

PART VI. EMISSIONS INVENTORY DATA

The U.S. EPA is working to fulfill its obligation under CAA sections 111(b), 112(f)(2), and 112(d)(6) to review residual risk from the petroleum refinery NESHAP subparts CC and UUU and to perform technology reviews of the petroleum refinery NESHAP subparts CC and UUU and the petroleum refinery NSPS subpart J. Emission data sets provided by the individual refineries will be used for these reviews. Refer to the ICR website for instructions for obtaining a copy of the EPA's 2005 NATA NEI data set for each of your refineries (if available) for your reference.

For each unit listed below, provide emission estimates (tons/yr) for the 2010 calendar year for individual HAP and criteria pollutants using the emissions template provided. You may report emissions by emission point rather than by unit, but you should identify which units are associated with each emission point. (Note: You do not have to report emissions one way or the other throughout the entire inventory. For example, you may report equipment leak emissions by process unit for the major process units and by geographical area for other areas of your refinery.)

- Each processing unit for which you provided an ID in Part I, Question 16
- Each process heater listed in Table 2-1 of Part II
- Each fuel gas and natural gas system for which you provided equipment leaks data in Table 3-2 of Part II
- Each storage tank listed in Table 4-1 of Part II
- Each "other atmospheric vent" listed in Table 11-1 of Part II (except for vents controlled by a flare)
- Each flare listed in Table 12-1 of Part II, including those controlling emissions from "other atmospheric vents" listed in Table 11-1 of Part II
- Each solid waste management unit listed in Table 17-1 of Part II

Except as noted below, provide emission estimates following the methods provided in the *Emission Estimation Protocol for Petroleum Refineries* (Version 2.1 – Final ICR Draft). As noted in the *Emission Estimation Protocol for Petroleum Refineries*, for each unit for which there are multiple methodologies for estimating emissions, you must use the highest Methodology Rank in the *Emission Estimation Protocol for Petroleum Refineries* for which you have available 2010 data. For example, if Methodology Rank 1 for NO_x is estimating emissions using a continuous emissions monitoring system (CEMS), and you have a NO_x CEMS on that unit, you must use the CEMS results to estimate NO_x emissions from that unit. However, if you did not have a NO_x CEMS installed on that unit during 2010, you do not have available data to use Methodology Rank 1 for NO_x; you must then consider whether you have available data to use Methodology Rank 2 for NO_x from that unit. Similarly, if a particular methodology requires speciation of a stream and you do not have speciation data available, you are not required to conduct additional sampling and analysis (but if you do have speciation data available and no

higher ranking methodology can be used, you must use the methodology that calls for speciation).

For units and other emissions points not addressed in the *Emission Estimation Protocol for Petroleum Refineries*, you should provide the emissions estimates as your TRI or State inventory or use engineering estimates and process knowledge for pollutants not required to be reported for TRI or State inventory. Also provide a brief explanation of the methodology you used in the “Comments” column of the emissions template provided.

For wastewater treatment systems, also please provide a copy of the Refinery Wastewater Emissions Tool spreadsheet (provided as part of the *Emission Estimation Protocol for Petroleum Refineries*) completed for your refinery.

Instructions for completing the emissions template are provided below.

1. Emission point ID: Provide the identification number or code for the location at which emissions are released into the environment. If this is an emission point for one particular process unit or a flare, you may use the Unit ID as your Emission point ID (the response to Number 3 will be completed automatically if you do so). If you choose to report fugitive emissions by process unit, the Emission point ID should be “FUG-” plus the Unit ID (*e.g.*, if you are reporting equipment leak emissions for a FCCU with a Unit ID of FCCU01, the Emission point ID is “FUG- FCCU01”).
2. Emission point description: Provide a description of the emissions point for easy reference (*e.g.*, FCCU regenerator vent stack; catalytic reforming unit depressurization vent; crude heater vent; facility-wide start-up and shutdown emissions).
3. Unit ID: Provide the identification number or code for the unit(s) associated with this emission point. Use the same identification number that you provided in Part II, Sections 2 through 13, 15, and 16. For sulfur recovery, enter the SRU ID. For an emissions point that covers the entire facility, enter “All Units.” (Note that for flares, you are not required to identify the process units and/or vents routed to each flare; the response to this question is the Flare ID.
4. SCC: Attachment 1 provides source classification codes (SCC) extracted from the NEI database lookup tables. There have been updates (both additions and deletions) to the SCC over the years, and the list in Attachment 1 contains the current list of SCC that EPA would like you to use for this inventory. If a code that you have used in the past no longer appears in the applicable lookup table, please select the most appropriate code from those listed.
5. Pollutant name: Enter the name of the pollutant for which you are estimating emissions. You will need to enter only one pollutant per row; for most units, it will take multiple rows to provide emissions estimates for all pollutants.
6. Pollutant CAS No. or Pollutant Code: See Table 1-1 of the *Emission Estimation Protocol for Petroleum Refineries* for a list of CAS numbers and Pollutant Codes for selected pollutants.

