XL PROJECT
US FILTER RECOVERY SERVICES, INC.
Roseville, Minnesota

1.0 XL Background

U.S. Filter Recovery Services, Inc. (USFRS) is proposing to conduct a "Project XL priority action item outlined in President Clinton's and Vice President Gore's March 16, 1995, document titled, Reinventing Environmental Regulation and noticed in the May 23, 1995 Federal Register. Project XL provides an exciting opportunity to test new and innovative ways to protect our environment. We will use the XL project mechanism to change the way we conduct our business, resulting in a "cleaner, cheaper, and smarter" approach to environmental regulation. This innovative approach will be beneficial for the following reasons:

- Superior Environmental Performance
- Regulatory Flexibility
- Stakeholder Involvement
- Innovative/Multi-Media Pollution Prevention
- Transferability
- Feasibility
- Results are Measurable
- Avoids Shifting of Risk Burden

2.0 Project Theme

USFRS proposes to increase recycling, promote recovery, reduce PBT (Persistent Bioaccumulative Toxins) discharge to the environment, and reduce the need for the production of hazardous chemicals. This will be achieved by removing regulatory and financial barriers to legitimate recycling and recovery. At this time, there are portions of the regulations, which create obstacles to higher levels of waste management. It may be less costly, draw less regulatory oversight, and avoid the rigors and stigma of the Resource Conservation & Recovery Act (RCRA), if a company remains under the Clean Water Act (CWA). This can be done by neutralizing and

sewering corrosives on-site, rather than recycling through USFRS and conserving this resource. Or, rather than treat and recycle rinse water, discharge the effluent along with its associated PBTs to a wastewater treatment facility.

In choosing to recycle acids and water treatment resins, the user moves from the Clean Water Act (CWA) to RCRA. This requires the use of a hazardous waste manifest, a hazardous waste transporter, reporting, and other appropriate RCRA standards, which may serve as barriers to choosing recycling. It also adds the stigma of being a hazardous waste generator to the facilities operation. Something many green-minded companies spend significant additional resources to avoid. Many proactive companies have internal goals that require them to minimize hazardous waste generation. This, because corporate has decided that hazardous waste generation is an affront to their reputation as an environmentally responsible company.

This proposal seeks to test removing selected RCRA requirements that USFRS and its customers believe are obstacles to legitimate recycling and recovery. This, while retaining RCRA's environmental safeguards for these environmentally hazardous materials. If successful, this project can offer new pathways for US EPA and states to encourage legitimate recycling and recovery where they currently do not exist.

3.0 Proposal Overview

By participating in Project XL, USFRS will have the opportunity to promote advanced recycling and recovery options. The regulatory relief provided to both USFRS and its customers through Project XL will make it more attractive to take advantage of recycling and recovery as an option. USFRS also proposes to spearhead a cooperative effort among USFRS customers, regulatory agencies, and pertinent trade organizations to provide business with both the regulatory and technical resources to increase environmental compliance and pollution prevention.

The success of this project will be transferable to similar waste management scenarios at both USFRS and other facilities. These successes will outline new pathways to the MPCA and US EPA to refine regulations and streamline procedures that would conserve resources while utilizing

superior environmental performance. The primary immediate environmental benefit would be moving the management of materials up the pollution prevention hierarchy ladder, resulting in source reduction, increased recycling and recovery, as well as, water conservation.

Superior environmental performance will be accomplished by raising the level of management of the participating wastes from treatment and disposal to recycling and recovery, as well as, adding significant pollution prevention. Because final management of these materials will be at a RCRA Part B permitted facility; waste management will be conducted by a smaller number of more highly trained individuals. This will reduce overall worker exposure. The XL Project will only include materials where advanced recovery is involved. An example of advanced recovery is USFRS's hydrochloric acid recovery system, which is one of only three in the world.

Environmental Justice will not be an issue for this project. No disadvantaged or minority populations reside in the vicinity of USFRS. The closest residential area is 2,500 feet from the facility. It is a middle class, primarily white, neighborhood.

