

| Combined Buddy 1 Domindgo 1 and Buddy Domindgo Power Generation Facility | | | | | | | | | | | | | |
|---|-----------------------|--------------|-------------------------|-----------------------|--------------|--------------------------|-----------------------|----------------|----------------|---------------------|----------------|-----------------|---------------------|
| CONTROLLED TONS/YEAR (TPY) | NO_x | CO | PM_{tot} | SO₂ | VOC | HAP_{tot} | H₂S | Benzene | Toluene | Ethylbenzene | Xylenes | n-Hexane | Formaldehyde |
| HIGH-PRESSURE FLARE | 0.34 | 1.31 | 0.00 | 0.11 | 0.56 | 0.02 | n/a | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | |
| HEATER-TREATER(S) | 0.48 | 0.40 | 0.02 | 0.15 | 0.03 | 0.00 | 0.00 | | | | | | |
| OIL TANK(S) | | | | | 0.40 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | |
| WATER TANK(S) | | | | | 0.04 | 0.00 | 0.00 | | | | | | |
| LOW-PRESSURE COMBUSTOR | 0.10 | 0.35 | 0.00 | 0.00 | 0.47 | 0.01 | n/a | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | |
| TRUCK LOADING - OIL | | | | | 1.68 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | |
| TRUCK LOADING - WATER | | | | | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| ENGINE(S) (ALL at Buddy Domindgo Power Generation Facility) | 41.47 | 69.12 | 12.81 | 9.64 | 13.82 | 9.25 | | 1.04 | 0.37 | | | 0.00 | 1.38 |
| DEHY UNIT(S) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | |
| WELL WORKOVERS/BLOWDOWNS | | | | | 0.14 | 0.01 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | |
| COMPRESSORS BLOWDOWNS | | | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| MSS (General Maintenance, SU/SD) | | | | | 0.09 | 0.02 | | | | | | | |
| POINT SOURCE TOTALS (TPY) | 42.39 | 71.18 | 12.84 | 9.90 | 17.32 | 9.36 | 0.00 | 1.05 | 0.37 | 0.00 | 0.00 | 0.06 | 1.38 |
| FUGITIVE EQUIPMENT LEAKS | | | | | | 13.41 | 0.48 | 0.01 | 0.02 | 0.06 | 0.00 | 0.16 | 0.22 |
| PNEUMATIC EMISSIONS | | | | | | 0.34 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | |
| FUGITIVE DUST | | | 0.06 | | | | | | | | | | |
| FUGITIVE SOURCE TOTALS | 0.00 | 0.00 | 0.06 | 0.00 | 13.75 | 0.49 | 0.01 | 0.02 | 0.06 | 0.00 | 0.16 | 0.23 | 0.00 |
| SITE TOTAL WITH FUGITIVES (TPY) | 42.39 | 71.18 | 12.89 | 9.90 | 31.07 | 9.85 | 0.01 | 1.07 | 0.43 | 0.01 | 0.16 | 0.29 | 1.38 |

| | |
|-----------------------------------|------------------------------------|
| PERMITTED SITE NAME | Buddy 1 Domindgo 1 |
| HSE Site Number | |
| CONFIGURATION START DATE | |
| AUTH DATE, TYPE, & Number | |
| Facility 1 (Siteview Name) | Buddy 1 Domindgo 1 Facility |
| Facility 2 (Siteview Name) | |
| Facility 3 (Siteview Name) | |

| SITE Location | |
|-----------------------|-----------|
| Zip Code | |
| Nearest City | |
| County | Williams |
| Section | 27 |
| Township | 156N |
| Range | 099W |
| Qtr-Qtr | |
| Regulatory Field | East Fork |
| Field Specialist | Ty Hanson |
| Elevation (ft a.s.l.) | |
| Pad Size (acres) | |
| Latitude | 48.31289 |
| Longitude | -103.3954 |

| PROMAX RESULTS | <i>Buddy 1 Dmindgo 1 Faci</i> | 0 | 0 | <i>Units</i> |
|---|-------------------------------|-------|-------|--------------|
| Treater Gas Volume Flow | 20 | | | ft3/hr |
| Treater Gas Heat Value | 1,807.30 | | | Btu/ft3 |
| Treater Gas H ₂ S Flow | - | | | lb/hr |
| Treater Gas VOC Flow | 3.88 | | | Tons/yr |
| Treater Gas HAP Flow | 0.14 | | | Tons/yr |
| Treater Gas Benzene Flow | 0.01 | | | Tons/yr |
| Treater Gas Toluene Flow | 0.01 | | | Tons/yr |
| Treater Gas Ethylbenzene Flow | 0.00 | | | Tons/yr |
| Treater Gas Xylenes Flow | 0.01 | | | Tons/yr |
