I.U. # _____

CITY OF SAN DIEGO
METROPOLITAN WASTEWATER PRETREATMENT PROGRAM

9192 Topaz Way San Diego, CA 92123 (858) 654-4100 FAX: (858) 654-4110

CERTIFICATION OF COMPLIANCE WITH BEST MANAGEMENT PRACTICE REQUIREMENTS FOR SILVER-RICH SOLUTIONS

Facility Name _____

Facility Address _____ City _____ State _____ Zip _____

Mailing Address _____ City _____ State _____ Zip _____

Owner Name _____ Phone Number (_____) _____

Contact Name _____ Title _____ Phone Number (_____) _____

SEE BACK OF FORM FOR DEFINITION OF SILVER-RICH SOLUTION

1. How are silver-rich solutions disposed of?
   ☐ Hauled off-site by a hazardous waste hauler
   ☐ Treated on-site and discharged to sewer

2. Does this facility generate an annual average of more than 0.5 gallons per calendar day of silver-rich solutions? ☐ Yes ☐ No

3. _____ Initials I am personally familiar with the operations at this facility and I have reviewed the BEST MANAGEMENT PRACTICE REQUIREMENTS FOR SILVER RICH SOLUTIONS on the back of this form.

4. _____ Initials I hereby certify that no wastes containing recoverable silver will be discharged to the sewer without benefit of pretreatment.

5. Initial one of the following:

   _____ Initials This facility currently meets all Best Management Practice requirements of the certification. Operational procedures and employee training are in place to ensure continuing compliance throughout the certification period.

   _____ Initials This facility currently meets all Best Management Practice requirements of the certification, except for the following deficiencies which will be corrected within 30 days of signatory date.

6. _____ Initials I am aware of the potential for significant penalties for submission of false information, including the possibility of fines and imprisonment for knowing violations.

   _____

   _____

7. Name _____ Title _____
   (Print)

   Signature _____ Date: _____
   (If not the owner, attach copy of written authorization.)

WHITE COPY: COMPLETE AND RETURN TO ADDRESS ABOVE
CANARY COPY: POST ON-SITE AND MAKE AVAILABLE TO PROGRAM PERSONNEL UPON REQUEST

BEST MANAGEMENT PRACTICE (BMP) FOR SILVER-RICH SOLUTIONS

All facilities generating silver-rich solutions must comply with the Best Management Practice Requirements shown below. Silver-rich Solutions contain sufficient silver for cost-effective recovery, either on-site or off-site. These solutions include used fix and bleach-fix solutions, low replenished (low-flow) washes following a fix or bleach-fix solution, and stabilizers for the washless minilab film and paper processes.

I. SILVER-RICH SOLUTION MANAGEMENT REQUIREMENTS:

A. Either: (1) Haul silver-rich spent film processing solutions off-site for recovery or disposal, or (2) Using technology that is equivalent to or exceeds the equipment listed below, based on the volume of silver-rich solutions generated by each piece of equipment per day, pretreat all silver-rich spent film processing solutions to remove silver prior to discharge of the solutions to sewer; operate and maintain silver recovery equipment so that it provides the percent recovery for which it was designed.

(a) If the equipment generates an average of less than 0.5 gallons/day of silver-rich solutions: treat silver-rich solutions using a single chemical recovery cartridge (CRC) with manufacturer specified flow control, or alternative technology providing at least 90% silver recovery or management.

(b) If the equipment generates an average of 0.5 to 20 gallons/day silver-rich solutions: treat silver-rich solutions using two chemical recovery cartridges in series with manufacturer-specified flow control, or an electrolytic unit followed by a chemical recovery cartridge with manufacturer-specified flow control, or alternative technology providing at least 95% silver recovery or management.

(c) If the equipment generates an average of more than 20 gallons/day silver-rich solutions: treat silver-rich solutions using an electrolytic unit plus two or more CRCs with manufacturer specified flow control or an electrolytic unit plus a precipitation unit, or alternative technology providing at least 99% silver recovery or management.

Note: RECOVERY SYSTEMS SERVING MORE THAN ONE PROCESSOR MUST BE DESIGNED TO MEET REMOVAL REQUIREMENTS FOR THE COMBINED FLOW.

II. SELF-MONITORING AND RECORD-KEEPING REQUIREMENTS:

A. For each silver recovery system in operation:

1. **Test the silver concentration in the recovery system effluent at least once every three months, using silver test paper.** If the paper turns black, the recovery system is not operating properly and needs immediate attention. Cease discharge and take all measures necessary to restore recovery system efficiency prior to re-initiating discharge. (Facilities whose silver recovery systems are serviced by a contract maintenance service at a frequency of at least once every three months are exempt from this requirement.)

2. **Maintain a silver recovery log** to record flow through the silver recovery system and test results resulting from (1) above, if applicable.

B. If more than one silver recovery system is used:

Develop and maintain a list of silver recovery systems in use and their location, and document which processors each recovery system serves. Maintain the list on-site and make it available to Wastewater Pretreatment Inspectors upon request.

III. REPORTING REQUIREMENTS: (Facilities generating less than 0.5 gallons/day silver-rich solution are exempt)

A. By December 15th and June 15th of each year: submit a statement to this office certifying that, during the previous six months, all silver-rich solutions generated at your facility have been either: (1) treated on-site to remove no less than the percentage of silver required by the BMP, prior to disposal to sewer, or; (2) hauled off-site for treatment and disposal. A Certification Form will be mailed to your facility for signature approximately five weeks prior to the due date.

IV. DEFINITIONS:

1. % **silver recovery:** The percent of silver recovered from the silver-rich solutions by the silver recovery treatment system, calculated as follows:

$$\% \text{ recovery} = \frac{1 - \text{Concentration (in mg/l) silver in effluent}}{\text{Concentration (in mg/l) silver in influent}}$$

2. **CRC:** A chemical recovery cartridge which recovers silver through a process known as metallic replacement.

3. **Electrolytic Silver Recovery:** A method of recovering silver in which a direct current is applied across two electrodes immersed in a silver-rich solution.

4. **Metallic Replacement:** A method of recovering silver from silver-rich solutions by an oxidation-reduction reaction with elemental iron and silver thiosulfate to produce ferrous iron in solution and metallic silver sludge. The device used is commonly called a chemical recovery cartridge (CRC).

5. **Silver Recovery System:** One or more silver recovery treatment units which, alone or in combination, are used to treat a given silver-rich solution to remove silver prior to discharge of the solution to the sanitary sewer.