The regulatory flexibility of this project involves exempting selected wastes from certain RCRA requirements that discourage recycling. For example: a facility presently meeting CWA requirements for a vessel holding acid waste that wanted to recycle the waste acid would have to significantly upgrade the tank to meet the more stringent RCRA hazardous waste requirements. These costs are added on top of the economic disadvantage that recycling and reuse already face, widening that gap. USFRS is requesting that materials processed as part of this project be exempted from the manifesting and reporting requirements under RCRA, and be given additional flexibility within the storage requirements. We believe the removal of the RCRA stigma, manifesting, reporting and storage requirements, will be adequate to encourage legitimate recycling and recovery. Potential customers of USFRS during recent facility audits have stated that this relief from RCRA is a significant incentive.

The flexibility provided to XL participants would minimize additional generator operating requirements when switching to legitimate recycling

and recovery under USFRS's Project XL. Alternate management requirements have been established for the management of wastes in this project). These alternate requirements will increase the environmental protection over their current status by removing participating hazardous materials from the original generators facility to a fully permitted, Part B facility, with all its built in environmental safeguards. All shipments of XL materials will be carried by a permitted hazardous waste transporter. The risk burden will be reduced by this project by shifting the handling of these hazardous materials to a smaller number of more highly trained and equipped individuals, under a more highly restrictive and protective regulation.

The XL Project will change the oversight in the following manner:

	CURRENT W/O Recycling	*RCRA Recycling*	*PROJECT XL*
Storage:	*CWA*	*RCRA*	*CWA*
Transportation	*DOT*	*RCRA/DOT*	*DOT*
Tracking	*CWA*	*RCRA*	*USFRS*
Treatment	*CWA*	*RCRA*	*RCRA*

See Appendix A for a detailed rule matrix.

Measurable Results will be provided by the direct measurement of recycled waste volumes. The volumes of HCL and resins recycled in 1997 will be used as a base line and the increase in volumes recovered over that base line year will be used as the measurement of success of this project. The reduced need for a neutralizing agent, the volume of wastewater recycled, and the reduction of metals loading to the environment will also be a tracked.

Although this project would slightly increase transportation of hazardous waste, both the overall volume and distance hazardous materials are shipped would decrease. This, because of the much greater distance replacement chemicals are currently shipped. This is discussed further in Appendix D, under Hydrochloric Acid Recovery System benefits.

4.0 Projects

The following are the two initial projects included in this implementation plan. Both promote legitimate recycling and/or recovery of valuable resources by removing regulatory disincentives to higher forms of environmental management. This will test these new approaches within the scope of this project, limiting the opportunity for misuse or risk to the environment. In addition to the two projects, USFRS will serve as a regulatory resource for both the customers involved in this project, as well as others in those general industry sectors.

Concepts embodied in the USFRS proposal includes product stewardship / life cycle management and the centralized treatment and recovery facility. The primary environmental benefits of the USFRS XL proposal include increased recycling, a reduction in virgin chemical purchases, increased environmental compliance and protection, as well as, significant pollution prevention. As a commercial facility, USFRS is able to extend the opportunities of Project XL to smaller businesses that do not otherwise have the resources to take advantage of these technologies.

4.1 Project - Product Stewardship/Life-cycle Management

This project involves materials USFRS can recycle, reclaim, or extend their life cycle. USFRS proposes to take on the responsibility of tracking these wastes and reporting to the appropriate agencies the amount received from each generator. USFRS and the appropriate regulatory agencies will have approval authority over all materials that are included in the product stewardship program.

There are 352 potential customers (i.e. metal platers, coaters, semiconductor, and finishers) in Minnesota that could take part in this project. As this project shows success, USFRS and the agencies may identify additional materials that may be appropriate to add. This would further expand the potential number participants to this project.

This project will have both enforceable and voluntary commitments. Materials that are not handled under the criteria established for this project, including the tracking and reporting requirements, would not be covered under its protection. These commitments would be enforceable and would fall under the authority and potential penalties of RCRA. The success of the project at diverting spent materials from treatment to recycling and recovery will be a voluntary commitment. The success of the voluntary commitments will be limited by the cost competitiveness of recycling vs. treatment & disposal, as well as, the number and form of regulatory burdens that are added to a companies operation prior to allowing their participation.

