Source ID No. 1250003

John Ditmore
Manager, Environmental
Coffeyville Resources Refining & Marketing, LLC
400 North Linden Street
Coffeyville, Kansas 67337

Re: Air Emission Source Construction Permit

Dear Mr. Ditmore:

The Kansas Department of Health and Environment (KDHE) reviewed Coffeyville Resources Refining & Marketing, LLC’s application for federally enforceable permit conditions for the Heater and Boiler (HB) NOx Emission Limits taken to satisfy the Final HB NOx Emissions Requirement in Paragraph 37 of the Consent Decree (Civ. No. 04-CV-1064-MLB). The Final HB NOx Emissions Requirement is a Surviving Consent Decree Obligation and shall survive termination of the Consent Decree at their petroleum refinery located in Coffeyville, Kansas. Enclosed is the Air Emission Source Construction Permit fulfilling the Consent Decree requirements.

Please review the permit carefully since it obligates Coffeyville Resources Refining & Marketing, LLC to certain requirements.

Notify through the Kansas Environmental Information Management System (KEIMS) using the BOA Notification – General form within 30 days of completing the installation of the emission unit(s) so that an evaluation can be conducted.

Currently, Coffeyville Resources Refining & Marketing, LLC operates under a Class I Air Operating Permit renewed on January 17, 2017.

As provided for in K.S.A. 65-3008b(e), an owner or operator may request a hearing within 15 days after affirmation, modification, or reversal of a permit decision pursuant to subsection (b) of K.S.A. 65-3008a. In the Request for Hearing, the owner or operator shall specify the provision of this act or rule and regulation allegedly violated, the facts constituting the alleged violation, and secretary's intended action. Such request must be submitted to the Director, Office of Administrative Hearings, 1020 S. Kansas Avenue, Topeka, Kansas 66612-1327. Failure to submit a timely request shall result in a waiver of the right to hearing.

Include the above source ID number in all communications with the KDHE regarding this facility.
If you have any questions regarding this document, please contact me at (785) 296-6421.

Sincerely,

Stephen F. Bartels  
Engineering Associate  
Air Permitting Section

SFB:  
Enclosure  
c: SEDO  
CSP03000 v1.0
AIR EMISSION SOURCE CONSTRUCTION PERMIT

Source ID No.: 1250003

Effective Date: DRAFT

Source Name: Coffeyville Resources Refining & Marketing, LLC

SIC Code: 2911, Petroleum Refining

NAICS Code: 324110, Petroleum Refineries

Source Location: 400 North Linden Street
Coffeyville, Kansas 67337

Mailing Address: P.O. Box 1566
Coffeyville, Kansas 67337

Contact Person: John Ditmore
Manager, Environmental
(620) 251-4000
JDDitmore@cvrenergy.com

This permit is issued pursuant to K.S.A. 65-3008 as amended.

I. Description of Activity Subject to Air Pollution Control Regulations

Coffeyville Resources Refining & Marketing, LLC (“CRRM”), which owns and operates a petroleum refinery located at 400 North Linden Street, Coffeyville, Kansas (“the Refinery”), is requesting federally enforceable permit conditions for the Heater and Boiler (HB) Nitrogen Oxides (NOX) Emission Limits taken to satisfy the Final HB NOX Emissions Requirement in Paragraph 37 of the Second Consent Decree (CD) (Civ. No. 04-CV-1064-MLB).

Paragraph 37 of the CD requires CRRM to install NOX control technologies on or otherwise limit NOX emissions from certain Covered Heaters and Boilers such that the system-wide weighted average NOX Emission Limits for all Covered Heaters and Boilers, as determined in accordance with the inequality below, is no greater than 0.041 pounds per million British thermal units (lb/MMBtu) (this paragraph is hereinafter the “Final HB NOX Emissions Requirement”).
The CD required CRRM to demonstrate compliance with the Final NO\textsubscript{X} Emissions Requirement in Paragraph 37 of the CD in accordance with the following inequality:

\[ 0.041 \geq \frac{\sum_{i=1}^{n} [(EL_i \times HIR_i)]}{\sum_{i=1}^{n} (HIR_i)} \]

