially hazardous to human health. According to the State of California, perc is a "toxic air contaminant"; US EPA classified it as a "probable human carcinogen"; the National Institute of Occupational Safety and Health (NIOSH) recommends treating perc as a "potential human carcinogen"; and the International Agency for Research on Cancer (IARC) places it in Group 2A ("probably carcinogenic to humans").

As a result of these assessments, regulations were established to reduce the exposure to perc of dry cleaning workers and residents living in co-location with dry cleaning establishments. While these regulations have reduced perc usage (by about 50 percent in the San Francisco Bay Area for example), it is still found in California's air, particularly in the most populous parts of California (Bay Area and South Coast). Therefore, the federal and state governments are encouraging dry cleaners to adopt safer fabric care alternatives. At the time this project began, there were four alternatives to perc on the market; they included: wet cleaning, petroleum-based solvents, CO2 and Rynex. Due to the relative advantages of wet cleaning, EFC9 believes that it is the most suitable of the alternative technologies for the State Correctional System.

Wet Cleaning

Wet cleaning is a water-based alternative to dry cleaning that is comparable to dry cleaning in cleaning performance. The wet cleaning process includes professional cleaning techniques, high-tech washing, drying and finishing equipment, and biodegradable detergents. Computers control water temperature, mechanical action, detergent and conditioner injection, and washing and drying times to protect against shrinkage and dye bleeding. It also involves a high degree of professional skill and an in-depth knowledge of textile care. The equipment, cleaning agents and skills required differ considerably from home laundry.

Almost all "dry clean only" garments can be wet cleaned, including wool, silk, angora, cashmere, linen, rayon, hemp, down-filled items, suede and leather trimmed garments, beaded and sequined gowns. Wet cleaning leaves clothing soft to the touch with no "chemical smell" which is sometimes associated with dry cleaning. In addition, wet cleaning presents no expected health risk to the general public and cleaners using state-of-the art wet cleaning technologies are able to clean at least 30 percent and up to 100 percent of all garments that are typically dry cleaned. Wet cleaning is relatively less effective in removing oil-based stains and PCE dry cleaning is relatively less effective in combating water-based stains. Consequently, different types of spotting chemical may be used in the two processes to compensate for their respective shortcomings.

While wet cleaning equipment is the least expensive of the alternatives to purchase, it presents higher labor costs due to more labor-intensive finishing and pressing requirements since wet cleaned clothing tends to wrinkle and shrink more than perc cleaned clothing. Therefore, cleaners who wish to professionally wet clean up to 100% of garments may be inclined to purchase specially-designed press equipment that uses tension to increase the quality and speed of the pressing.

California Department of Corrections Vocational Programs

The State of California Department of Corrections (CDC) operates 33 correctional facilities. In FY 98-99, the prison population averaged 157,482 ó 11,485 women and 145,997 men. The CDC's Education Inmate Program Unit (EIPU) operates the largest accredited adult correctional education system in the world. The EIPU provides academic development, vocational training, library services and recreation programs throughout the State's 33 prisons. The adult schools within the prisons are accredited and 1,300 credentialed teachers provide training and instruction to over 30,000 inmates per month. Over half (52%) of the inmates participated in the vocational programs in fiscal year 1998-99. The CDC offers inmates training in 12 different vocational areas, one of these is dry cleaning.

Twenty of the 33 state prisons or 61% offer vocational dry cleaning programs. This is the most prevalent vocational program. In FY 98-99, 5,856 inmates, 4% of all inmates, participated in the vocational dry cleaning programs. Participating inmates dry clean officers' uniforms, prison employees' and their families' clothing (if they are willing to take their chances) and garments and fabric for local non-profit organizations, such as school bands, police and sheriff's departments, coats for children drives, etc. Prisons are not allowed to compete with businesses and so do not offer their services to local residents.

The purpose of these vocational programs is to improve public safety based on the theory that inmates will be less likely to return to a life of crime and time in prison if they acquire more life skills, workplace readiness, career training and self-esteem. The ultimate goal of correctional education is to reduce recidivism -- to help inmates become self-sufficient so that they can be re-integrated into society and become productive and successful workers, citizens and family members. According to Stephen Steurer, former Executive Director of the Correctional Education Association, a recent CEA review of current studies indicates that inmates who undergo correctional education average up to a 20% reduction in recidivism from that of the general prison population.

Wet Cleaning in State Correctional Facilities

In December 1998, EFC9 was approached by the Vocational Dry Cleaning Instructors at Soledad Correctional Facility and California Substance Abuse Treatment Facility Corcoran Prison for help setting up vocational wet cleaning programs at their facilities. Both instructors had attended a US EPA-sponsored wet cleaning training seminar organized by Ecology Action (a non-profit organization based in Santa Cruz) in 1997 and based on what they learned, believed that their student/inmates and the prisons would benefit from vocational wet cleaning programs.