US EPA requires verification of the success of a project through a two Tier process. USFRS will document its success by using the following:

Tier #l Verification

1. Documentation of recovery, track pounds of recovered materials and quality
2. Track volume of incoming waste by generator
3. Compare data between amount recovered to amount of waste generation Track chemical savings due to beneficial recycling
4. Track reduction in virgin chemical use
5. Track reduction in treatment chemical needs
6. Track reduction in water usage and discharge

Tier #2 Environmental Benefits

1. Encourage recycling (compared to existing results)
2. Assured proper management of chemical throughout their life-cycle
3. Paperwork reduction
4. Pollution prevention is available even to the smallest generator
5. Minimize metals discharged to sewer
6. Minimize treatment chemicals used by clients
7. Recover metals and chemicals
8. Water reuse
9. Concentrates waste, less waste generation

PROJECT 4.1.A - HYDROCHLORIC ACID RECOVERY SYSTEM

Waste Source Electroplaters use hydrochloric acid to pickle metal parts prior to electroplating. The pickling process dissolves rust from the parts and results in an activated surface, which ensures good metal adhesion. When hydrochloric acid is spent, it contains high levels of metals (up to 100 grams per liter of copper, zinc, nickel, chromium, cadmium, and iron) and free acid (5 to 15 percent by weight).

Although there is no such thing as an average generator, the most common would be a "job shop metal finisher". They would probably be located within 20 miles of USFRS and have 50 or more employees. They would generate approximately 6,000 to 8,000 gallons of waste hydrochloric acid a year.

Typical Treatment Typical treatment for spent hydrochloric acid is to neutralize the free acidity with a sodium hydroxide or lime and precipitate the metals into a sludge. The resulting liquid is then polished and discharged to the sewer. This treatment results in a great deal of chemical usage (caustic) and wasting of free acidity. This method of treatment is legal and well established. It is regulated under the CWA under most circumstances.

Current Disincentives to Recycle Currently, a facility can neutralize spent hydrochloric acid (HCl) on-site and discharge the effluent to a wastewater treatment facility and avoid regulation under RCRA. Recycling moves this spent HCl from regulation under the CWA and places it under RCRA. Under RCRA, the facility must then meet all the corresponding requirements that include the storage, treatment, tracking and reporting as a hazardous waste generator. Cost is also a disincentive to recycling. The average on-site neutralization treatment cost to a generator is about $0.95 per gallon. Bulk cost of recycling is about $1 .OO per gallon. For drum quantities, because of the increased cost of handling, the cost is about $2.00 per gallon. Any RCRA requirements added to a generators operation (i.e. tank or storage area upgrades) would further widen this gap. Making recycling even less economically competitive with treatment and disposal. This cost and the RCRA stigma have been described by potential USFRS customers as sufficient to discourage them from recycling their spent HCl.

One major customer, who had accepted the higher cost of recycling, reverted back to treatment and disposal when they recognized the increased requirements that RCRA added.

Hydrochloric Acid Recovery System USFRS has a vacuum fractional distillation system to recover the free acidity from spent acids. The acid is distilled (under vacuum conditions) which drives off hydrochloric acid and water vapors. The hydrochloric acid vapors are condensed into an 18-20% hydrochloric acid product, which contains less than 10 mg/L metals. This product is sold back to metal finishing clients for use in their pickling processes. USFRS also uses hydrochloric acid internally for ion exchange regeneration. Distilled water is also recovered from the process and reused in the USFRS facility. The metals are concentrated in the distillation bottoms product. They are precipitated and recovered and reused at an off-site smelter that recovers the lead, zinc, and cadmium. The mixed metal residue from that smelting process is then used as a feedstock curing agent in cement manufacturing.

This project would work on a similar principal to the Feedstock definition given to about one-third of USFRS current business. A major portion of our operation is involved in recycling copper containing etchant. These etchants are a hazardous waste, however, because of their value they are sold back to generators after processing. The recovered copper is also sold as a product. The Feedstock classification allows for these materials to have a reduced set of RCRA requirements.

Projected Benefits: USFRS projects that, if approved, this portion of the project over the three years of the project will:

a) Reduce discharge of neutralized effluent to the POTW by 2.6 million gallons.
b) Reduce the discharge of salt by approximately 2.3 million pounds to the POTW.
c) Reduce the purchase of caustic for neutralization by participating facilities by 3.5 million pounds.
d) Reduce the purchase of virgin acid by 5.4 million pounds.

A more detailed discussion of benefits is located in Appendix D.