Where:

- \( EL_i \): The Heater and Boiler NO\textsubscript{X} Emission Limit for each Covered Heater or Boiler “i”, in lb/MMBtu (Higher heating value, HHV)
- \( HIR_i \): Heat Input Capacity of each Covered Heater or Boiler “i”, in MMBtu (HHV) per hour
- \( n \): The total number of Covered Heaters and Boilers at the Refinery

Paragraph 153 of the CD requires CRRM to submit applications, amendments and/or supplements to KDHE to incorporate the CD’s surviving Heater and Boiler NO\textsubscript{X} Emission Limits into federally enforceable minor and/or major new source review permits or other permits that are federally enforceable. By incorporating the surviving Heater and Boiler NO\textsubscript{X} Emissions Requirement into a federally enforceable new source review permit and complying with the limits and associated monitoring for the Covered Heaters and Boilers, CRRM satisfies the Final HB NO\textsubscript{X} Emissions Requirement of Paragraph 37 and 151(d) of the CD. The HB NO\textsubscript{X} Emission Limits listed in Section V.A. of this permit are surviving, which means they will survive termination of the Consent Decree by virtue of their incorporation into this permit.

With this permitting action, CRRM, in agreement with KDHE and EPA, proposed two changes from previous submittals for two Covered Heaters. First, CRRM proposed to install new low-NO\textsubscript{X} burners in #2 Vacuum Charge Heater (IA-04-FH0017), and to lower the NO\textsubscript{X} emission limit to 0.046 pounds (lb) NO\textsubscript{X}/million British thermal units (MMBtu). Second, CRRM proposed to increase the NO\textsubscript{X} emission limit for Crude Unit No. 2 Charge Heater (IA-06-FH0035) to 0.032 lb NO\textsubscript{X}/MMBtu. CRRM will use the new emission limits for the #2 Vacuum Charge Heater and the Crude Unit No. 2 Charge Heater, along with the other Heater and Boiler NO\textsubscript{X} Emissions Limits in Section V. below, to demonstrate compliance with the Final HB NO\textsubscript{X} Emissions Requirement in Paragraph 37 of the CD.

KDHE is requiring CRRM to limit the heat input capacity of each Covered Heater and Boiler to the maximum values reported in the permit application. CRRM must submit an application to modify the heat input capacity limits in this permit to increase the heat input capacity of a Covered Heater or Boiler.

The potential emissions of volatile organic compounds (VOC), particulate matter (PM), particulate matter with less than or equal to 10 microns in aerodynamic diameter (PM\textsubscript{10}), particulate matter with less than or equal to 2.5 microns in aerodynamic diameter (PM\textsubscript{2.5}), carbon monoxide (CO), oxides of nitrogen (NO\textsubscript{X}), oxides of sulfur (SO\textsubscript{X}), and hazardous air pollutants (HAPs) for the proposed changes were evaluated as part of the review process. This project is subject to the provisions of K.A.R. 28-19-300 (Construction permits and approvals; applicability).

II. **Air Emission Unit Technical Specifications**

The following equipment change is approved:

A. #2 Vacuum Charge Heater; IA-04-FH0017 (H-17); gas-fired process heater. The owner or operator shall install low-NO\textsubscript{X} burners.

The following Heaters and Boilers are subject to emission limits in this permit:

A. CCR Heater; EU-56-FH0001 (H-1); gas-fired process heater
B. Coker DHR3 Heater; EU-12-FH0003 (H-3); gas-fired process heater
C. Radco Crude Unit Heater; EU-12-FH0005 (H-5); gas-fired process heater
D. Crude OPF Heater; EU-03-FH0006 (H-6); gas-fired process heater
E. Hydrobon Debutanizer Reboiler; IA-09-FH0011 (H-11); gas-fired process heater (formerly IA-09-FH0051 (H-51))
F. Hydrobon Charge Heater; IA-09-FH0013 (H-13); gas-fired process heater
G. #2 Vacuum Charge Heater; IA-04-FH0017 (H-17); gas-fired process heater (formerly IA-04-FH0010 (H-10))
H. FCCU Preheater; IA-13-FH0021 (H-21); gas-fired process heater
I. Alkylation Isostripper Reboiler; EU-15-FH0024 (H-24); gas-fired process heater
J. Crude Unit No. 2 Charge Heater; IA-06-FH0035 (H-35); gas-fired process heater
K. Vacuum #3 Feed Heater; IA-05-FH0036 (H-36); gas-fired process heater
L. Coker DHR 2A Heater; IA-12-FH0038 (H-38); gas-fired process heater
M. DeHexanizer Reboiler; EU-99-FH0061 (H-61); gas-fired process heater
N. Hydrogen Generation Unit (HGU) Reformer Heater; EU-FH0062 (H-62); gas-fired process heater
O. No. 1 Boiler; EU-39-FH0027 (B-27); gas-fired boiler
P. No. 2 Boiler; EU-39-FH0028 (B-28); gas-fired boiler
Q. No. 3 Boiler; EU-39-FH0029 (B-29); gas-fired boiler

### III. Emissions Estimates from Proposed Activity

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Project Baseline Actual Emissions (tons per year)</th>
<th>Project Potential-to-emit(^1) (tons per year)</th>
<th>Project Emission Increase(^2) (tons per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO</td>
<td>41.19</td>
<td>86.96</td>
<td>45.77</td>
</tr>
<tr>
<td>NO(_X)</td>
<td>34.56</td>
<td>38.68</td>
<td>8.77</td>
</tr>
<tr>
<td>VOC</td>
<td>3.91</td>
<td>5.70</td>
<td>1.79</td>
</tr>
<tr>
<td>PM</td>
<td>3.19</td>
<td>7.92</td>
<td>4.73</td>
</tr>
<tr>
<td>PM(_{10})</td>
<td>3.19</td>
<td>7.92</td>
<td>4.73</td>
</tr>
<tr>
<td>PM(_{2.5})</td>
<td>3.19</td>
<td>7.92</td>
<td>4.73</td>
</tr>
<tr>
<td>SO(_X)</td>
<td>3.27</td>
<td>9.11</td>
<td>5.84</td>
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<tr>
<td>CO(_2)(_e)</td>
<td>76,714.15</td>
<td>137,853.87</td>
<td>61,139.72</td>
</tr>
</tbody>
</table>

### IV. Definitions

The following terms used in this permit shall be defined, for purposes of this permit, as follows:

A. “CEMS” shall mean continuous emissions monitoring system.

B. “Covered Heaters and Boilers” shall mean the heaters and boilers identified in Section II. of this permit.

C. “Day” or “Days” (whether or not capitalized) shall mean a calendar day or days, unless “business days” are expressly specified.

D. “Heaters and Boilers” or “Heaters or Boilers” shall be defined to include any stationary combustion unit used for the purpose of burning fossil fuel for the purpose of: (i) producing power, steam, or heat by heat transfer, or (ii) heating a material for initiating or promoting a process or chemical reaction in which the

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\(^1\) Potential-to-emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on a capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

\(^2\) NO\(_X\) emission decreases from the installation of low-NO\(_X\) burners were not included in the calculation of project emission increase in accordance with paragraph 161 of the CD.
material participates as a reactant or catalyst, but expressly excluding any FCCU regenerator, turbine, internal combustion engine, duct burner, CO boiler, incinerator, or incinerator waste heat boiler.

E. “Heater and Boiler NO\textsubscript{X} Emission Limit” shall mean the NO\textsubscript{X} emission limit, in pounds per MMBtu ("lb/MMBtu") at HHV as identified in Section V.A.

F. “Higher heating value or HHV” shall mean the theoretical total quantity of heat liberated by the complete combustion of a unit volume or weight of a fuel initially at 25 degrees Celsius (C), assuming that the produced water is not vaporized, and all combustion products remain at, or are returned to, 25 degrees C.

