Puget Sound Clean Air Agency

Notice of Construction No. **12353**

HEREBY ISSUES AN ORDER OF APPROVAL TO CONSTRUCT, INSTALL, OR ESTABLISH

Registration No. **10088**

Date

King County is proposing to replacing three existing boilers (1,125 hp total), with 4 new units (1,000 hp total) that are intended to increase energy efficiency, operational flexibility, and reliability of the heat loop system.

OWNER

King Co Ntrl Res Wastewater Treatment
1400 Discovery Park Blvd
Seattle, WA 98199

INSTALLATION ADDRESS

King Co Ntrl Res Wastewater Treatment
1400 Discovery Park Blvd (West Point)
Seattle, WA 98199

THIS ORDER IS ISSUED SUBJECT TO THE FOLLOWING RESTRICTIONS AND CONDITIONS

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the INSTALLATION ADDRESS in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.
2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.
3. MMBtu/hr and two 17.82 MMBtu/hr boilers must not result in output exceeding 1000 HP averaged during any 24-hour period. Replacement must not result in more than 4 total boilers in the east and west boiler rooms at a given time. Compliance with this condition shall be demonstrated through boiler operation and steam production records. This restriction becomes obsolete once the 595 HP and two 265 HP boilers have been decommissioned and removed from service.
4. Each 4.46 MMBtu/hr and 17.82 MMBtu/hr boiler must not exceed the following emission limits during combustion of treated digester gas, untreated digester gas, propane or combination of aforementioned fuels:
    a. CO must not exceed 50.0 ppmvd @ 3%O2 on a 1-hour average, as determined through EPA Method 10 and 3A.
    b. NOx must not exceed 30.0 ppmvd @3% O2 on a 1-hour average, as determined through EPA method 7E and 3A.
    c. Visible emissions from each boiler must not exceed zero percent opacity for more than 3 minutes in any 1 hour as determined by Ecology Method 9A.
5. Each 4.46 MMBtu/hr and 17.82 MMBtu/hr boiler must meet the following operational requirements:
    a. Boilers must combust only treated digester gas, untreated digester gas, or propane.
    b. Treated digester gas combusted must not contain H_2S concentrations exceeding 125 ppmv as measured by colormetric tube sampling or hand held instrument readings or alternative method approved by Puget Sound Clean Air Agency.
    c. Untreated digester gas combusted must not contain H_2S concentrations exceeding 200 ppmv as measured by colormetric tube sampling or hand held instrument readings or alternative method approved by Puget Sound Clean Air Agency.

d. Maintain a minimum residence time of 0.3 seconds and a minimum firing temperature of 1,600°F on a 1-hour average, except during startup and shutdown.

6. The owner or operator shall have each boiler serviced annually (not to exceed 13 months from the previous servicing date). During that service, the owner or operator shall measure NO_x, CO and O_2 in the boiler exhaust at load levels representative of normal-low, normal-medium, and normal-high operating rates using a portable gas analyzer method (ASTM D6522-00, ANSI/ASME PTC 19.10-1981, EPA CTM-030, or EPA CTM-034, or other alternative approved in writing by the Puget Sound Clean Air Agency). Measurements of CO, O_2, and NO_x concentration shall be taken and recorded before and after adjustments are made. Annual measurements may be taken while firing treated digester gas, untreated digester gas, propane or combination of fuels.
7. If NO_x or CO measurements from a portable gas analyzer check taken after the tune-up adjustments are made as required by Condition #5 exceed the NO_x or CO limits specified in Conditions #3, then the boiler shall cease operation until corrective actions have been completed and a follow-up compliance test for NO_x and CO has demonstrated compliance with the limits of Conditions #3. The compliance testing shall utilize EPA Methods 3A, 7E, 10 and Ecology Method 9A and is subject to PSCAA Reg I 3.07.
8. Within 90 days of startup of each 17.82 MMBtu/hr boiler, the owner or operator must conduct initial compliance testing for the NO_x, CO, and visible emission limits of Condition #3. Testing shall be conducted using 40 CFR Part 60, Appendix A Reference Methods 1, 3A, 4, 7E, and 10, or alternatives approved by Puget Sound Clean Air Agency.

    a. The testing must be conducted shall be conducted in accordance with Puget Sound Clean Air Agency Regulation I, Section 3.07.

    b. The testing must be conducted at 90% or more of the boiler's maximum operational firing rate. The maximum firing rate is set by performance test and can be less than the maximum rated capacity.

    c. Testing for NOx and CO must consist of at least three separate test runs with each test run being at least one hour in duration and compliance based on the average of the three test runs. Testing for opacity must consist of at least one 1-hour observation.

    d. Performance tests may only be stopped for good cause, which includes forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control. Termination of a performance test without good cause after the first test run has commenced shall constitute a failure of the performance test.
9. Each 17.82 MMBtu/hr boiler is subject to the federal Standards of Performance for Small Industrial-Commercial Units under 40 CFR Part 60, Subpart Dc and General Provisions under Subpart A.
10. The owner or operator shall determine compliance with the digester gas H_2S content limits of Condition #4.b and #4.c as follows:

    a. Treated digester gas shall be sampled at least once per calendar month.

    b. Untreated digester gas shall be sampled once per operating day when untreated digester gas is routed to any of the boilers.

    c. Sampling of treated and untreated digester gas shall utilize colormetric tubes or a hand held instrument capable of detection concentrations at the required levels to accurately measure the concentration of H_2S in the biogas. The upper end of the reading range must be at least 250 ppm. An agency approved H_2S monitoring instrument of the same or greater sensitivity as the gas detection tubes may be used as an alternative. Results of sampling shall be maintained with the date of sampling and H_2S concentration recorded.

d. If an exceedance of the emission limit in Condition #4.c is measured, the owner or operator shall cease firing the boilers with untreated digester gas until an untreated digester gas reading meets the limit of Condition #4.c.

e. If an exceedance of the emission limit in Condition #4.b is measured, the owner or operator shall initiate corrective action including corrective maintenance of the sulfur removal system within 24 hours of identification.

10. The following records shall be kept in written and/or digital form for at least five years and made available to Agency personnel upon request:

    a. Boiler fuel type, fuel use and firing rate records for each boiler to demonstrate compliance with Condition #4.a.

    b. Treated digester gas and untreated digester gas H_2S sampling results as required in Condition #9.

    c. Results of annual NOx and CO measurements as required in Condition #5.

    d. Boiler firing temperature records for each boiler to demonstrate compliance with Condition #4.d.

11. This Notice of Construction Order of Approval 12353 shall cancel and supersede Notice of Construction Order of Approval 10861 upon decommissioning and removal of the two

APPEAL RIGHTS

Pursuant to Puget Sound Clean Air Agency's Regulation I, Section 3.17 and RCW 43.21B.310, this Order may be appealed to the Pollution Control Hearings Board (PCHB). To appeal to the PCHB, a written notice of appeal must be filed with the PCHB and a copy served upon Puget Sound Clean Air Agency within 30 days of the date the applicant receives this Order.

Madeline McFerran
Reviewing Engineer

John Dawson
Engineering Manager