

RESPONSE TO PUBLIC COMMENTS

ON

**Air Pollution Control
Prevention of Significant Deterioration (PSD)
Permit to Construct**

PSD-WY-000002-2011.001

Permittee:

Sinclair Wyoming Refining Company
P.O. Box 277
Sinclair, Wyoming 82334

Permitted Facility:

Sinclair Refinery
Sinclair, Wyoming



**United States Environmental Protection Agency
Region 8
Air Program
Denver, Colorado
March 21, 2013**

In the Matter of a Permit Application from Sinclair Wyoming Refinery Company to Modify the Sinclair Refinery Located in Sinclair, Wyoming.

I. Introduction

Sinclair Wyoming Refinery Company (“Sinclair”) proposes to increase the crude refining capacity and implement other miscellaneous projects, as described below, at its Sinclair, Wyoming petroleum refinery. The crude optimization project consists of the following: 1) removal of the 581 Crude Unit Heater firing limit rate and replacement of the 581 Crude Unit atmospheric distillation tower; 2) modification of the 583 Vacuum Tower to accommodate an increase in reduced crude feedstock from the debottlenecked 581 Crude Unit; and 3) allowing the combustion of sweetened refinery fuel gas in the Coker Flare to accommodate potential periods when the refinery may have to operate in a fuel gas imbalance condition. In addition and unrelated to the increase in crude oil refining capacity, the following projects will be covered by this permit: 1) removal of the firing limits for the #1 HDS heater, Naphtha Splitter heater and Hydrocracker H5 heater so that these units will be able to fire at their design maximum rates; 2) installation of a new Naphtha Splitter and BSI Unit to provide capacity to reduce benzene content in gasoline product to meet the specification of the February 2007 Mobile Sources Air Toxics II rule; 3) upgrade of the refinery’s sour water stripping system which includes increasing the capacity of the existing system and installation of an additional sour water stripper; and 4) installation of a new emergency air compressor to supply instrument air to the refinery in the event of a power failure.

II. Analysis of Sinclair’s Comments

Sinclair provided detailed comments on the draft permit and statement of basis (SOB) that we have summarized below (in order of their appearance in the comment letter) and to which we have provided responses.

1. Statement of Basis. Sinclair is providing the following redline comments to identify the carbon dioxide equivalent (CO₂e) limits that are applicable for this project. The ton per year (tpy) CO₂e emission limits that are included in the SOB and Draft Permit were based on a fuel gas limit lower than the 146 lb CO₂e /MMBtu limit that was supplied in the supplemental permit application documentation received by EPA May 29, 2012. As identified in the following, the revision to the CO₂e emission limits is limited to the new and modified heaters which combust refinery fuel gas. (Redline comments found in attached Sinclair October 16, 2012 letter.)

EPA Response: EPA agrees that the tpy CO₂e limits should be based on the 146 lb CO₂e /MMBtu fuel gas limit, and we have made the redline changes supplied by Sinclair to the tpy CO₂e emission limits. As the underlying fuel gas limit of 146 lb CO₂e/MMBtu did not change, there is no fundamental change to the BACT determined by the permit.

2. Sinclair contends that creating a numeric CO₂e emission limit for the Coker Flare is not required. Sinclair operates the Coker Flare Gas Recovery System in order to minimize all potential flaring events at the refinery. Additionally, in the event of a malfunction, Sinclair may need to utilize the Coker Flare as a safety device when depressurizing a unit. In the event of such a malfunction,

attempting to put a numeric CO₂e emission limit on the flare being used as a safety device is not feasible and not a safe practice. As such, Sinclair proposes to remove the following SOB text as identified in the strikeout text below.

Section VIII. BACT Analysis "~~A CO₂e ton per year emission limit of 58,181 ton CO₂e/yr will be established for the Coker Unit Flare. This limit is based upon the firing rate of the Coker Unit Flare of 100.0 MMBtu/hr and an emission rate of 132.24 lb CO₂/MMBtu, 0.0066 lb CH₄/MMBtu, and 0.00132 lb N₂O/MMBtu.~~"

