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Comments for Form BOEM-0138 Spreadsheets for EPS

1. FACTORS tab column:
 - a. Reference Links to EPA website may become obsolete if/when links are broken on the USEPA site.
2. FACTORS Tab, Diesel Recip. <600, SOX factor, Cell D11
 - a. The amount of SO₂ from diesel fuel burning is a function of the concentration of sulfur in the fuel and the amount of diesel fuel burned.
 - b. The SO_x emission factors referenced in AP-42, Table 3.3-1 are from a document from October 1996. The SO_x factors in the Oct 1996 document were before ULSD fuel was mandated.
 - c. The document cited in AP-42 Table 3.3-1, cites *"Standards Support And Environmental Impact Statement, Volume 1: Stationary Internal Combustion Engines, EPA-450/2-78-125a, U. S. Environmental Protection Agency, Research Triangle Park, NC, July 1979."*

In Section 4.1.6 Sulfur Dioxide (SO₂), the document indicates the sulfur content of fuel used ranges from 0.5 to 1%.
 - d. Diesel engines in Gulf of Mexico use ultralow sulfur diesel (ULSD) that has maximum concentration of 0.0015% sulfur.
 - e. The SO₂ factor for "Diesel Recip. >600 hp" (Cell D12) seems to be a suitable emission factor since it is based a mass balance calculation to derive the emission factor. The SO₂ factor for Diesel Recip. >600 hp is adjusted based on ULSD fuel used – as specified in AP-42, Table 3.4-1.
3. FACTORS Tab, Diesel Recip. <600, SOX factor, Cell D17
 - a. The amount of SO₂ from diesel fuel burning is a function of the concentration of sulfur in the fuel and the amount of fuel burned. Diesel engines in Gulf of Mexico use ultralow sulfur diesel (ULSD) that has maximum concentration of 0.0015% sulfur. Should adjust to same factor as Diesel Recip. >600 hp since would have a similar mass balance calculation to derive the emission factor.
4. FACTORS Tab, Vessels – Propulsion, SOX factor, Cell D17
 - a. Based on ULSD used as fuel and the amount of SO₂ from diesel fuel burning is a function of the concentration of sulfur in the fuel and the amount of fuel burned, should have same SO₂ emission factor as other diesel engines using ULSD..
5. FACTORS Tab, Vessels, Drilling Prime Engine, Auxiliary
 - a. Correct spelling of word "Auxilliary" to **Auxiliary**.
6. FACTORS Tab, Vessels, Drilling Prime Engine, Auxiliary, SOX factor, Cell D18
 - a. Based on ULSD used as fuel and the amount of SO₂ from diesel fuel burning is a function of the concentration of sulfur in the fuel and the amount of fuel burned, should have same SO₂ emission factor as other diesel engines using ULSD.

7. FACTORS Tab, Vessels – Well Stimulation, SOx factor, Cell D20
 - a. Based on ULSD used as fuel and the amount of SO₂ from diesel fuel burning is a function of the concentration of sulfur in the fuel and the amount of fuel burned, should have same SO₂ emission factor as other diesel engines using ULSD.
8. FACTORS Tab, VESSELS – Diesel Boiler
 - a. Cell B19. Most often, the MMBTU/HR rating of Boilers is readily available to operators. Suggest that MMBTU/HR units be used to determine capacity and fuel used. Then the user of the spreadsheet does not have to convert to MMBTU/HR to horsepower. The appropriate equations can be made to the EMISSIONS Tabs.
 - b. Factors in AP-42, Section 1.3, Fuel Oil Combustion, Table 1.3-1, 1.3-2, 1.3-3 could be used with MMBTU/HR rating. NOTE: AP-42 Tables 1.4-1 and 1.4-2 factors are used for natural fueled heater/boiler/burner calculations for the draft Form BOEM-1038 and BOEM-1039.
 - c. For the FACTORS Tab, a “Fuel Usage Conversion Factor” can be calculated for diesel boilers based the Density (7.05 lbs/gal) and Heat Value of Diesel Fuel (19,300 BTU/lb) – similar to calculation in FACTORS Tab, Cell G2. The fuel usage factor can be input to calculate emissions based on emission factors in AP-42, Tables 1.3-1, 1.3-2 and 1.3-3.
 - d. SO_x emission factor in Table 1.3-1 could be used for No.2 oil fired units. No. 2 diesel (ULSD) typically used as fuel in the Gulf of Mexico. For example:
 - i. $SO_x = SO_2 + SO_3 = 144 * S \text{ lbs/1000 gallons; where } S = \text{weight percent of sulfur in fuel.}$
 - ii. $SO_2 = 142 * S \text{ where } S = 0.0015; SO_2 = 0.213 \text{ lbs/1000 gallons}$
 - iii. $SO_3 = 2 * S \text{ where } S = 0.0015; SO_3 = 0.003 \text{ lbs/1000 gallons}$
 1. Total SO_x = 0.216 lbs/1000 gallons
9. EMISSIONS1 Tab – Cell I12 for “Vessels – Drilling Prime Engine, Auxilliary”. This cell uses a factor from cell \$C\$17 of the FACTORS tab. It should reference cell \$C\$18 on the FACTOR tab.
10. EMISSIONS Tab. Can BOEM explain the reason the “0.85” adjustment factor is used to calculate lbs/hr for “VESSELS- Drilling - Propulsion Engine – Diesel” emissions? Reference: Cells I7, J7, K7, L7, M7. N7, O7.
 - a. There is no explanation of this in the Air Emissions Calculations Instructions for EPs and DOCDs documents. A note in the instructions document should explain reason for the adjustment factor.
 - b. Using unexplained emission factors adjustments may cause more errors since users often copy and paste cells to calculate emission for multiple similar emission source types.
 - c. The 0.85 factor is also used for lbs/hr calculations for other “VESSELS”
11. EMISSIONS1 Tab - Liquid Flaring (cell B16). Specify the units for the RATING units data input for Cell D16 is barrels per day of liquid flared - based on the maximum lbs/hr calculations used in the spreadsheet.
 - a. The units listed for the FACTORS page for Liquid Flaring is lbs/barrel. This would correspond to lbs of pollutant per barrel of liquids (crude oil, condensate). It appears that the factors used in the FACTORS page is for Distillate oil fired fuel are used adjusting the emission factor to lbs/bbl of oil burned.
12. SUMMARY Tab: The default Print Range for this tab does not include NH3.