7. 2010 emissions (tons): All emissions reported in this column should reflect the ACTUAL emissions during normal operation for the reported calendar year. (If you use a CEMS/CMS to monitor emissions of a particular pollutant, the readings for the entire year were within the calibrated span of the CEMS/CMS, and you have completed the CEMS Template or CMS Template for that monitor, then you may report the total emissions recorded by that CEMS/CMS in this column.)
8. Protocol methodology rank used: Provide the rank number from the appropriate chapter of the *Emission Estimation Protocol for Petroleum Refineries* that best describes how you estimated emissions for the unit and pollutant provided in this row. If a pollutant's emissions for a given source are based on a mixture of different methodology ranks (e.g., calculating equipment leak emissions using line by line composition for some parts of a process and average composition for other parts), report the protocol methodology rank that contributed most to the total reported emissions. If any of your emissions sources is not included in the *Emission Estimation Protocol for Petroleum Refineries* (e.g., an ethylene unit), enter "N/A."
9. 2010 non-routine emissions (tons): All emissions reported in this column should reflect the ACTUAL emissions during any non-routine operation for the reported calendar year, including startups, shutdowns, and other events. If you use a CEMS/CMS to monitor emissions of a particular pollutant and the readings for part of the year were not within the calibrated span of the CEMS/CMS, estimate emissions of that pollutant from the process unit during that event and report the value here. Enter 0 if there were not non-routine operations for this source during 2010 or if non-routine emissions are not applicable for the source type (e.g., equipment leaks). You may use an emissions point ID representing "All Units" to report the non-routine emissions (see descriptions for Number 1 and Number 3).
10. Maximum hourly emissions (lb/hr): Enter the maximum actual emissions from the unit during normal operation in any one hour of 2010. See the *Emission Estimation Protocol for Petroleum Refineries* for additional information on how to determine hourly emissions.
11. Annual emissions allowed by NESHAP for emission points subject to emission limits (tons/yr): Enter the annual emissions during normal operation allowed by the NESHAP to which this unit is subject. (Note that if the NESHAP limit is on a concentration basis, you will need to use process data at maximum capacity to convert the limit to tons/yr. Similarly, if the NESHAP limit is on a percent reduction basis, you may need to use information about the inlet to the control device to estimate the allowable emissions.) If this unit is not subject to any NESHAP for this pollutant, enter "N/A."

As an example, if you comply with the 1 lb per 1,000 lb coke burn-off limit for PM for an FCCU, determine and report the allowed annual PM emissions based on the annual quantity of coke burned in 2010 when reporting the allowed PM emissions and enter "N/A" when reporting the allowed nickel emissions. Alternatively, if you comply with the 0.029 lb/hr nickel emissions limit for an FCCU, enter "N/A" when reporting the allowed PM emissions and determine and report the allowed annual nickel emissions

based on the operating hours of the unit in 2010 when reporting the allowed nickel emissions.

12. Hourly emissions allowed by NESHAP for emission points subject to emission limits (lb/hr): Enter the maximum hourly emissions during normal operation allowed by the NESHAP to which this unit is subject. For example, when reporting nickel emissions from an FCCU, enter “N/A” if you comply with a PM emissions limit but report the allowed hourly emissions rate if you comply with the nickel emission rate alternative. (Note that if the NESHAP limit is on a concentration basis, you will need to use process data at maximum capacity to convert the limit to lb/hr. Similarly, if the NESHAP limit is on a percent reduction basis, you may need to use information about the inlet to the control device to estimate the allowable emissions.) If this unit is not subject to any NESHAP for this pollutant, enter “N/A.”

As an example, if you comply with the 1 lb per 1,000 lb coke burn-off limit for PM for an FCCU, determine and report the allowed hourly PM emissions based on the maximum quantity of coke burned in an hour during 2010 when reporting the allowed PM emissions and enter “N/A” when reporting the allowed nickel emissions. Alternatively, if you comply with the 0.029 lb/hr nickel emissions limit for an FCCU, enter “N/A” when reporting the allowed PM emissions and enter “0.029” (lb/hr) when reporting the allowed nickel emissions.

13. Annual emissions allowed by permit (tons/yr): Enter the annual emissions during normal operation allowed by your operating permit (may be more stringent than the emissions limit under the applicable NESHAP). (Note that if the permit limit is on a concentration basis, you will need to use process data at maximum capacity to convert the limit to tons/yr.) If your permit does not have a numerical limit for emissions of this pollutant from this unit, enter “N/A” (see example for Number 11).
14. Hourly emissions allowed by permit (lb/hr): Enter the maximum hourly emissions during normal operation allowed by your operating permit (may be more stringent than the emissions limit under the applicable NESHAP). (Note that if the permit limit is on a concentration basis, you will need to use process data at maximum capacity to convert the limit to lb/hr.) If your permit does not have a numerical limit for emissions of this pollutant from this unit, enter “N/A” (see example for Number 12).
15. Type of Release (Point or Fugitive): Point releases are the emissions released from a facility unit that is included in the facility inventory through one or more stacks or vents. Fugitive releases are air pollutants released to the air other than those from stacks or vents, including small releases from leaking plant equipment such as valves, pump seals, flanges, or sampling connections, and large open area releases such as from landfills, waste ponds, coke drum cutting, coke transport and storage, or unpaved roads.
16. Point Sources: Complete the columns listed below if you answered “Point” in Number 15.