| Treater Gas n-Hexanes | 0.10 | | | Tons/yr |
| DGRT Gas Volume Flow | | | | ft3/hr |
| DGRT Gas Heat Value | | | | Btu/ft3 |
| DGRT Gas H ₂ S Flow | | | | lb/hr |
| DGRT Mass Flow | | | | Tons/yr |
| CO ₂ wt% | | | | percent |
| Nitrogen wt% | | | | percent |
| Methane wt% | | | | percent |
| Ethane wt% | | | | percent |
| Propane wt% | | | | percent |
| Butanes wt% | | | | percent |
| C5+ wt% | 100.00 | n/a | n/a | percent |
| DGRT Gas Molecular Weight | | | | lb/lb-Mol |
| DGRT Gas VOC Flow | | | | Tons/yr |
| DGRT Methane Flow | | | | Tons/yr |
| DGRT Gas HAP Flow | | | | Tons/yr |
| DGRT Gas Benzene Flow | | | | Tons/yr |
| DGRT Gas Toluene Flow | | | | Tons/yr |
| DGRT Gas Ethylbenzene Flow | | | | Tons/yr |
| DGRT Gas Xylenes Flow | | | | Tons/yr |
| DGRT Gas n-Hexane Flow | | | | Tons/yr |
| Oil Tanks Total VOC | 20.18 | | | Tons/yr |
| Oil Tanks Total HAP | 0.46 | | | Tons/yr |
| Oil Tanks Total Methane | 2.04 | | | Tons/yr |
| Oil Tanks Total Benzene | 0.04 | | | Tons/yr |
| Oil Tanks Total Toluene | 0.04 | | | Tons/yr |
| Oil Tanks Total Ethylbenzene | 0.01 | | | Tons/yr |
| Oil Tanks Total Xylenes | 0.02 | | | Tons/yr |
| Oil Tanks Total n-Hexane | 0.33 | | | Tons/yr |
| CO ₂ wt% | 0.76 | | | percent |
| Nitrogen wt% | 0.03 | | | percent |
| Methane wt% | 6.02 | | | percent |
| Ethane wt% | 33.08 | | | percent |
| Propane wt% | 30.47 | | | percent |
| Butanes wt% | 19.29 | | | percent |
| C5+ wt% | 10.36 | n/a | n/a | percent |
| Oil Tank Vapor Molecular Weight | 37.33 | | | lb/lb-Mol |
| Oil Tanks Flashing Loss H ₂ S Concentration | 0 | | | ppm |
| Oil Tanks Total H ₂ S | - | | | Tons/yr |
| Oil Tanks Total Vapor Volumetric Flow | 79 | | | ft3/hr |
| Oil Tanks Heat Content | 2,121.00 | | | Btu/ft3 |
| Oil API Gravity | 55.44 | | | |
| Oil True Vapor Pressure @ 100 F | 13.56 | | | psia |
| Oil Reid Vapor Pressure | 9.41 | | | psi |
| Oil Molecular Weight | 184.60 | | | lb/lb-Mol |
| H ₂ O Tanks Total VOC | 2.22 | | | Tons/yr |
| H ₂ O Tanks Total HAP | 0.13 | | | Tons/yr |
| H ₂ O Tanks Total Methane | 0.07 | | | Tons/yr |
| H ₂ O Tanks Total Benzene | 0.01 | | | Tons/yr |
| H ₂ O Tanks Total Toluene | 0.01 | | | Tons/yr |
| H ₂ O Tanks Total Ethylbenzene | 0.00 | | | Tons/yr |
| H ₂ O Tanks Total Xylenes | 0.01 | | | Tons/yr |
| H ₂ O Tanks Total n-Hexane | 0.09 | | | Tons/yr |
| H ₂ O Tanks Total H ₂ S | - | | | Tons/yr |
| H ₂ O Tanks Volumetric Flow Rate | 4.12 | | | ft3/hr |
| H ₂ O Tanks Emision Heat Content | 2,928.80 | | | Btu/ft3 |
| H ₂ O Tank Vapor Molecular Weight | 52.27 | | | lb/lb-mol |
| H ₂ O API Gravity | 10.00 | | | |
| H ₂ O True Vapor Pressure @ bulk liquid temp | 0.22 | #NUM! | #NUM! | psia |
| Skim Oil Layer Reid Vapor Pressure | 3.34 | | | psi |
| H ₂ O Reid Vapor Pressure | 1.07 | | | psi |
| H ₂ O Molecular Weight | 18.02 | | | lb/lb-Mol |

HIGH-PRESSURE GAS FLARING EMISSIONS

| Buddy 1 Dominggo 1 Facility | | | |
|---|-----------------|---|---|
| Emission Factors | | | |
| NO _x | 0.068 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| CO | 0.310 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| PM | 0.0 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| SO ₂ | 1.88 | TPY SO ₂ /TPY H ₂ S | All H2S is converted to SO2 (lbs SO2 = 64 (lb SO2/lb-mole)/34 (lb H2S/lb-mol) x lbs of H2S) |
| NO _x | 100.000 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| CO | 84.000 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| PM | 7.60 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| VOC | 5.50 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| SO ₂ | 0.60 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| UNIT ID | Cimmaron | | |
