



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

NOV 7 2012

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Sinclair Refineries Alternative Method Request for Calculating Coke Burn-off from their Fluid Catalytic Cracking Unit Regenerators Under 40 CFR 60 - Subpart J

FROM: Conniesue B. Oldham, Ph.D., Group Leader
Measurement Technology Group

A handwritten signature in blue ink that reads "Connie Oldham".

TO: Cynthia J. Reynolds, Director
Office of Enforcement, Compliance, and Environmental Justice
Region 8

We have reviewed the April 16, 2012, requests submitted by Sinclair Casper Refining Company and Sinclair Wyoming Refining Company and forwarded to us through Region 8. In these requests, Sinclair asks to use an alternative method of calculating the coke burn-off rate for determining compliance with 40 CFR 60.105(c) of Subpart J - New Source Performance Standards (NSPS) for Petroleum Refineries. Specifically, they ask to determine inlet air flow rate to the fluidized catalytic cracking unit (FCCU) from exhaust gas flow rates measured by a certified continuous emissions monitoring system (CEMS) in conjunction with carbon monoxide (CO), carbon dioxide (CO₂), and oxygen (O₂) CEMS, and Equation 2 in Subpart UUU of 40 CFR 63.1573(a)(2). Inlet air is normally obtained from control room instrumentation, but the Sinclair facilities do not have this instrumentation.

Equation 2 of Subpart UUU, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Petroleum Refineries, provides an alternative means of calculating the volumetric flow rate of exhaust gas (Q_r) from the FCCU regenerator, which relies on a material balance between the inlet air (Q_{air}) to the FCCU and the exhaust gas from the FCCU regenerator. Equation 2 is written to calculate Q_r , and expresses the correlation between the two flows. Since Q_r is measured by the alternative CEMS, Sinclair proposes to rearrange the equation to solve for Q_{air} . Using the exhaust flow, CO, CO₂, and O₂ CEMS measurements, Q_{air} would be calculated. Both Q_{air} and Q_r are then used as inputs into the equation in 60.106(b)(3) to find the coke burn-off rate.

We believe this alternative procedure is technically acceptable. We, therefore, approve Sinclair's use of the flow rate CEMS and Equation 2 of Subpart UUU as alternative procedures for determining FCCU inlet air flow rate. Since this approval is applicable to other facilities wishing to use these options, we will be posting this letter on our web site at <http://www.epa.gov/ttn/emc/approalt.html> for use by other interested parties.

If you have questions or would like to discuss the matter further, please call Foston Curtis at (919) 541-1063, or e-mail him at curtis.foston@epa.gov.

cc: Scott Whitmire, Region 8