Comments for Form BOEM-0139 Spreadsheets for DOCD and DPPs.

1. Comments for Form BOEM-0139 are the same as those made above for Form BOEM-0138.
2. EMISSIONS Tab. Cold Vent.
 - a. Define what is a Cold Vent that would be included in the calculations. This should be included in the instructions.
 - b. Can BOEM give the basis for an emission factor of tons VOC/yr-vent other than GOADS data?
 - c. Operators are limited to 50 MSCF/day of venting flash gas. Operators may have an estimate of the volume of natural gas vented by a "Cold Vent."
 - d. Could the calculation be based on the volume of natural gas vented and the chemical makeup – like data used for flares?
3. FACTORS Tab, Production Equipment – Diesel Boiler
 - a. Cells B13. Most often, the MMBTU/HR rating of Boilers is readily available to operators. Suggest that MMBTU/HR units be used to determine capacity and fuel used. Then the user of the spreadsheet does not have to convert to MMBTU/HR to barrels fuel used. The appropriate equations can be made to the EMISSIONS Tabs.
 - b. Factors in AP-42, Section 1.3, Fuel Oil Combustion, Table 1.3-1, 1.3-2, 1.3-3 could be used with MMBTU/HR rating. NOTE: AP-42 Tables 1.4-1 and 1.4-2 factors are used for natural fueled heater/boiler/burner calculations for the draft Form BOEM-1038 and BOEM-1039.
 - c. For the FACTORS Tab, a "Fuel Usage Conversion Factor" can be calculated for diesel boilers based the Density (7.05 lbs/gal) and Heat Value of Diesel Fuel (19,300 BTU/lb) – similar to calculation in FACTORS Tab, Cell G2. The fuel usage factor can be input to calculate emissions based on emission factors in AP-42, Tables 1.3-1, 1.3-2 and 1.3-3.
 - d. SO_x emission factor in Table 1.3-1 could be used for No.2 oil fired units. No. 2 diesel (ULSD) typically used as fuel in the Gulf of Mexico. For example:
 - i. $SO_x = SO_2 + SO_3 = 144 * S$ lbs/1000 gallons; where S = weight percent of sulfur in fuel.
 - ii. $SO_2 = 142 * S$ where S = 0.0015; $SO_2 = 0.213$ lbs/1000 gallons
 - iii. $SO_3 = 2 * S$ where S = 0.0015; $SO_3 = 0.003$ lbs/1000 gallons
 1. Total SO_x = 0.216 lbs/1000 gallons
4. EMISSIONS1 Tab – Cell I12 for "Vessels – Drilling Prime Engine, Auxiliary". This cell uses a factor from cell \$C\$17 of the FACTORS tab. It should reference cell \$C\$18 on the FACTOR tab.
5. EMISSIONS1 Tab, Vessels, Drilling Prime Engine, Auxiliary. Correct spelling of word "Auxiliary" to **Auxiliary**.
6. EMISSIONS1 Tab – Cell B21. Are "VESSELS - Shuttle Tankers" included in "Vessels – Propulsion" as listed on the FACTORS tab, Cell B17? Can you include/specify that in the FACTORS Tab description?
7. EMISSIONS Tab. Can BOEM explain the reason the "0.85" adjustment factor is used to calculate lbs/hr for "VESSELS- Drilling - Propulsion Engine – Diesel" emissions? Reference: Cells I7, J7, K7, L7, M7, N7, O7.
 - a. There is no explanation of this in the "Air Emissions Calculations Instructions For EPs and DOCDs" documents. A note in the instructions document should explain reason for the adjustment factor.

- b. Using unexplained emission factors adjustments may cause more errors since users often copy and paste cells to calculate emission for multiple similar emission source types.
 - c. The 0.85 factor is also used for lbs/hr calculations for other "VESSELS."
- 8. EMISSIONS1 Tab - VESSELS - Well Stimulation, a factor of "0.3863" is used for lbs/hr calculations. As stated in comment 7 above, an explanation of why this factor is used should be included in the instructions.
- 9. SUMMARY Tab: The default Print range for this tab does not include NH3.
- 10. AIR EMISSIONS CALCULATIONS INSTRUCTIONS FOR DOCDs and PRA Statement. The instructions should state how an operator inputs emissions data for a storage tank that has a vapor recovery unit or where the vent gas is routed to a flare. Suggest that there be a way to account for a percent destruction and removal efficiency (DRE) for the emission control device used.
- 11. AIR EMISSIONS CALCULATIONS INSTRUCTIONS FOR DOCDs and PRA Statement. The instructions should state how an operator shows emissions data for a glycol dehydration unit that uses a condenser, vapor recovery unit or where the vent gas is routed to a flare. Suggest that there be a way to account for a percent destruction and removal efficiency (DRE) for the emission control device used.