| Produced Gas Volume Flow | 39.07 | Mscfd | Production Inputs Tab |
| Produced Gas Volume Flow | 14.26 | MMscf/yr | = Mscfd * 365 (d/yr)/1000(Mscfd/MMscf) |
| Produced Gas Heat Value | 1,239.90 | Btu/lb | Production Inputs Tab |
| Produced Gas Heat Flow | 17,683.03 | MMBtu/yr | = MMscf/yr * Btu/lb |
| Produced Gas Molecular Weight | 21.54 | lb/lb-mol | Production Inputs Tab |
| Produced Gas Mass Flow | 809,689.35 | lb/yr | = 1,000,000 * (MMscf/yr)/379.4(13/lb-mol) * MW (lb/lb-mol) |
| Weight Percent VOC in Produced Gas | 13.38% | percent | Production Inputs Tab |
| VOC Mass Flow in Produced Gas | 54.17 | TPY | = lb/yr * % VOC / 2000 (lb/ton) |
| Weight Percent HAP in Produced Gas | 0.49% | percent | Production Inputs Tab |
| HAP Mass Flow in Produced Gas | 1.97 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Benzene in Produced Gas | 0.03% | percent | Production Inputs Tab |
| Benzene Mass Flow in Produced Gas | 0.12 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Toluene in Produced Gas | 0.03% | percent | Production Inputs Tab |
| Toluene Mass Flow in Produced Gas | 0.14 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Ethylbenzene in Produced Gas | 0.00% | percent | Production Inputs Tab |
| Ethylbenzene Mass Flow in Produced Gas | 0.02 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Xylenes in Produced Gas | 0.02% | percent | Production Inputs Tab |
| Xylenes Mass Flow in Produced Gas | 0.10 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent n-Hexane in Produced Gas | 0.39% | percent | Production Inputs Tab |
| n-Hexane Mass Flow in Produced Gas | 1.59 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Is gas treated for H2S? | No | - | Is gas treated for H2S? |
| If gas is treated for H2S, where: | n/a | - | Equipment Inputs Tab |
| H2S Concentration | 2.000 | ppmv | IF treated, max of P/L spec or gas sample. IF NOT treated, = pre-treatment ppm |
| Volume Flow of H2S | 852.33 | ft3/yr | = Gas Flow (MMscf/yr) * H2S ppm * 1,000,000 |
| H2S Mass Flow in Produced Gas | 0.128 | TPY | = H2S Flow (ft3/yr)/379.4 (13/lb-mol) * 34 lb H2S/lb-mol / 2000 (lb/ton) |
| Percent of Produced Gas to HP Flare | 44.11% | percent | Production Inputs Tab |
| Heat Flow to HP Flare | 7,799.912 | MMBtu/yr | = Amount in Produced Gas * % to HP Flare |
| VOC to HP Flare | 23.893 | TPY | = Amount in Produced Gas * % to HP Flare |
| HAP to HP Flare | 0.870 | TPY | = Amount in Produced Gas * % to HP Flare |
| Benzene to HP Flare | 0.054 | TPY | = Amount in Produced Gas * % to HP Flare |
| Toluene to HP Flare | 0.060 | TPY | = Amount in Produced Gas * % to HP Flare |
| Ethylbenzene to HP Flare | 0.007 | TPY | = Amount in Produced Gas * % to HP Flare |
| Xylenes to HP Flare | 0.046 | TPY | = Amount in Produced Gas * % to HP Flare |
| n-Hexane to HP Flare | 0.703 | TPY | = Amount in Produced Gas * % to HP Flare |
| H2S to HP Flare | 0.056 | TPY | = Amount in Produced Gas * % to HP Flare |
| Treater Gas that Flows Directly to Sales | 0% | percent | Equipment Inputs Tab |
| Remainder of Treater Gas Flows to HP Flare | n/a | percent | Equipment Inputs Tab |
| Treater Gas Volume Flow to HP Flare | 20.31 | ft3/hr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Heat Value | 1,807.30 | Btu/lb | Promax Inputs Tab |
| Treater Gas Heat Flow to HP Flare | 3,221.50 | MMBtu/yr | = ft3/hr * Btu/lb * 8760/hr / 1000000 |