Release Height (ft): Enter the height of the stack or vent from the ground.

Internal Vent Diameter (ft): Enter the diameter of the stack or vent at the release height.

Exit Temperature (°F): Enter the temperature of the exit gas stream

Gas Flow Rate (acfm): Enter the flow rate of the exit gas stream.

17. Fugitive Sources: Complete the columns listed below if you answered “Fugitive” in Number 15.

Length (ft): Enter the dimension of the source in the east-west (x-) direction

Width (ft): Enter the dimension of the source in the north-south (y-) direction

Angle: The release angle is the orientation of the y-dimension relative to true North, measured positive for clockwise starting at 0 degrees (maximum 89 degrees). EPA will assume 0 degrees if it is not provided.

18. Longitude and Latitude: Pay particular attention when entering emission release point stack parameters and locations. EPA requires latitude/longitude for each emission point provided in North American Datum (NAD) 83 and prefers six digits to the right of the decimal point. (If currently available coordinates have five digits to the right of the decimal point instead of six, those coordinates are acceptable.) These data are critical inputs to the modeling files that EPA will use to determine the risk profile for the residual risk review process.¹
19. Comments: Provide any comments that you feel are necessary to qualify or explain any of your answers to the previous questions.

¹Latitude measure in decimal degrees of the angular distance on a meridian north or south of the equator. Positive (+) data point for North America. Example: +78.123456. For point sources, this represents the center of the source; for fugitive sources, this is the southwest corner if the fugitive angle is zero or the western most corner if the fugitive angle is greater than zero. Longitude measure in decimal degrees of the angular distance on a meridian east or west of the prime meridian. Negative (-) data point for North America. Example: -123.234561. For point sources this represents the center of the source; for fugitive sources, this is the southwest corner if the fugitive angle is zero, or the western most corner if the fugitive angle is greater than zero.

Attachment 1. Lists of SCC

(This is an example of one of multiple tables that will be posted on the ICR website. Each type of emission source will have a table of SCC on the ICR website.)

List of Storage Tank SCC

SCC	SCC_L1	SCC_L2	SCC_L3	SCC_L4
40302001	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Crude Oil
40302002	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Gasoline
40302003	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Jet Naphtha (JP-4 or Jet B)
40302004	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Kerosene (including Jet Kerosene Jet A-1, Jet A, JP-5, or JP-8)
40302005	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Distillate Fuel (Diesel Fuel, #2 Fuel Oil, or #3 Fuel Oil)
40302006	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Heavy Fuel Oil (# 4 Fuel Oil)
40302007	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Residual or Heavy Gas Oil (# 5 or #6 Fuel Oil)
40302008	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Unfinished or Intermediate Naphtha
40302009	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Fixed Roof Tanks	Other (Specify)
40302101	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Crude Oil
40302102	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Gasoline
40302103	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Jet Naphtha (JP-4 or Jet B)

SCC	SCC_L1	SCC_L2	SCC_L3	SCC_L4
40302104	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Kerosene (including Jet Kerosene Jet A-1, Jet A, JP-5, or JP-8)
40302105	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Distillate Fuel (Diesel Fuel, #2 Fuel Oil, or #3 Fuel Oil)
40302106	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Heavy Fuel Oil (# 4 Fuel Oil)
40302107	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Residual or Heavy Gas Oil (# 5 or #6 Fuel Oil)
40302108	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Unfinished or Intermediate Naphtha
40302109	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (Without Geodesic Dome)	Other (Specify)
40302201	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Crude Oil
40302202	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Gasoline
40302203	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Jet Naphtha (JP-4 or Jet B)
40302204	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Kerosene (including Jet Kerosene Jet A-1, Jet A, JP-5, or JP-8)
40302205	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Distillate Fuel (Diesel Fuel, #2 Fuel Oil, or #3 Fuel Oil)
40302206	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Heavy Fuel Oil (# 4 Fuel Oil)
40302207	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Residual or Heavy Gas Oil (# 5 or #6 Fuel Oil)
40302208	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Unfinished or Intermediate Naphtha

SCC	SCC_L1	SCC_L2	SCC_L3	SCC_L4
40302209	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	External Floating Roof Tanks (With Geodesic Dome)	Other (Specify)
40302301	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Crude Oil
40302302	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Gasoline
40302303	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Jet Naphtha (JP-4 or Jet B)
40302304	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Kerosene (including Jet Kerosene Jet A-1, Jet A, JP-5, or JP-8)
40302305	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Distillate Fuel (Diesel Fuel, #2 Fuel Oil, or #3 Fuel Oil)
40302306	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Heavy Fuel Oil (# 4 Fuel Oil)
40302307	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Residual or Heavy Gas Oil (# 5 or #6 Fuel Oil)
40302308	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Unfinished or Intermediate Naphtha
40302309	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	Internal Floating Roof Tanks	Other (Specify)
40302401	Petroleum and Solvent Evaporation	Petroleum Product Storage at Refineries	LPG Pressurized Tanks	Examples: Propane Spheres, Butane Spheres