



PUGET SOUND CLEAN AIR AGENCY

Additional Notice of Construction Application Requirements for

SPRAY TOWERS, BUBBLE-CAP PLATE COLUMNS, PACKED BED SCRUBBERS

General

Equipment or Process Being Controlled [*Specify the source(s) of the contaminants to be controlled. If the source(s) are also new, complete the applicable permit forms*]

Identify which of the following categories the project fits into:

1. New Construction (*New construction also includes existing, unpermitted equipment or processes*)
2. Reconstruction (*Reconstruction means the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new facility*)
3. Modification (*Modification means any physical change in, or change in the method of operation of, a source, except an increase in the Hours of Operation or production rates (not otherwise prohibited) or the use of an alternative fuel or raw material that the source is approved to use under an Order of Approval or operating permit, that increases the amount of any air contaminant emitted or that results in the emission of any air contaminant not previously emitted*)
4. Amendment to Existing Order of Approval Permit Conditions

Estimated Hours of Operation (hr/day, day/wk, wk/yr) [701]

Estimated Installation Date [702]

Inlet Gas Stream Characteristics

Flowrate (acfm) [703]

Temperature (°F) [704]

Moisture (% by volume) [*Specify the moisture (water vapor) concentration in percent by volume*]

Pollutant Concentrations (lb/hr or ppmv of each pollutant) [*Specify the pollutant concentrations going into the scrubber in pounds per hour or parts per million by volume*]

Design of Scrubber [*Most design information is available from the manufacturer or vendor. Submittal of a brochure, scale drawing or process and instrumentation diagram will facilitate the review of the permit application.*]

Make & Model [*Specify the manufacturer and model of the scrubber - not the serial number*]

Type of Scrubber [*Specify spray tower, packed bed or tower, bubble-cap plate column, or sparging tank*]

Collection Efficiency (%) [*Specify the control efficiency of the demister, as stated by the manufacturer*]

Liquid Flowrate (gal/min) [*Specify the liquid flowrate into the scrubber in gallons per minute*]

Make-up Water (gal/min) [*Specify the rate at which fresh water is added to prevent build-up of solids, scale and sludge*]

Direction of Air and Water Flows [*Specify counterflow (air and water in opposite directions), cross flow (air and water in perpendicular directions), or concurrent (in same direction)*]

Chemical Reagents added to Water (% by weight or mol/l, pH) [*Required only if there is a reaction between the absorbed compound and the solvent, not just dissolution.*]

Method Used to Design/Size the Absorber [*Specify the method used to select this design and size of scrubber. If design calculations were performed, they should be submitted. If the design and sizing was based on similar (successful) applications, list the owners and the city and state where they are located*]

For Packed Beds:

Type of Packing [*Specify raschig rings, berl saddles, intalox saddles, pall rings, spiral rings, teller rosettes, cross-partition rings, lessing rings, ceramic balls, goodloe packing, wire mesh packing, or other (be specific)*]

Packing Volume (ft³) [*Specify the design volume of packing in cubic feet*]

Packing Depth (ft) [*Specify the design height of packing in feet. After installation, some settling may occur and additional packing should be added to return the packing to the design level*]

Pressure Drop (inches of water) [*Specify the design pressure drop across the scrubber in inches of water*]

For Bubble-Cap Plate Columns:

Number of Plates [*Specify the number of bubble plates (trays)*]

Plate Spacing (inches) [*Specify the vertical spacing between the plates (trays)*]

Liquid Seal Height (inches) [*Specify the height of the liquid seal on the plates (trays).*]

Design of Mist Eliminator [*Most design information is available from the manufacturer or vendor. Submittal of a brochure, scale drawing or process and instrumentation diagram will facilitate the review of the permit application*]

Make & Model [*Specify the manufacturer and model of the mist eliminator - not the serial number. If the mist eliminator is integral with the Venturi scrubber and does not have a separate model number, state this*]

Control Efficiency (%) [*Specify the control efficiency (droplet removal efficiency) of the mist eliminator, as stated by the manufacturer*]

Minimum Pressure Drop (inches of water) [*Specify the pressure drop across the mist eliminator, as stated by the manufacturer.*]

Stack

Stack Height (ft) [*Specify the height of the top of the stack above ground level - not above the building or sea level*]

Stack Diameter or Rectangular Cross-Sectional Dimensions (inches) [*Specify the internal dimensions - not the external dimensions*]

Exhaust Flowrate (acfm) [*Specify the airflow in actual cubic feet per minute. This is usually determined from the fan performance 'curve' based upon the expected static pressure caused by the sum of the pressure losses from each component in the ductwork, including the cyclone*]

Exhaust Temperature (°F) [*Specify the temperature of the exhaust leaving the stack*]

Distance to Nearest Property Line (ft) [*Specify the distance from the base of the stack to the nearest property line*]

Height, Length and Width of Buildings (ft) [*Specify the approximate dimensions of any buildings that are >40% of the stack height and are located within 5 building heights from the stack*]

Operation and Maintenance

Method Used to Regulate Chemical Composition of Scrubbing Liquid [*Specify the equipment and procedures used to regulate the chemical composition of the liquid (filters to remove suspended solids, reagent injection systems, sensors for pH, temperature, or conductivity).*]

Method Used to Measure the Liquid Flowrate [*Specify the equipment and frequency for measuring the volumetric flow rate of the liquid.*]

Method Used to Clean the Demister [*Specify the equipment and frequency for cleaning the demister element*]

Describe Preventive Maintenance [*Specify the inspection frequency for pressure drop, liquid flow rate, viewing of the interior (i.e., spray headers, packing, fan, and ductwork). Also specify the records to be kept (e.g., records of all inspections, cleanings and repairs) and any spare parts to be kept on-site*]