V. **Air Emission Limitations and Conditions**

A. The owner or operator shall limit the emissions of NO\textsubscript{X} from each Covered Heater and Boiler and demonstrate compliance with the NO\textsubscript{X} Emission Limit using the compliance demonstration in the table below. The owner or operator shall not exceed the listed maximum heat input capacity (HHV) of each heater and boiler listed in the table below.

<table>
<thead>
<tr>
<th>Source Designation</th>
<th>Emission Unit ID</th>
<th>Source Description</th>
<th>Maximum Heat Input Capacity (HHV) (MMBtu/hr)</th>
<th>NO\textsubscript{X} Emission Limit (lb/MMBtu)</th>
<th>Compliance Demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-27</td>
<td>EU-39-FH0027</td>
<td>No. 1 Boiler</td>
<td>291.6</td>
<td>0.031</td>
<td>CEMS- 365-day rolling average</td>
</tr>
<tr>
<td>B-28</td>
<td>EU-39-FH0028</td>
<td>No. 2 Boiler</td>
<td>256.2</td>
<td>0.036</td>
<td>CEMS- 365-day rolling average</td>
</tr>
<tr>
<td>B-29</td>
<td>EU-39-FH0029</td>
<td>No. 3 Boiler</td>
<td>256.2</td>
<td>0.036</td>
<td>CEMS- 365-day rolling average</td>
</tr>
<tr>
<td>H-1</td>
<td>EU-56-FH0001</td>
<td>CCR Heater</td>
<td>351.5</td>
<td>0.028</td>
<td>CEMS- 365-day rolling average</td>
</tr>
<tr>
<td>H-3</td>
<td>EU-12-FH0003</td>
<td>Coker DHR3 Heater</td>
<td>102.2</td>
<td>0.053</td>
<td>Performance Test- 3-hour average</td>
</tr>
<tr>
<td>H-5</td>
<td>EU-03-FH0005</td>
<td>Radco Crude Unit Heater</td>
<td>191.2</td>
<td>0.065</td>
<td>Performance Test- 3-hour average</td>
</tr>
<tr>
<td>H-6</td>
<td>EU-03-FH0006</td>
<td>Crude OPF Heater</td>
<td>153.0</td>
<td>0.050</td>
<td>CEMS- 365-day rolling average</td>
</tr>
<tr>
<td>H-11 (formerly H-51)</td>
<td>IA-09-FH0011 (formerly IA-09-FH0051)</td>
<td>Hydrobon Debutanizer Reboiler</td>
<td>91.5</td>
<td>0.030</td>
<td>Performance Test- 3-hour average</td>
</tr>
<tr>
<td>H-13</td>
<td>IA-09-FH0013</td>
<td>Hydrobon Charge Heater</td>
<td>82.7</td>
<td>0.051</td>
<td>Performance Test- 3-hour average</td>
</tr>
<tr>
<td>H-17 (formerly H-10)</td>
<td>IA-04-FH0017 (formerly IA-04-FH0010)</td>
<td>#2 Vacuum Charge Heater</td>
<td>80.0</td>
<td>0.046</td>
<td>Performance Test- 3-hour average</td>
</tr>
<tr>
<td>H-21</td>
<td>IA-13-FH0021</td>
<td>FCCU Preheater</td>
<td>63.0</td>
<td>0.050</td>
<td>Performance Test- 3-hour average</td>
</tr>
<tr>
<td>H-24</td>
<td>EU-15-FH0024</td>
<td>Alkylation Isostripper Reboiler</td>
<td>133.7</td>
<td>0.041</td>
<td>Performance Test- 3-hour average</td>
</tr>
</tbody>
</table>
### Source Designation | Emission Unit ID | Source Description | Maximum Heat Input Capacity (HHV) (MMBtu/hr) | NOx Emission Limit (lb/MMBtu) | Compliance Demonstration
---|---|---|---|---|---
H-35 | IA-06-FH0035 | Crude Unit #2 Charge Heater | 161.0 | 0.032 | CEMS- 365-day rolling average
H-36 | IA-05-FH0036 | Vacuum #3 Feed Heater | 89.1 | 0.036 | Performance Test- 3-hour average
H-38 | IA-12-FH0038 | Coker DHR 2A Heater | 57.8 | 0.105 | Performance Test- 3-hour average
H-61 | EU-99-FH0061 | DeHexanizer Reboiler | 93.0 | 0.031 | CEMS- 365-day rolling average
H-62 | EU-FH0062 | HGU Reformer Furnace | 247.0 | 0.035 | CEMS- 365-day rolling average

