



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

MAR 12 2013

REPLY TO THE ATTENTION OF:

Andrew Stewart  
Deputy Director  
Bureau of Air Management  
Wisconsin Department of Natural Resources  
PO Box 7921  
Madison, Wisconsin 53707-7921

RE: Comments on Proposed New Source Review Permits for Calumet Superior, LLC

Dear Mr. Stewart,

The U.S. Environmental Protection Agency has reviewed the proposed New Source Review permits, permit numbers 12-DCF-227 and 12-DCF-256, for Calumet Superior, LLC in Superior, Wisconsin (Calumet Superior). To ensure that the source meets Clean Air Act requirements, that the permit will provide necessary information so that the basis of the permit decision is transparent and readily accessible to the public, and that the permit record provides adequate support for the decision, EPA has the following comment:

Calumet Superior uses continuous emissions monitors (CEM) to calculate annual emissions of sulfur dioxide (SO<sub>2</sub>) and particulate matter (PM) from the primary and backup flares. They use barrels-per-year and AP-42 estimates to calculate annual emissions for oxides of nitrogen, (NO<sub>x</sub>) greenhouse gases (GHG), volatile organic compounds (VOC), and carbon monoxide (CO). In their preliminary determination Wisconsin Department of Natural Resources asks for comments on the appropriateness of using continuously measured heat capacity and flow data of waste gas to the flare and AP-42 emission factors in this situation. EPA's guidance on AP-42 emission factors<sup>1</sup> says that AP-42 emission factors should only be used when other methods of calculating emissions are not feasible.

EPA has generally advised that permitting authorities follow a defined hierarchy when determining the acceptable emissions estimation method for any particular source. EPA's recommended hierarchy of emissions estimation methods is as follows:

1. CEM data from the stationary source
2. Performance test data from the stationary source
3. Manufacturer's emissions performance guarantee

<sup>1</sup>Introduction to AP 42, Volume I, Fifth Edition - January 1995 (AP-42 Introduction) available at <http://www.epa.gov/ttn/chief/ap42/c00s00.pdf>.

4. CEM data from a similar stationary source or sources
5. Performance test data from a similar stationary source or sources
6. Industry-derived emission factors
7. AP-42
8. Engineering judgment

See, *generally*, AP-42 Introduction at 2-5 and Figure 1. Under this hierarchy, AP-42 emission factors should be treated as a last resort. If AP-42 emission factors must be used, A-rated AP-42 emission factors should be considered before the lower rated emission factors.

If AP-42 estimates must be used EPA believes it would be appropriate to use the heat capacity and flow data of waste gas to the flare and the AP-42 section 13.1 estimates for industrial elevated flares to estimate monthly emissions of NO<sub>x</sub>, GHGs, VOCs, and CO from the flare.

We appreciate the opportunity to provide comments on this draft permit. Enclosed is a summary of the comments discussed with Don Faith III and Steven Dunn on March 6, 2013. If you have any questions, please contact me or contact Jesse McGrath, of my staff, at (312) 886-1532.

Sincerely,



Genevieve Damico  
Chief  
Air Permits Section

Enclosure

Summary of Responses to Questions Asked by Phone on March 6, 2013

*Please explain the use of Actual to Actual netting for the flares:*

The facility is able to use the actual to actual analysis (rather than actual to potential), because this is authorized under the court approved changes to the Prevention of Significant Deterioration rules that occurred under the New Source Review Reform proposal.

**Crude Distillation PSD Emissions Summary (tons per year)**

Source	Carbon Dioxide	Carbon Monoxide	Nitrogen Oxides	Particulate PM-10 PM-2.5	Sulfur Dioxide	VOC
Baseline Actual	47,511.7	33.06	22.88	3.42	<u>0.59</u>	2.25
Potential	63,304	44.04	45.46	4.56	8.9	2.99
Net Increase	15,792.31	10.99	22.58	1.14	8.3	0.75

*Please explain the apparent increase in emissions in the compliance related projects:*

The increase is a result of doing the netting analysis correctly. From the crude tower, the prior actual emissions may have been on the order of 100 tons per year (TPY) or more (and up to 300 lbs/hr short term), from the combustion of the vacuum hotwell (sour) gases. They correctly did not include these emissions in the baseline, but instead only identified SO<sub>2</sub> emissions of 0.59 TPY (from combusting fuel gas at its actual parts per million hydrogen sulfide (H<sub>2</sub>S) concentration). The prior emissions [from combusting the vacuum hotwell gases] are not well quantified, so there is not an exact value.

*Have the requirements from the Global Consent Decree (GCD) been put into the permits?*

Wherever there is an emission unit that is affected by GCD requirements, we have included the GCD requirements in the permits. The flares (I10, I11), the sulfur recovery units / tail gas treatment units (SRU/TGTU) are all examples of process units modified and reviewed under recent permits where we've included GCD requirements. The overall project to remove the vacuum hotwell gases from the crude tower burners is also based on the GCD.

Even the H<sub>2</sub>S limits on the refinery gas fuel combustion units and the flare [and the flare caustic scrubber] are based on the GCD. The facility has proposed meeting the more restrictive subpart Ja for any of the units included in the permit [even if not 'modified' under New Source Performance Standards], so that the emission increases will be more limited, but if that hadn't been proposed; the subpart J would have been applicable under the GCD.

*For which pollutants does the facility use CEMs data to calculate emissions?*

They used CEM data for the flare for some pollutants (e.g. SO<sub>2</sub> and PM) [and we are suggesting their use for other pollutants as well]. They used CEM data for the fluid catalytic cracking unit permit for most of the pollutants (under 12-DCF-226): NO<sub>x</sub>, CO, SO<sub>2</sub> and CO<sub>2</sub>. This data

wasn't available for PM or VOC. Using the CEM data (on the input to the flare) for the flare will enable the projection to account for malfunctions into the future. They have a CEM on the SRU/TGTU for SO<sub>2</sub>.