| Treater Gas H ₂ O Flow to HP Flare | 0.00 | lb/hr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas H ₂ S Flow to HP Flare | 0.00 | lb/hr | = lb/yr * 8760/hr / 2000 (lb/ton) |
| Treater Gas VOC Flow to HP Flare | 3.88 | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas HAP Flow to HP Flare | 0.14 | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Benzene Flow to HP Flare | 0.01 | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Toluene Flow to HP Flare | 0.01 | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Ethylbenzene Flow to HP Flare | 0.00 | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Xylenes Flow to HP Flare | 0.01 | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas n-Hexane Flow to HP Flare | 0.10 | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Total Heat Flow to HP Flare | 8,121.41 | MMBtu/yr | =Flows from Separator + flows from Treater |
| Total VOC Flow to HP Flare | 27.78 | Tons/yr | =Flows from Separator + flows from Treater |
| Total HAP Flow to HP Flare | 1.01 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Benzene Flow to HP Flare | 0.06 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Toluene Flow to HP Flare | 0.07 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Ethylbenzene Flow to HP Flare | 0.01 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Xylenes Flow to HP Flare | 0.06 | Tons/yr | =Flows from Separator + flows from Treater |
| Total n-Hexane Flow to HP Flare | 0.80 | Tons/yr | =Flows from Separator + flows from Treater |
| Total H2S Flow to HP Flare | 0.06 | Tons/yr | =Flows from Separator + flows from Treater |
| HP Flare Destruction Efficiency | 98% | percent | Equipment Inputs Tab |
| HP Flare VOC Emissions | 0.56 | Tons/yr | =VOC Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare HAP Emissions | 0.02 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Benzene Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Toluene Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Ethylbenzene Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Xylenes Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare n-Hexane Emissions | 0.02 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare NO _x Emissions | 0.28 | Tons/yr | =Heat flow to Combustor (MMBtu/yr) * Emission Factor (lb/MMBtu)/2000 (lb/ton) |
| HP Flare CO Emissions | 1.26 | Tons/yr | =Heat flow to Combustor (MMBtu/yr) * Emission Factor (lb/MMBtu)/2000 (lb/ton) |
| HP Flare PM Emissions | 0.00 | Tons/yr | =Heat flow to Combustor (MMBtu/yr) * Emission Factor (lb/MMBtu)/2000 (lb/ton) |
| HP Flare SO ₂ Emissions | 0.11 | Tons/yr | =H2S Flow to Combustor (tons/yr) * Emission Factor (TPY SO2/TPY H2S) |
| Pilot Gas Flow | 140.00 | ft3/hr | Equipment Inputs Tab |
| Pilot VOC | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot NO _x | 0.06 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot CO | 0.05 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot PM | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot SO ₂ | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Total VOC Exhaust | 0.56 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total HAP Exhaust | 0.02 | lb/hr | =TPV * 2000/8760 |
| Total HAP Exhaust | 0.00 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total NO _x Exhaust | 0.81 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total CO Exhaust | 1.31 | Tons/yr | =Combustor Emissions + Pilot Emissions |
| Total PM Exhaust | 0.30 | lb/hr | =TPV * 2000/8760 |
| Total PM Exhaust | 0.00 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total SO ₂ Exhaust | 0.31 | Tons/yr | =TPV * 2000/8760 |