As mentioned earlier, wet cleaning equipment is the least expensive of the dry cleaning alternatives to purchase, but presents higher labor costs due to more labor-intensive finishing and pressing requirements since wet cleaned clothing tends to wrinkle and shrink more than perc cleaned clothing. Because labor is cheap and plentiful in State prisons, wet cleaning labor requirements are not problematic. In fact, this technology presents the prisons with a unique opportunity to enhance the labor forces' skills and employability. Because one of the identified barriers to purchasing wet cleaning equipment in the San Francisco Bay Area is the shortage of trained wet cleaning pressers, the SCFs can help alleviate this shortage by providing trained wet cleaning pressers, while at the same time reducing prison use of perc.

Although the prisons had been interested in establishing wet cleaning training programs since 1997, little had happened due to bureaucratic hurdles and other staff and budget constraints. According to CDC staff, funding for new educational program equipment was limited and often committed more than a year in advance. It was anticipated that trying to fund the CVWCP Program from the annual CDC budget would delay program implementation by at least 3 to 5 years or possibly kill it altogether, since other needs had higher priority.

Therefore, the instructors approached US EPA to request financial assistance for the Program. Unfortunately US EPA's budget had been reduced and it was unable to provide the necessary funding. As an alternative, US EPA referred the instructors to the Environmental Finance Center, Region IX (EFC9). Because their proposed program coincided with EFC9's mission and current project goals, EFC9 agreed to help. Together, EFC9, the Correctional Training Facility (CTF) in Soledad and the California Substance Abuse Treatment Facility and State Prison (SATF) at Corcoran proposed the first vocational wet cleaning program in the nation located in a State Prison that would:

- Provide wet cleaning training for a total of approximately 70 inmates per year at two State Correctional Facilities;
- Support the California Department of Correction's mission to use alternatives mandated by the California Environmental Protection Agency;
- Reduce perchloroethylene (perc) usage and associated issues, including possible spills and contamination, hazardous waste disposal procedures and expenditures, and Air Quality Management District paperwork and fines;
- Test the feasibility of implementing this Program statewide;
- Increase participating inmates job readiness skills; and
- Enhance inmate awareness of pollution prevention.

Funding the Program

Upon determining the Program's equipment and training needs, EFC9 compiled up-to-date information on wet cleaning equipment and training, the associated costs, and where to purchase them from numerous resources including, the internet, trade publications, equipment manufacturers and Clean99, the World Educational Congress for Laundering and Drycleaning, held in June 1999.

The most difficult aspect of establishing a successful program at both prisons was obtaining funding and EFC9 determined that funding would be necessary for the following items:

- Wet cleaning equipment,
- Training,
- Employment assistance and outreach to the wet cleaning industry,
- Program documentation and publicity,
- Miscellaneous items including associated travel, phone and postage expenses, and
- Project management and oversight.

Because prisons are not federally designated non-profit organizations, funding through private entities such as foundations was unlikely. As a result, EFC9 pursued equipment manufacturers and the State as the most likely avenues. EFC9 approached the Legislative Analyst of California and the Director of the California Senate Office of Research and was advised to consider seeking Program funding through the State Budget, which was experiencing its first surplus in years. After some research, it was determined that the request for Program funding should be located in the Department of Corrections budget and that it should be submitted as a budget augmentation request.

EFC9 contacted State Senators to assess their interest in the Program. Senator Jim Costa, in whose district SATF Corcoran is located agreed to introduce the funding request. Senator Bruce McPherson, in whose district CTF Soledad is located, agreed to support the request. In addition, EFC9 garnered Program endorsements from numerous organizations including the:

- Sierra Club,
- Center for Neighborhood Technology (a Chicago based non-profit that has been a leader in research, outreach and education on wet cleaning since 1992),
- Ecology Action (a Santa Cruz-based non-profit organization running the Safer Technologies in Fabricare Program, a pollution prevention program for dry cleaners in the San Francisco Bay Area),
- Cleaner by Nature (a Los Angeles-based 100% wet cleaner),
- Coalition for Clean Air (a Los Angeles-based environmental non-profit organization), and
- California Department of Corrections Education Association (an association of CDC vocational instructors).

The Program was approved by the Senate Budget and the Fiscal Review Subcommittee on General Government (which oversees the budget for the State Department of Corrections) and then by the entire State Senate as a one-time \$125,000 budget augmentation. However, because the request was introduced late in the budget process and had not been introduced before the Assembly, it died in Conference Committee.

Senator Polanco, Chair of the Senate Budget and Fiscal Review Subcommittee #4 on General Government, was very supportive of the Program and suggested (via his staff member Bernie Orozco) seeking alternative sources of departmental funding.

