

Rev Date: 02/27/23	Written/Updated by: Luke Treadway #5667	Wastewater O&M Manual
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**UNCONTROLLED**

# Wastewater O&M manual

## I. References

- A. Epson Portland Inc. Wastewater permit # ST 6185
- B. Epson Portland Inc. Storm water CNE
- C. Epson Portland Inc. Spill Prevention Plan
- D. Epson Portland Inc. Hazardous Communication Plan
- E. Wastewater Systems Operation Manual from EC Company
- F. Product SDS's
- G. Epson Portland Inc. pH meter calibration Procedure

## II. Prerequisites

- A. Read and understand operating procedures prior to operating equipment.
- B. Ensure pH Meter has been calibrated quarterly. Check monthly plant maintenance form.

## III. Precautions and Safety

- A. Read and understand the HCl SDS. Wear proper PPE when handling Acid or Caustic Solutions.
- B. Use Caution when operating electrical equipment in a wet environment.
- C. Use proper PPE when working on system equipment, including fall protection if working on top of the tanks.
- D. Ensure Acid Tank Valve is locked closed when not in use.

## IV. Overview

All water that is produced during the production, cleaning and maintenance process of the Autoclave is transferred to the wastewater collection tank. All sources of water on the 5<sup>th</sup> floor (the stage) of the plant drain to the wastewater collection tank these include the autoclaves, sinks, ultrasonic cleaners, mix tanks, floor drains, and the water filter system drains.

The water from the Wastewater Collection Tank is then transferred to the Wastewater Treatment Tank where it is diluted with domestic water. The wastewater is diluted due to the silica content of the wastewater. Normal dilution is 1000 gallons of wastewater to 5000 gallons of city water. The dilution is performed to prevent gelling of the wastewater upon neutralization. The PH of the solution is adjusted using Hydrochloric acid, to a PH between 6 and 9. The waste is sampled and

released to the Longview city sewer system. Periodic maintenance is performed on the wastewater system as required by the plant maintenance schedule. Rainwater that is collected in the containment area is checked for pH. If the pH level is too high or low the rainwater is pumped into the wastewater mix tank to be used in the neutralizing process and to keep this water out of the storm water runoff.

## V. Wastewater Treatment Control System.

The wastewater system operates in automatic or manual except for the discharge phase. The controller is located at the wastewater containment area and controls the mixers, wastewater pump, and the city dilution water valve. The automatic function for the collection tank inlet valve has been disabled. The control panel is a touch screen system consisting of several different screens.

## VI. System Operation, Wastewater Discharge

Read and Understand the Product SDS's on the Infobahn. Also, there are hardcopies of the SDS's on the 5<sup>th</sup> floor and the 1<sup>st</sup> floor plant chemical storage room.

- A. Ensure that there is no wastewater being discharged from the plant.
- B. Apply seal water to both mixers.
- C. Ensure That Treatment Tank outlet valve is shut.
- D. Open Collection Tank outlet valve and pump discharge valve.
- E. Open Acid Tank Valve.
- F. On the touch screen at the wastewater control station press Cycle Start from the main Menu.
- G. Check Preset values for the following: The preset values are the tank level change in gallons and minutes on for the Mixers. (Nominal values are listed)
  - 1. Collection Tank (1000)
  - 2. Wastewater Tank (Treatment Tank) (5000)
  - 3. Mixer 1(15)
  - 4. Mixer 2(70)
- H. Press Start Cycle, note that the Collection Tank and Treatment Tank mixers start. The system will automatically pump the preset amount of wastewater to the Treatment Tank and dilute the Treatment Tank with the preset amount of dilution water. After dilution the acid pump will neutralize the contents of the tank to the pre-set value.

- I. After the Tank is diluted and mixed for at least 20 Minutes, the acid pump will adjust the pH of the Treatment Tank, to the desired set point (setup option on the main menu) using the Hydrochloric acid, if necessary. The Acid pump can also be used manually in the manual controls screen, to neutralize the solution, periodically check the pH of the solution after mixing. The pH should be between 6 and 9, attempt to achieve a pH of about 8.5. pH tape can be used to ensure the pH is at the targeted level. Mix Treatment Tank for an additional 30 minutes and resample to verify pH. If pH not within range readjust using acid or caustic. To add caustic use manual controls screen. Mix an additional 30 minutes if adjusted and re-verify.
- J. Note flow meter totalizer reading and acid tank level, Close Collection Tank outlet and acid tank valves.
- K. Open Treatment Tank outlet valve. It may be necessary to stop the flow and drain the effluent line at the Y strainer then restart the discharge.
- L. Record the information in the Wastewater Plant folder Discharge log.
- M. After discharge is complete shut the tank discharge valve and record the totalizer reading.