| Total SO ₂ Exhaust | 0.02 | lb/hr | =Combustor Emissions + Pilot Emissions |

| 0 | | | |
|---|---------------|---|---|
| Emission Factors | | | |
| NO _x | 0.068 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| CO | 0.310 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| PM | 0.0 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| SO ₂ | 1.88 | TPY SO ₂ /TPY H ₂ S | All H2S is converted to SO2 (lbs SO2 = 64 (lb SO2/lb-mole)/34 (lb H2S/lb-mol) x lbs of H2S) |
| NO _x | 100.000 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| CO | 84.000 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| PM | 7.60 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| VOC | 5.50 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| SO ₂ | 0.60 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| UNIT ID | shared | | |
| Produced Gas Volume Flow | 0.00 | Mscfd | Production Inputs Tab |
| Produced Gas Volume Flow | 0.00 | MMscf/yr | = Mscfd * 365 (d/yr)/1000(Mscfd/MMscf) |
| Produced Gas Heat Value | 0.00 | Btu/lb | Production Inputs Tab |
| Produced Gas Heat Flow | 0.00 | MMBtu/yr | = MMscf/yr * Btu/lb |
| Produced Gas Molecular Weight | 0.00 | lb/lb-mol | Production Inputs Tab |
| Produced Gas Mass Flow | 0.00 | lb/yr | = 1,000,000 * (MMscf/yr)/379.4(13/lb-mol) * MW (lb/lb-mol) |
| Weight Percent VOC in Produced Gas | 0.00% | percent | Production Inputs Tab |
| VOC Mass in Produced Gas | 0.00 | TPY | = lb/yr * % VOC / 2000 (lb/ton) |
| Weight Percent HAP in Produced Gas | 0.00% | percent | Production Inputs Tab |
| HAP Mass in Produced Gas | 0.00 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Benzene in Produced Gas | 0.00% | percent | Production Inputs Tab |
| Benzene Mass Flow in Produced Gas | 0.00 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Toluene in Produced Gas | 0.00% | percent | Production Inputs Tab |
| Toluene Mass Flow in Produced Gas | 0.00 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Ethylbenzene in Produced Gas | 0.00% | percent | Production Inputs Tab |
| Ethylbenzene Mass Flow in Produced Gas | 0.00 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent Xylenes in Produced Gas | 0.00% | percent | Production Inputs Tab |
| Xylenes Mass Flow in Produced Gas | 0.00 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Weight Percent n-Hexane in Produced Gas | 0.00% | percent | Production Inputs Tab |
| n-Hexane Mass Flow in Produced Gas | 0.00 | TPY | = lb/yr * % HAP / 2000 (lb/ton) |
| Is gas treated for H2S? | No | - | Is gas treated for H2S? |
| If gas is treated for H2S, where: | n/a | - | Equipment Inputs Tab |
| H2S Concentration | 0.00 | ppmv | IF treated, max of P/L spec or gas sample. IF NOT treated, = pre-treatment ppm |
| Volume Flow of H2S | 0.00 | ft3/yr | = Gas Flow (MMscf/yr) * H2S ppm * 1,000,000 |
| H2S Mass Flow in Produced Gas | 0.00 | TPY | = H2S Flow (ft3/yr)/379.4 (13/lb-mol) * 34 lb H2S/lb-mol / 2000 (lb/ton) |
| Percent of Produced Gas to HP Flare | 9.99% | percent | Production Inputs Tab |
| Heat Flow to HP Flare | 0.000 | MMBtu/yr | = Amount in Produced Gas * % to HP Flare |
| VOC to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| HAP to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| Benzene to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| Toluene to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| Ethylbenzene to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| Xylenes to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| n-Hexane to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| H2S to HP Flare | 0.000 | TPY | = Amount in Produced Gas * % to HP Flare |
