Summary Document
City of Ft. Worth Water Department
Best Management Practices
Code of Management Practice for Silver Dischargers Program

PURPOSE of Best Management Practices: All wastewater treatment facilities (also known as Publicly Owned Treatment Works) have the legal authority to deny or condition the discharge of pollutants that could violate local or federal pretreatment standards and requirements. Because the goals of a Best Management Practice (BMP) Plan are the same as those of numerical local limits—to prevent pass through, interference and violations of specific prohibitions—BMPs can be viewed as a narrative local limit.

General Description

The new regulatory program for silver users being implemented by the City of Fort Worth is based on the Code of Management Practice for Silver Dischargers developed by the Silver Council and the Association of Metropolitan Sewerage Agencies (AMSA). The Code of Management Practice (CMP) has been adopted by cities of varying sizes across the United States. It has proven successful in 1) reducing the amount of silver discharged to the wastewater treatment facility; 2) increasing the amount of silver recovered; 3) easing the administrative burden on both the wastewater treatment facility and silver users; 4) encouraging water conservation and pollution prevention efforts.

The CMP presents an alternative method of controlling silver discharges from image processors. It does not rely on typical concentration abased (numerical) discharge limits, which are used by most wastewater treatment facilities or Publicly Owned Treatment Works (POTWs) to control the amount of silver discharged by silver users. With concentration-based limits, all facilities generating silver-bearing waste must comply with the same regulations, regardless of the amount of silver-bearing waste they generate or discharge. Under the CMP, each facility has a recommended performance category or percentage of silver they must recover from their silver-bearing wastes depending on the total gallons per day of photo processing effluent they generate.

The CMP establishes a set of operating procedures designed to reduce both the amount of silver and the overall volume of solution discharged to the drain while using economically viable and currently available silver recovery techniques.

Numerical Limits vs. CMP Program

Under the City's proposed CMP program, permitted facilities must continue to meet the existing permit and ordinance limits and are not eligible to participate in the CMP program. **Non-permitted facilities discharging silver-bearing waste must either implement the CMP program or comply with the existing 0.1 mg/L (parts-per-million) limit or be subject to regulation under the City's Pretreatment Program. These pretreatment program regulations include permit fees, analytical sampling of effluent, inspection, sample site installations, monetary penalties, and other provisions of the City of Fort Worth Pretreatment Program.**

Category Determination

Compliance with the CMP program is simple. First determine the total volume of processing effluent or volume of silver rich solution generated by your photo or image processing operations on a typical day. Processing effluent includes all water and liquid waste that is generated by your film processing operations—including developer and rinse water. Silver-rich solution is defined as "solutions containing sufficient silver that cost-effective recovery could be done either on-site or off-site." Silver-rich solutions include-but are not limited to-fixers, bleach-fixers, stabilizers from low-flow washes, and all functionally similar solutions. (Silver-rich solutions do not include developers, bleaches, stop baths, pre-bleaches, stabilizers following washes and wash waters.) For radiographic processes, silver rich solutions are limited to the fixer solution.

On the designated worksheet provided by the City, maintain a written record of your calculations demonstrating how you determined this volume. The CMP guidebooks will help you calculate the total processing effluent and silver-rich solution volume. Review this calculation annually to determine if your volume has changed. Retain this calculation in the notebook provided by the City.

This volume of total processing effluent of silver-rich solution will determine the category --or size—of your facility (small, medium, or large) and the percentage of silver that must be recovered from the silver-rich solution prior to discharge.

The categories are (volumes are in gallons per day or gpd):

Small: less than 1,000 gpd of total process effluent **or** less than two (2) gpd of silver-rich solution
Medium: less than 10,000 gpd of total process effluent **or** more than 2gpd but less than 20 gpd of silver-rich solution
Large: no more than 25,000 gpd total process effluent **or** more than 20 gpd of silver-rich solution

To determine the size of your facility using your water bill, you should subtract from your total gallons per day (gpd) any water not used in the photo processing operations; including domestic sewage (20 gpd/per employee), landscape irrigation, or non-contact cooling water.

Silver Recovery Requirements
For each user category there are recommended technology options and specified percentage levels of silver that need to be recovered from the silver-rich solution generated. These recommended technologies and required silver recovery amounts are:

Small—90% Silver Recovery	**Medium—95% Silver Recovery**	**Large—99% Silver Recovery**
1. One or two metallic replacement cartridges (MRCs) 2. Off-site management 3. Alternative technology providing at least 90 % silver recovery	1. Terminal electrolytic unit followed by a metallic replacement cartridge (MRC) 2. In-line electrolytic unit with a metallic replacement cartridge 3. Two or more MRCs with manufacturer-specified flow control 4. Off-site management 5. Alternative technology providing at least 95% silver recovery	1. Terminal electrolytic unit followed by two metallic replacement cartridges (MRC) 2. In-line electrolytic unit with two metallic replacement cartridges 3. Off-site management 4. Alternative technology providing at least 99% silver recovery

It is important to note, the silver recovery percentage amounts required under the CMP program require only the silver-rich solutions to be treated by silver recovery equipment. **Developer solution and wash waters are not considered silver-rich solutions and therefore silver recovery is not practical or necessary from these liquid wastes.**

CMP Compliance Requirements

- CMP Program took effect October 1, 2000

- **Upon implementing the CMP, facilities must submit a LETTER of PARTICIPATION to the City of Fort Worth Water Department, Pretreatment Services Division. This Letter of Participation must be re-submitted every three years.**

- Facilities implementing the CMP must maintain records in a designated logbook verifying the volume of total process effluent or silver-rich solution they generate. (See discussion in Category Determination Section above)

- Facilities implementing the CMP and opting to conduct on-site silver recovery should perform simple monthly tests using silver test paper or copper strips to verify that the silver recovery equipment is functioning properly. The results of these silver strip tests should be kept on site for at least three years at your facility in a designated logbook on forms provided by the City.

- Facilities implementing the CMP and opting to conduct on-site silver recovery must maintain, in a designated logbook on forms provided by the City, maintenance records for silver recovery equipment. These records must be kept at your facility for a minimum of three years.

- Facilities in the **LARGE** category implementing the CMP and opting to conduct on-site silver recovery should conduct at least one analytical test per year on their silver bearing waste in order to verify compliance with the proscribed 99% silver recovery amount.

- Facilities implementing the CMP that do not conduct on-site silver recovery—opting for off-site management—must maintain records verifying the amount of solution that was transported off-site and must maintain hauling receipts/invoices of manifests (as required by law) in a designated logbook provided by the City.

- Facilities choosing the off-site management of their silver bearing wastes would not have to conduct silver strip tests or analytical tests required of facilities conducted on-site sliver recovery. ***As a generator of hazardous waste, each facility is responsible for ensuring that their waste is handled according to federal and/or state hazardous waste transport laws. Facilities therefore should only use the services of a reputable, state licensed waste-hauler.***

- Facilities electing to adopt the CMP will receive certificates indicating they are in compliance with the provisions of this innovative regulatory program