## VII. Ph meter operation

### A. Reading pH

- 1. Remove the probe from the tank.
- 2. Rinse the probe in tap water and blot dry.
- 3. Apply a drop of pH 4.0 buffer to the probe tip.
- 4. Measure sample pH by placing a single drop on the probe tip or dipping the probe tip into the solution.
- 5. Repeat step 5 for further samples
- 6. Replace the probe to the tank.

### B. Calibration

- 1. Calibration Frequency
  - a. The pH meter will be calibrated quarterly to pH units using pH 4 and 10 buffers.
- 2. Calibration Procedure
  - a. Apply in drop of pH 4.0 buffer to the probe tip.
  - b. Depress the CAL 1 button.
  - c. The CAL icon will flash. When the CAL disappears, calibration is complete.

- d. Rinse the probe in tap water and blot dry. For two-point calibration continue to the next step.
- e. Apply a drop of 10.00 buffer to the probe tip. Be sure to cover both the reference junction and the pH sensor.
- f. Depress CAL 2 button. The meter will automatically identify the buffer value.
- g. When the CAL disappears, calibration of the 2<sup>nd</sup> point is complete.
- h. Rinse the probe in tap water and blot dry.
- i. If measuring samples use Section VIII.
- j. Record calibration on the Monthly Plant Maintenance form, under the quarterly section.
- k. Record calibration data in the Wastewater pH Meter Calibration Log found in Plant Confidential/State/Wastewater plant folder.

## VIII. Compositor operation (WS700 Sampler)

- A. The compositor must be used for the required TSS and Molybdenum monthly samples.
- B. A sample should be taken for one discharge per month, it must be analyzed by the local lab, the results should then be sent to Ecology by the 15<sup>th</sup> of the following month via web DMR. This sample should be taken with the compositor.
- C. Compositor Operation
  1. Bring compositor from storage to Wastewater treatment area and connect to the discharge sample connection.
  2. Open sample connection valve.
  3. Ensure that sample bottle is attached to pump outlet.
  4. Check that the settings on the compositor are correct (Start Delay = 0, Sample interval = 5 min., Sample size = 200ml).
  5. Upon starting discharge, turn the compositor on.
  6. Ensure that the compositor runs and is pumping sample.
  7. Upon completion of the discharge, turn the compositor off, close the sample connection valve and disconnect the compositor from the sample connection line.
  8. Wearing nitrile gloves, take the sample bottle out of compositor and transfer the sample to the appropriate sample bottles for analysis. Clean the sample collection bottle and return to the compositor.
  9. Return the compositor to the storage area

## Wastewater Organization

State Signatory: Primary: Kurt Ibarreta

Site Contact: Primary: Kurt Ibarreta  
Alternate: Luke Treadway

Operator: Primary: Kurt Ibarreta

### Revision History

Rev. Date	Author/Originator	Checker	Approver	EHS Approver if Applicable	Revision Details
3/29/16	Kurt Ibarreta	Luke Treadway #5667	<i>Shin Hashimoto #5665</i>	Kimberley Sackman #5231	Changed company to EPI, updated to include required header and footer, requirement for environmental staff to review and sign as needed.
11/21/16	Kurt Ibarreta	Luke Treadway #5667	<i>Shin Hashimoto #5665</i>	<i>Sovann K. Chin #1943</i>	Changed pH meter calibration from monthly to quarterly.
6/5/19	Kurt Ibarreta	Luke Treadway	Takeshi Ezaki #5700	Doris Gonzalez #5846	Moved into eDMS
2/27/2023	Luke Treadway #5667	Kurt Ibarreta #5668	<i>Jaime C. Ramsey #5857</i>	<i>Brady Youngerman #6259</i>	Removed pump type reference and control screen appendix. Updated network and physical locations