| Treater Gas that Flows Directly to Sales | 0% | percent | Equipment Inputs Tab |
| Remainder of Treater Gas Flows to HP Flare | n/a | percent | Equipment Inputs Tab |
| Treater Gas Volume Flow to HP Flare | n/a | ft3/hr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Heat Value | 0.00 | Btu/lb | Promax Inputs Tab |
| Treater Gas Heat Flow to HP Flare | n/a | MMBtu/yr | =ft3/hr * Btu/lb * 8760/hr / 1000000 |
| Treater Gas H ₂ O Flow to HP Flare | n/a | lb/hr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas H ₂ S Flow to HP Flare | n/a | lb/hr | = lb/yr * 8760/hr / 2000 (lb/ton) |
| Treater Gas VOC Flow to HP Flare | n/a | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas HAP Flow to HP Flare | n/a | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Benzene Flow to HP Flare | n/a | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Toluene Flow to HP Flare | n/a | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Ethylbenzene Flow to HP Flare | n/a | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas Xylenes Flow to HP Flare | n/a | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Treater Gas n-Hexane Flow to HP Flare | n/a | Tons/yr | Promax Inputs Tab * (1 - percent to sales) |
| Total Heat Flow to HP Flare | 0.00 | MMBtu/yr | =Flows from Separator + flows from Treater |
| Total VOC Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| Total HAP Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Benzene Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Toluene Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Ethylbenzene Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| Total Xylenes Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| Total n-Hexane Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| Total H2S Flow to HP Flare | 0.00 | Tons/yr | =Flows from Separator + flows from Treater |
| HP Flare Destruction Efficiency | 98% | percent | Equipment Inputs Tab |
| HP Flare VOC Emissions | 0.00 | Tons/yr | =VOC Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare HAP Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Benzene Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Toluene Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Ethylbenzene Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare Xylenes Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare n-Hexane Emissions | 0.00 | Tons/yr | =HAP Flow to Combustor (tons/yr) * (1 - Combustor Destruction Efficiency) |
| HP Flare NO _x Emissions | 0.00 | Tons/yr | =Heat flow to Combustor (MMBtu/yr) * Emission Factor (lb/MMBtu)/2000 (lb/ton) |
| HP Flare CO Emissions | 0.00 | Tons/yr | =Heat flow to Combustor (MMBtu/yr) * Emission Factor (lb/MMBtu)/2000 (lb/ton) |
| HP Flare PM Emissions | 0.00 | Tons/yr | =Heat flow to Combustor (MMBtu/yr) * Emission Factor (lb/MMBtu)/2000 (lb/ton) |
| HP Flare SO ₂ Emissions | 0.00 | Tons/yr | =H2S Flow to Combustor (tons/yr) * Emission Factor (TPY SO2/TPY H2S) |
| Pilot Gas Flow | 0.00 | ft3/hr | Equipment Inputs Tab, or "0" if HP Flare is shared and pilot already accounted for |
| Pilot VOC | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot NO _x | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot CO | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot PM | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Pilot SO ₂ | 0.00 | Tons/yr | =pilot flow (ft3/hr) * 8760 (hr/yr) / 1000000 * Emission Factor (lb/MMBtu) / 2000 (lb/ton) |