1. **Monitoring**
   a. Nothing in this permit shall preclude CRRM from converting a three (3) hour average limit to the same limit expressed as a three hundred and sixty-five (365) day rolling average limit if such demonstration of compliance is based upon CEMS.

2. **Permit Modification**
   a. The Heater and Boiler NOx Emission Limits in Section V.A. of this permit shall survive termination of the CD regardless of State permitting actions purporting to change them unless such changes thereto are made in adherence with an analysis consistent with applicable EPA regulations and policies.

### VI. **Notification**

A. Notify through the Kansas Environmental Information Management System (KEIMS) using the **BOA Notification – General form** within 30 days of completing the installation of the low NOx burners so that an evaluation can be conducted.\(^3\)

B. If, at any time, the facility’s operations exceed the specified limitations ("Maximum Heat Input Capacity" and/or "NOx Emission Limit") in Section V. of this permit, the owner or operator shall:

1. Notify KDHE via the Kansas Environmental Information Management System (KEIMS) of any exceedance of the permit limitations within the first working day following discovery of the exceedance.

2. Submit to KDHE via KEIMS a compliance plan stating those actions being taken by the owner or operator to assure future compliance with the permit limitations. This plan shall be signed by a responsible official and submitted within 60 days of discovering the exceedance. This plan will clearly state if an application for a construction permit modification will be submitted. Any such application will be filed within 180 days of discovering the exceedance. Submitting any or all of these reports does not shield the owner or operator from enforcement action for exceeding the permit limitations or for other violations of the Kansas Air Quality Act or Regulations.

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\(^3\) Air Program Field Staff, Southeast District Office (SEDO) Chanute, KS (620) 860-7235
VII. General Provisions

A. This document shall become void if the construction or modification has not commenced within 18 months of the effective date, or if the construction or modification is interrupted for a period of 18 months or longer.

B. A construction permit or approval must be issued by KDHE prior to commencing any construction or modification of equipment or processes which results in potential-to-emit increases equal to or greater than the thresholds specified at K.A.R. 28-19-300.

C. Upon presentation of credentials and other documents as may be required by law, representatives of the KDHE (including authorized contractors of the KDHE) shall be allowed to:

1. enter upon the premises where a regulated facility or activity is located or conducted or where records must be kept under conditions of this document;

2. have access to and copy, at reasonable times, any records that must be kept under conditions of this document;

3. inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this document; and

4. sample or monitor, at reasonable times, for the purposes of assuring compliance with this document or as otherwise authorized by the Secretary of the KDHE, any substances or parameters at any location.

D. The emission unit or stationary source which is the subject of this document shall be operated in compliance with all applicable requirements of the Kansas Air Quality Act and the federal Clean Air Act.

E. This document is subject to periodic review and amendment as deemed necessary to fulfill the intent and purpose of the Kansas Air Quality Statutes and Regulations.

F. This document does not relieve the permittee of the obligation to obtain any approvals, permits, licenses, or documents of sanction which may be required by other federal, state, or local agencies.

