

1.0 Purpose

This procedure outlines the practices to be adopted for operating and maintaining the wastewater treatment plant (WWTP) of HKGEC.

2.0 Scope

All wastewater from electroplating lines are treated by the in-house wastewater treatment plant. This instruction briefs the operation of the WWTP and specifies the operation and monitoring requirements for the WWTP. Facility Manager shall brief the following instructions to relevant staff (e.g. engineers and contractor's operators) to ensure they are aware of and follow the required practices, and ensure the related records are kept for monitoring.

3.0 Procedure**3.1 Wastewater Stream**

- The wastewater from electroplating processes is segregated at source into three streams as follows :
 - Cyanide stream
 - Acid/alkali stream
 - General rinse stream

3.2 Treatment processes

- Wastewater from electroplating line will be segregated and directed to the WWTP for treatment. Cyanide-bearing rinsing water is first segregated and collected in a reception tank where it is temporarily stored.
- From the reception tank, the wastewater will be pumped to the first stage oxidation tank, where the cyanide will be partially oxidised and to form cyanate.
- The partially oxidised rinsing water then flows to the second stage oxidation tank will have a cyanide concentration below the Government's limit. Copper contents present in the cyanide-destroyed wastewater are removed and the wastewater stream is combined with the other wastewater streams and collected in a reception tank
- The wastewater is then going through to the pH adjustment tank for first stage neutralisation. Then wastewater flows into a flocculation tank, where flocculent is added to enhance the agglomeration of the coagulated particles in the wastewater under slow mixing conditions, to form flocs.
- In the sedimentation tank, the flocs are separated from the clarified wastewater by gravity. The clarified wastewater is then routed into a final pH adjustment tank, where the pH is adjusted to within the desirable range for discharged to foul sewer.
- The sludge collected at the bottom of the sedimentation tank, is temporarily stored in the sludge storage tank. From the sludge storage tank, the sludge is pumped into a filter press for dewatering. After the dewatering process, depending on the moisture content, wet sludge shall be disposed as chemical wastes, dewatered / dry sludge can be stored in plastic bag and disposed as general waste.

3.3 Operating Procedures

- All operating functions of the WWTP are automatic and controlled through a programmable logic controller. Only trained competent personnel shall operate the plant and set points at the control panel according to the WWTP Operation Manual.
- Facility Engineers are responsible to carry out the daily WWTP checks at the beginning and the end of each production shift. The day-to-day visual inspection includes checking proper functioning of WWTP, recording the pH value, temperature and wastewater flow rate and general housekeeping. The inspection findings shall be recorded on the WWTP Log (Appendix 1).
- In the case of WWTP malfunctions, the wastewater treatment facility will switch off automatically. i.e. the wastewater can no longer be discharged to public foul sewer. It shall notify the Facility Manager and Plant Manager immediately, stop the production process and contact contractor to maintain the WWTP.
- WWTP facilities are checked in accordance with the WWTP manual from manufacturer. The WWTP manufacturer is carried out regular checking and maintenance on schedule intervals.

4.0 Monitoring

- 4.1 For the purpose of determining compliance with the standards stated in the Discharge License issued by EPD, samples shall be taken bi-monthly at identified sampling point and check the parameters according to the License requirements.
- 4.2 Wastewater testing is carried out by the accredited HOKLAS laboratory only. Facility Manager shall review the testing reports and maintain records.
- 4.3 Wastewater shall be discharged according to the discharge license and if any noncompliance is occurred, then relevant parties have to be informed. (e.g. Facility Manager of HKGEC / EPD / manufacturer of wastewater treatment plant, etc) For handling any noncompliance, EP-07 Enquiry / Complaint / Nonconformity Handling can be referred and followed.

5.0 Records

Record Description	Record Location / Retention Responsibility	Minimum Retention Time
Daily inspection of wastewater (EF-EI10-01)	Facility Department	3 years
Laboratory wastewater testing report (Refer to testing report from laboratory)	Facility Department	3 years
Regular checking report of WWTP (Refer to WWTP manufacturer checking report)	Facility Department	3 years

6.0 Appendix

Appendix 1: Wastewater Treatment Plant Log (EF-EI10-01)

Name of inspector: _____

If the inspection item / area is complied with legal / in-house requirements, put '✓' in the below box

Approved by Facility Manager: _____

Date: _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
PH value																															
Temp																															
Wastewater Discharge Flow Rate																															
Storage conditions of chemicals																															
Storage of heavy metal sludge																															
Dry flooring																															
Maintenance of spill kit																															
Personal protective equipments																															
Others																															

Notes for 'Others'