EPA Response: We agree that the SOB text and associated permit condition should be removed and the changes have been made. The portion of the SOB cited by Sinclair, which is in our BACT analysis for fugitive CH₄ emissions, was inconsistent with our BACT analysis for the Coker Flare. In that analysis, we determined that BACT for the Coker Flare for CH₄ (and CO₂ and N₂O) was use of the FGR system, and we noted that a numeric CO₂e limit was not feasible. Then, in analyzing BACT for fugitive CH₄ emissions (as discussed in the paragraph immediately preceding the one cited by Sinclair), we determined that leak detection and repair (LDAR) was BACT for fugitive CH₄ emissions from the FGR system. In our description of fugitive CH₄ sources, we did not identify the Coker Flare itself as a source of fugitive CH₄ emissions; thus, there was no requirement to establish a separate fugitive CH₄ BACT for the Coker Flare in addition to use of the FGR system as BACT. Consequently, we have removed the permit condition establishing the numeric CO₂e limit for the Coker Flare. The requirement to calculate annual actual emissions from the Coker Flare remains.

3. *Draft Permit to Construct PSD-WY-000002-2011.001.* Sinclair noted an administrative correction in the Introduction section of the draft permit as identified in the following redline text.

Section I. INTRODUCTION

"The crude optimization project consists of the following: 1) removal of the 581 Crude Unit Heater firing limit rate and replacement of the 581 Crude Unit atmospheric distillation tower; 2) modification of the ~~283~~ 583 Vacuum Tower to accommodate an increase in reduced crude feedstock from the debottlenecked 581 Crude Unit; ... "

EPA Response: We agree with the correction, and the change has been made.

4. Sinclair is providing the following redline comments to identify the CO₂e limits that are applicable for this project. The TPY CO₂e emission limits that are included in the Draft Permit were based on a fuel gas limit lower than the 146 lb CO₂e /MMBtu limit that was supplied in the supplemental permit application documentation received by EPA May 29, 2012. As identified in the following, the revision to the CO₂e emission limits is limited to the new and modified heaters which combust refinery fuel gas. (Redline comments found in attached Sinclair October 16, 2012 letter.)

EPA Response: EPA agrees that the tpy CO₂e limits should be based on the 146 lb CO₂e /MMBtu fuel gas limit, and we have made the redline changes supplied by Sinclair to the tpy CO₂e emission limits. As the underlying fuel gas limit of 146 lb CO₂e /MMBtu did not change, there is no fundamental change to the BACT determined by the permit.

5. Sinclair contends that creating a numeric CO₂e emission limit for the Coker Flare is not required. Sinclair operates the Coker Flare Gas Recovery System in order to minimize all potential flaring events at the refinery. Additionally, in the event of a malfunction, Sinclair may need to utilize the Coker Flare as a safety device when depressurizing a unit. In the event of such a malfunction, attempting to put a numeric CO₂e emission limit on the flare being used as a safety device is not feasible and not a safe practice. As such, Sinclair proposes to remove the following Draft Permit text as identified in the redline text below.

Section III. SPECIAL PERMIT CONDITIONS C. REQUIREMENTS FOR COKER FLARE

"3. Total CO₂e emissions from the Coker ~~Unit~~ Flare shall be calculated by using the equations stated in Special Conditions III.C.4. Annual total CO₂e emissions ~~shall not exceed 58,161 tons CO₂e/yr~~ and shall be calculated by Equation 3."

EPA Response: As explained above, EPA has reviewed Sinclair's request and removed the numeric limit for CO₂e. The requirement to calculate annual actual emissions from the Coker Flare remains.

6. Sinclair requests that a clarification for the performance testing requirements is made as identified in the redline text below.

Section VI. PERFORMANCE TESTING REQUIREMENTS

B. "Each source tested by the Permittee shall be at or above 90.0% of the maximum normal load operations as determined **from the previous seven calendar days of emission source operation.** Tested source load shall be identified.... "

EPA Response: Using a load based on usage over the previous seven calendar days ensures that a representative load is used to determine compliance with the applicable averaging period. However, as unit load should remain fairly constant for the short term averaging period, EPA has removed "**from the previous seven calendar days of emission source operation.**" from this requirement. The source is still required to test at or above 90.0% of the maximum normal load and to state under what load the testing was done.

III. Decision

On the basis of comments received during the public notice period, an analysis of those comments as provided in the responses above, and representations made by the applicant in the application, EPA has determined that a Clean Air Act federal Prevention of Significant Deterioration air quality pre-construction permit, to address GHG emissions, will be issued to Sinclair Wyoming Refinery Company to modify and operate the Sinclair refinery as described in the application.

Dated this 21st day of March, 2013.