G. As applicable, EPA regulations codified in 40 CFR Part 60, 62, and 63 require affected sources to electronically submit performance test reports, notification reports, and periodic reports to EPA through the Compliance and Emissions Data Reporting Interface (CEDRI). CEDRI is accessed through the EPA’s Central Data Exchange (CDX) (https://cdx.epa.gov/). If the reporting form is not available in CEDRI at the time that the report is due, the source must submit the report to the Administrator [address listed in 40 CFR 63.13]:

Kansas Compliance Officer
Air Branch
Enforcement and Compliance Assurance Division
U.S. EPA, Region 7
11201 Renner Blvd.
Lenexa, Kansas 66219

All reports, deviations, malfunctions, and other notifications required to be submitted by this permit shall be submitted through KEIMS at: https://keims.kdhe.ks.gov/nsuite/ncore/external/home
## Attachment A

### Heater and Boiler Heat Input Capacity

<table>
<thead>
<tr>
<th>Source Designation</th>
<th>Emission Unit ID</th>
<th>Source Description</th>
<th>Average Heat Input Capacity (MMBtu/hr)(^1)</th>
<th>Maximum Heat Input Capacity (HHV) (MMBtu/hr)(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-27</td>
<td>EU-39-FH0027</td>
<td>No. 1 Boiler</td>
<td>291.6</td>
<td>291.6</td>
</tr>
<tr>
<td>B-28</td>
<td>EU-39-FH0028</td>
<td>No. 2 Boiler</td>
<td>256.2</td>
<td>256.2</td>
</tr>
<tr>
<td>B-29</td>
<td>EU-39-FH0029</td>
<td>No. 3 Boiler</td>
<td>256.2</td>
<td>256.2</td>
</tr>
<tr>
<td>H-1</td>
<td>EU-56-FH0001</td>
<td>CCR Heater</td>
<td>259.85</td>
<td>351.5</td>
</tr>
<tr>
<td>H-3</td>
<td>EU-12-FH0003</td>
<td>Coker DHR3 Heater</td>
<td>70</td>
<td>102.2</td>
</tr>
<tr>
<td>H-5</td>
<td>EU-03-FH0005</td>
<td>Radco Crude Unit Heater</td>
<td>155</td>
<td>191.2</td>
</tr>
<tr>
<td>H-6</td>
<td>EU-03-FH0006</td>
<td>Crude OPF Heater</td>
<td>153</td>
<td>153.0</td>
</tr>
<tr>
<td>H-11 (formerly H-51)</td>
<td>IA-09-FH0011</td>
<td>Hydrobon Debutanizer Reboiler</td>
<td>68</td>
<td>91.5</td>
</tr>
<tr>
<td>H-13</td>
<td>IA-09-FH0013</td>
<td>Hydrobon Charge Heater</td>
<td>70</td>
<td>82.7</td>
</tr>
<tr>
<td>H-17 (formerly H-10)</td>
<td>IA-04-FH0017</td>
<td>#2 Vacuum Charge Heater</td>
<td>56</td>
<td>80.0</td>
</tr>
<tr>
<td>H-21</td>
<td>IA-13-FH0021</td>
<td>FCCU Preheater</td>
<td>63</td>
<td>63.0</td>
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<td>H-24</td>
<td>EU-15-FH0024</td>
<td>Alkylation Isostripper Reboiler</td>
<td>77</td>
<td>133.7</td>
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<td>H-35</td>
<td>IA-06-FH0035</td>
<td>Crude Unit #2 Charge Heater</td>
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<td>H-36</td>
<td>IA-05-FH0036</td>
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<td>89.1</td>
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<td>H-38</td>
<td>IA-12-FH0038</td>
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<td>57.8</td>
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<td>H-61</td>
<td>EU-99-FH0061</td>
<td>DeHexanizer Reboiler</td>
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<td>H-62</td>
<td>EU-FH0062</td>
<td>HGU Reformer Furnace</td>
<td>247*</td>
<td>247.0</td>
</tr>
</tbody>
</table>

* Not provided in the CD Appendix B. H-61 and H-62 were permitted and added to the Covered Heaters and Boilers after the entry date of the CD.

\(^1\) From the Heat Input Capacity (mmBTU/hr) in the table entitled “Initial Inventory of Covered Heaters and Boilers” in Appendix B of the CD.

\(^2\) The maximum heat input capacities are the basis for the potential-to-emit calculations.