

# Ion Exchange Backwash Permit Procedures For Plumbers and Property Owners

## 1) What Is Ion Exchange Water Treatment

- a) The ion exchange water softener is one of the most common tools of water treatment.
- b) Its function is to remove scale-forming calcium and magnesium ions from hard water.

## 2) The Purpose of Issuing An Ion Exchanger Permit

- a) This permit process is to protect the County's sewer system from potentially hazardous discharge content.
- b) It is also used to determine if the County's sewer system has the capability of handling the amount of the discharge and the rate of flow of the discharge.
- c) The calculations associated with this permit are used to determine the EDUs to be billed. An EDU (Equivalent Dwelling Unit) is the standard unit of measurement that we use for usage. It equates to a single family home.

## 3) The Steps Involved

- a) The initial step is for the applicant to request a copy of the Ion Exchange Permit along with Attachment A (questionnaire) & Attachment B (analysis requirements).
- b) Any administrative type questions that the applicant may have should be directed to the Utility Permits Division at 302-855-7719. Any technical questions should be directed to the Director of Environmental Services at 302-855-7730.
- c) The applicant should return the completed questionnaire and the analysis results to the Utility Permits Division, Sussex County Administrative Building, 3<sup>rd</sup> Floor, 2 The Circle, Georgetown, DE.
- d) The Utility Permits Division will notify the applicant if the request is approved or denied.
- e) If the application is approved, the Utility Permits Division will compute the fees due using the maximum average daily flow shown in item 2 of Attachment A and the 300 gallons per day equaling 1 EDU.
- f) The Utility Permits Division will advise the customer of the usage fees due. These fees could include the System Connection Charges computed above, the initial \$250.00 Ion Exchange Permit fee. A \$100.00 Connection Permit fee would also be due if the location where the Ion Exchange system is being used is not already connected to a Sussex County Sanitary Sewer System.
- g) This permit must be renewed annually. Sussex County Utility Permits will send a notification to the customer.



## **Attachment B / Ion Exchange Backwash Permit**

### **Wastewater Discharge Analysis Requirements**

#### **Analytical Requirements**

All pollutant analyses shall be performed in accordance with the techniques prescribed in 40 CFR Part 136, unless otherwise specified in an applicable categorical pretreatment standard. If CFR Part 136 does not contain sampling or analytical techniques for the pollutant in question, analyses must be performed in accordance with procedures approved by the EPA.

#### **Sampling Requirements**

All sampling techniques shall be performed in accordance with the techniques prescribed in 40 CFR Part 136.

Grab samples must be used for PH, cyanide, total phenols, oil and grease, and volatile organic compounds. For all other pollutants, 24-hour composite samples must be obtained through flow proportional composite sampling techniques, unless time-proportional composite sampling or grab sampling is authorized by the County Engineer. The samples must be representative of the discharge.

Using protocols (including appropriate preservation) specified in 40 CFR Part 136 and appropriate EPA guidance, multiple grab samples collected during the sampling period may be composited prior to the analysis. For cyanide and total phenols the samples may be composited in the laboratory.

The County Engineer may require additional information from the discharger beyond that required on the permit application form.

Due to the possibility of pollutants which will pass through the treatment system, after reviewing the results of the analyses of the waste discharge, consideration will be given as to the final disposal source.

**Items To Be Sampled For**

Arsenic as As  
Cadmium as Cd  
Chromium (hexavalent) as Cr  
Cyanide as CN  
Lead as pb  
Copper as Cu  
Mercury as Hg  
Nickel as Ni  
Zinc as Zn  
Iron  
pH  
Phenol  
BOD  
COD  
FOG  
Total Solids  
Total Dissolved Solids  
Total Fixed Solids  
Total Suspended Solids Total  
Hardness  
Chloride  
Sodium

**Please attach the results of the sample to this permit application and return to the County's Utility Permits Division, 3<sup>rd</sup> floor, 2 The Circle, Georgetown, DE 19947.**

Permit Number - \_\_\_\_\_  
Tax Map Number - \_\_\_\_\_  
Sewer District - \_\_\_\_\_

APPLICATION FOR PERMIT TO ALLOW DISCHARGE OF BACKWASH WASTEWATER FROM  
ION EXCHANGE WATER TREATMENT SYSTEMS

Applicant Name - \_\_\_\_\_

Applicant Address- \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Discharge Location \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1. This permit grants the applicant permission to discharge backwash wastewater from an Ion Exchange Water Treatment System into the collection system of the Sussex County Sanitary Sewer System shown above.
2. In order for this permit to be granted the following criteria must be met.
  - a. The average daily discharge must be less than 9,000 gallons per day. Please provide details of your discharge on attachment A.
  - b. The maximum instantaneous discharge rate must not exceed 5% of the immediate downstream pumping station's capacity.
  - c. A chemical analysis of the backwash discharge must be provided in accordance with the County's requirements. See attachment B for details.
  - d. The application for discharge must be signed by the authorized representative of the organization making the application, as defined below:
    - i. A principal executive officer of at least the level of vice president, if the industrial user is a corporation.
    - ii. A general partner or proprietor, if the industrial user is a partnership or proprietorship, respectively.
    - iii. A duly authorized representative of the individual designated above, if such representative is responsible for the overall operation of the facilities from which the indirect discharge originates.
3. The fees for this permit include a \$250.00 application fee and an annual renewal fee of \$100.00 to cover monitoring and administrative costs. The annual fee will be due on the anniversary of the original permit.
4. An annual report must be submitted on the anniversary of the original permit providing the information requested in items 2a, 2b, and 2c.
5. The duration of this permit is 5 years. The Sussex County Engineer reserves the right to revise or revoke this permit based on changes to Sussex County's treatment or transmission facilities or if the permit holder's discharge has the potential to harm Sussex County's facilities.
6. Chapter 110 of the Sussex County Code governs this permit. The County reserves the right to terminate this permit for violations regarding discharge quantity, rate, or content.
7. When the permit is issued, the County or its representatives shall be allowed ready access at all reasonable times to all parts of the premises for the purpose s of inspection, sampling or records examination.

By signing below I agree to the stipulations set forth above and in Chapter 110 of the Sussex County Code.

Signature - \_\_\_\_\_ Date - \_\_\_\_\_

County Approval - \_\_\_\_\_ Date - \_\_\_\_\_