Appendix ___ 40 CFR Part 63, Subpart DDDDD Procedures for Energy Assessment/Use of Credits

(Optional appendix available to existing sources with alternative output-based limits.)

1. If the permittee elects to comply with the alternative equivalent output-based emission limits, instead of the heat input-based limits listed in Table 2 of 40 CFR Part 63, Subpart DDDDD, and the permittee wants to take credit for implementing energy conservation measures identified in an energy assessment, the permittee may demonstrate compliance using efficiency credits according to the procedures in 40 CFR 63.7533, stated in Conditions 2 through 6 of this Appendix. The permittee may use this compliance approach for an existing affected boiler for demonstrating initial compliance according to 40 CFR 63.7522(e), and for demonstrating monthly compliance according to 40 CFR 63.7522(f), both stated in the Emissions Averaging Appendix. Owners or operators using this compliance approach must establish an emissions benchmark, calculate and document the efficiency credits, develop an Implementation Plan, comply with the general reporting requirements, and apply the efficiency credit according to the procedures in paragraphs (b) through (f) of 40 CFR 63.7533, stated in Conditions 2 through 6 of this Appendix. Additional guidance from the Department of Energy on efficiency credits is available at: http://www.epa.gov/ttn/atw/boiler/boilerpg.html. **(40 CFR 63.7533(a))**

2. For each existing affected boiler for which the permittee intends to apply emissions credits, establish a benchmark from which emission reduction credits may be generated by determining the actual annual fuel heat input to the affected boiler before initiation of an energy conservation activity to reduce energy demand (*i.e.,* fuel usage) according to paragraphs (b)(1) through (4) of 40 CFR 63.7533, as listed below. The benchmark shall be expressed in trillion Btu per year heat input. **(40 CFR 63.7533(b))**

   a. The benchmark from which efficiency credits may be generated shall be determined by using the most representative, accurate, and reliable process available for the source. The benchmark shall be established for a one-year period before the date that an energy demand reduction occurs, unless it can be demonstrated that a different time period is more representative of historical operations. **(40 CFR 63.7533(b)(1))**

   b. Determine the starting point from which to measure progress. Inventory all fuel purchased and generated on-site (off-gases, residues) in physical units (MMBtu, million cubic feet, etc.). **(40 CFR 63.7533(b)(2))**

   c. Document all uses of energy from the affected boiler. Use the most recent data available. **(40 CFR 63.7533(b)(3))**

   d. Collect non-energy related facility and operational data to normalize, if necessary, the benchmark to current operations, such as building size, operating hours, etc. If possible, use actual data that are current and timely rather than estimated data. **(40 CFR 63.7533(b)(4))**

3. Efficiency credits can be generated if the energy conservation measures were implemented after January 1, 2008 and if sufficient information is available to determine the appropriate value of credits. **(40 CFR 63.7533(c))**

   a. The following emission points cannot be used to generate efficiency credits: **(40 CFR 63.7533(c)(1))**

      i. Energy conservation measures implemented on or before January 1, 2008, unless the level of energy demand reduction is increased after January 1, 2008, in which case credit will be allowed only for change in demand reduction achieved after January 1, 2008. **(40 CFR 63.7533(c)(1)(i))**

      ii. Efficiency credits on shut-down boilers. Boilers that are shut down cannot be used to generate credits unless the facility provides documentation linking the permanent shutdown to energy conservation measures identified in the energy assessment. In this case, the bench established for the affected boiler to which the credits from the shutdown will be applied must be revised to include the benchmark established for the shutdown boiler. **(40 CFR 63.7533(c)(1)(ii))**

   b. For all points included in calculating emissions credits, the owner or operator shall: **(40 CFR 63.7533(c)(2))**

      i. Calculate annual credits for all energy demand points. Use Equation 19 to calculate credits. Energy conservation measures that meet the criteria of paragraph (c)(1) of 40 CFR 63.7533 shall not be included, except as specified in paragraph (c)(1)(i) of 40 CFR 63.7533. **(40 CFR 63.7533(c)(2)(i))**

c. Credits are generated by the difference between the benchmark that is established for each affected boiler, and the actual energy demand reductions from energy conservation measures implemented after January 1, 2008. Credits shall be calculated using Equation 19 of 40 CFR 63.7533, as listed below. **(40 CFR 63.7533(c)(3))**

i. The overall equation for calculating credits is: **(40 CFR 63.7533(c)(3)(i))**

$$ECredits = \left(\sum_{i-1}^{N} EIS_{iactual}\right) \div EI_{baseline} \qquad (Eq. 19)$$

Where:

ECredits = Energy Input Savings for all energy conservation measures implemented for an affected boiler, expressed as a decimal fraction of the baseline energy input.

$EIS_{iactual}$ = Energy Input Savings for each energy conservation measure, i, implemented for an affected boiler, million Btu per year.

$EI_{baseline}$ = Energy Input baseline for the affected boiler, million Btu per year.

n = Number of energy conservation measures included in the efficiency credit for the affected boiler.

4. The owner or operator shall develop, and submit for approval upon request by the Administrator, an Implementation Plan containing all of the information required in this paragraph for all boilers to be included in an efficiency credit approach. The Implementation Plan shall identify all existing affected boilers to be included in applying the efficiency credits. The Implementation Plan shall include a description of the energy conservation measures implemented and the energy savings generated from each measure and an explanation of the criteria used for determining that savings. If requested, the permittee must submit the implementation plan for efficiency credits to the Administrator for review and approval no later than 180 days before the date on which the facility intends to demonstrate compliance using the efficiency credit approach. **(40 CFR 63.7533(d))**

5. The emissions rate as calculated using Equation 20 of 40 CFR 63.7533, stated in Condition 6 of this Appendix, from each existing boiler participating in the efficiency credit option must be in compliance with the limits in Table 2 of 40 CFR Part 63, Subpart DDDDD at all times the affected unit is operating, following the compliance date specified in 40 CFR 63.7495, i.e., January 31, 2016 or as otherwise specified in 40 CFR 63.6(i). **(40 CFR 63.7533(e))**

6. The permittee must use Equation 20 of 40 CFR 63.7533, as listed below, to demonstrate initial compliance by demonstrating that the emissions from the affected boiler participating in the efficiency credit compliance approach do not exceed the emission limits in Table 2 of 40 CFR Part 63, Subpart DDDDD. **(40 CFR 63.7533(f))**

$$E_{adj} = E_m \, x \, (1 - ECredits) \qquad (Eq. 20)$$

Where:

E_{adj} = Emission level adjusted by applying the efficiency credits earned, lb per million Btu steam output (or lb per MWh) for the affected boiler.

E_m = Emissions measured during the performance test, lb per million Btu steam output (or lb per MWh) for the affected boiler.

ECredits = Efficiency credits from Equation 19 for the affected boiler.