§ 63.2164 If I monitor brew ethanol, what are my monitoring installation, operation, and maintenance requirements?

(a) Each CEMS must be installed, operated, and maintained according to manufacturer’s specifications and in accordance with §63.6(e)(1).

(b) Each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 30-minute period within each batch monitoring period. Except as specified in paragraph (c) of this section, you must have a minimum of two cycles of operation in a 1-hour period to have a valid hour of data.

(c) The CEMS data must be reduced to arithmetic batch averages computed from two or more data points over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hour of data shall consist of at least one data point representing a 30-minute period.

(d) You must have valid CEMS data from at least 75 percent of the full hours over the entire batch monitoring period.
§ 63.2165 How do I demonstrate initial compliance with the emission limitations if I monitor fermenter exhaust?

(a) You must demonstrate initial compliance with each emission limitation that applies to you according to Table 3 to this subpart.

(b) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.2180(e).

(e) Set the CEMS span to correspond to not greater than 5 times the relevant emission limit, with 1.5 to 2.5 times the relevant emission limit being the range considered by us to be generally optimum. Use the brew-to-exhaust correlation equation established under §63.2161(f) to determine the span value for your CEMS that corresponds to the relevant emission limit.

(f) For each CEMS, record the results of each inspection, calibration, and validation check.

(g) The GC that you use to calibrate your CEMS must meet the requirements of paragraphs (g)(1) through (3) of this section.

(1) Calibrate the GC at least daily, by analyzing standard solutions of ethanol in water (0.05 percent, 0.15 percent, and 0.3 percent).

(2) For use in calibrating the GC, prepare the standard solutions of ethanol using the procedures listed in paragraphs (g)(2)(i) through (vi) of this section.

(i) Starting with 100 percent ethanol, dry the ethanol by adding a small amount of anhydrous magnesium sulfate (granular) to 15–20 milliliters (ml) of ethanol.

(ii) Place approximately 50 ml of water into a 100-ml volumetric flask and place the flask on a balance. Tare the balance. Weigh 2.3670 grams of the dry (anhydrous) ethanol into the volumetric flask.

(iii) Add the 100-ml volumetric flask contents to a 1000-ml volumetric flask. Rinse the 100-ml volumetric flask with water into the 1000-ml flask. Bring the volume to 1000 ml with water.

(iv) Place an aliquot into a sample bottle labeled “0.3% Ethanol.”

(v) Fill a 50-ml volumetric flask from the contents of the 1000-ml flask. Add the contents of the 50-ml volumetric flask to a 100-ml volumetric flask and rinse the 50-ml flask into the 100-ml flask with water. Bring the volume to 100 ml with water. Place the contents into a sample bottle labeled “0.15% Ethanol.”

(vi) With a 10-ml volumetric pipette, add two 10.0-ml volumes of water to a sample bottle labeled “0.05% Ethanol.”

With a 10.0-ml volumetric pipette, pipette 10.0 ml of the 0.15 percent ethanol solution into the sample bottle labeled “0.05% Ethanol.”

(3) For use in calibrating the GC, dispense samples of the standard solutions of ethanol in water in aliquots to appropriately labeled and dated glass sample bottles fitted with caps having a Teflon® seal. Refrigerated samples may be kept unopened for 1 month. Prepare new calibration standards of ethanol in water at least monthly.

(h) Calibrate the CEMS according to paragraphs (h)(1) through (3) of this section.

(1) To calibrate the CEMS, inject a brew sample into a calibrated GC and compare the simultaneous ethanol value given by the CEMS to that given by the GC. Use either the Porapak® Q, 80–100 mesh, 6’ × ½’, stainless steel packed column or the DB Wax, 0.53 mm ×30 m capillary column.

(2) If a CEMS ethanol value differs by 20 percent or more from the corresponding GC ethanol value, determine the brew ethanol values throughout the rest of the batch monitoring period by injecting brew samples into the GC not less frequently than every 30 minutes. From the time at which the difference of 20 percent or more is detected until the batch monitoring period ends, the GC data will serve as the CEMS data.

(3) Perform a calibration of the CEMS at least four times per batch.