The process of soliciting State Budget funding had brought the Program to the attention of the CDC administration. In addition, the Soledad and Corcoran instructors educated their managers about the Program and in the process, gained their support. Their managers then shared the information with their institutions' wardens, who endorsed the Program and promised to find annual operating funds if the one-time equipment and training costs could be covered from other sources. Program costs to be covered by each institution would include remodeling, water, electricity, detergents, and staff training time.

Following Senator Polanco's suggestion, EFC9 set up a meeting in August 1999 with Cal Terhune, Director of the State Department of Corrections, to discuss how to make the Program operational. Meeting attendees included:

- Paul Bestolarides, Assistant Superintendent, Education and Inmate Program
- Donna LaRue, Vocational Programs Director, Soledad CTF
- Thomas Bertain, Vocational Dry Cleaning Instructor, Soledad CTF
- Bob Fletcher, California Air Resources Board, Stationary Source Division
- Todd Wong, California Air Resources Board, Stationary Source Division
- Kim Wilhelm, California Department of Toxic Substances Control, Pollution Prevention Branch
- Sarah Diefendorf, Executive Director, EFC9
- Susan Blachman, Associate Director, EFC9

As a result of the meeting, Director Terhune decided to support the Program. The meeting attendees then reviewed possible funding sources including:

- California Department of Toxic Substances Control Fund (SB1916),
- US EPA P2 Incentives for State (PPIS),
- Soliciting donations from equipment manufacturers,
- Purchasing the equipment under a lease to purchase agreement and paying for it out of dry cleaning revenues, and
- Vocational Education and Applied Technology Act (VEATA), federal grants program for innovative technology.

As the deadline was only two weeks away, it was agreed that both institutions would apply for the VEATA grant.

By the end of September, both institutions were notified that their requests for VEATA funding had been approved, but for only half the requested amount. The remaining funds would have to be provided from the individual institutions' budgets. The wardens at both institutions agreed to reallocate funds within their institutions' budgets to provide the necessary money. The institutions contacted several wet cleaning equipment manufacturers to solicit bids and were able to successfully locate the necessary equipment.

To accommodate the new equipment, both institutions will remodel their sites. As required, they have submitted their remodeling requests to the Division of Planning and Construction. While it

is not clear when remodeling will take place, EFC9 and the institutions anticipate that the California Vocational Wet Cleaning Prison Pilot Program will be operational by mid to late 2000.

Once the Program has been in place for at least one year, the State Department of Corrections will evaluate its effectiveness to determine whether to expand it statewide.

APPENDIX A

Alternatives to Dry Cleaning

At the time EFC9 began this project began, wet cleaning and the following three alternatives to perc, were available. Since that time, other solvents have come onto the market.

Petroleum-Based Solvents

To use petroleum as a dry cleaning solvent, operators need to make fairly inexpensive modifications to their perc dry cleaning equipment. Unlike motor vehicles, dry cleaners using petroleum solvents for cleaning do not emit carbon dioxide. However, petroleum solvents are flammable and safety concerns exist around their use. According to a study by the Textile Research Center Hohenstein Institute, advances in machines and increasing the solvent's flashpoint have improved safety.

There is evidence that hydrocarbon solvents are "...absorbed into the body via inhalation, the gastrointestinal tract, and through the skin. There are some human data indicating that [they] can cause neurotoxic effects, and [be] an irritant to the eyes, mucous membranes and skin. Kidney toxicity has also been reported in animal studies."

In addition, hydrocarbon solvents "are volatile organic chemicals (VOCs) and are expected to contribute to lower-level photochemical smog levels. They also have global warming potential."

According to Greenpeace, the new hydrocarbon solvents, while not inherently clean, appear to be environmentally superior to perc.

CO2

Liquid carbon dioxide (CO2) can be used at high pressures to clean clothes. It is safe, cheap and abundant. No special disposal procedures are necessary. A major disadvantage is the high cost of equipment. "Setting up a CO2 shop has been estimated to be 50-300% more expensive than setting up a perc-dry cleaning shop."

Regarding human health impacts, a 20-year-old study "...suggests the potential for CO2 exposure to cause respiratory, cardiovascular, central nervous system, behavioral electrolyte balance, and muscle effects over a variety of concentrations and durations."

Rynex

Rynex is a solvent that, according to the manufacturer, is biodegradable, non-carcinogenic, non-flammable, recyclable and can be used in perc machines with minor modifications.

It is a propylene glycol ether and is considered a volatile organic compound (VOC). A study of a small number of human volunteers exposed to moderate levels of propylene glycol ether in the air resulted in eye, nose, and throat irritation and headaches (though there were no controls in the study) and animal studies showed some effects on the liver and central nervous system.

Rynex has only recently been introduced commercially and the Bay Area Air Quality Management District is studying its claims.