| Total VOC Exhaust | 0.00 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total HAP Exhaust | 0.00 | lb/hr | =TPV * 2000/8760 |
| Total HAP Exhaust | 0.00 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total NO _x Exhaust | 0.00 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total CO Exhaust | 0.00 | Tons/yr | =Combustor Emissions + Pilot Emissions |
| Total PM Exhaust | 0.00 | lb/hr | =TPV * 2000/8760 |
| Total PM Exhaust | 0.00 | lb/hr | =Combustor Emissions + Pilot Emissions |
| Total SO ₂ Exhaust | 0.00 | Tons/yr | =TPV * 2000/8760 |
| Total SO ₂ Exhaust | 0.00 | lb/hr | =Combustor Emissions + Pilot Emissions |

| 0 | | | |
|--------------------------|---------------|---|---|
| Emission Factors | | | |
| NO _x | 0.068 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| CO | 0.310 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| PM | 0.0 | lb/MMBtu | AP-42, Table 13.5, for smokeless elevated flares |
| SO ₂ | 1.88 | TPY SO ₂ /TPY H ₂ S | All H2S is converted to SO2 (lbs SO2 = 64 (lb SO2/lb-mole)/34 (lb H2S/lb-mol) x lbs of H2S) |
| NO _x | 100.000 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| CO | 84.000 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| PM | 7.60 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| VOC | 5.50 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| SO ₂ | 0.60 | lb/MMscf | AP-42, Section 1.4, Small Boilers (pilot gas combustion) |
| UNIT ID | shared | | |
| Produced Gas Volume Flow | 0.00 | Mscfd | Production Inputs Tab |

OIL STORAGE TANKS

| Buddy 1 Domicgo 1 Facility - Emissions flow to | | | Combustor |
|--|------------|----------|---|
| Number Oil Storage Tanks | 6 | # | Equipment Inputs Tab |
| Oil Tank Size | 400 | bbbl | Equipment Inputs Tab |
| Total Oil Throughput (all tanks) | 77.38 | bbbl/day | Production Inputs Tab |
| Emission Rate (volumetric flow) | 78.79 | ft3/hr | Promax Inputs Tab |
| Heat Content of Emission Stream | 2,121.00 | Btu/ft3 | Promax Inputs Tab |
| Oil Tank Capture Efficiency | 98% | % | Equipment Inputs Tab |
| Combustor Destruction Efficiency | 98% | % | Equipment Inputs Tab |
| Total VOC Flow (all tanks) | 20.18 | Tons/yr | Promax Inputs Tab |
| Total Methane Flow (all tanks) | 2.04 | Tons/yr | Promax Inputs Tab |
| Total HAP Flow (all tanks) | 0.46 | Tons/yr | Promax Inputs Tab |
| Total Benzene Flow (all tanks) | 0.04 | Tons/yr | Promax Inputs Tab |
| Total Toluene Flow (all tanks) | 0.04 | Tons/yr | Promax Inputs Tab |
| Total Ethylbenzene Flow (all tanks) | 0.01 | Tons/yr | Promax Inputs Tab |
| Total Xylenes Flow (all tanks) | 0.02 | Tons/yr | Promax Inputs Tab |
| Total n-Hexane Flow (all tanks) | 0.33 | Tons/yr | Promax Inputs Tab |
| Total H2S Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Uncaptured/Uncontrolled VOC Emissions | 0.40 | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled HAP Emissions | 0.01 | Tons/yr | =Total HAP Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Benzene Emissions | 0.00 | Tons/yr | =Total Benzene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Toluene Emissions | 0.00 | Tons/yr | =Total Toluene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Ethylbenzene Emissions | 0.00 | Tons/yr | =Total Ethylbenzene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Xylenes Emissions | 0.00 | Tons/yr | =Total Xylenes Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled n-Hexanes Emissions | 0.01 | Tons/yr | =Total n-Hexane Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled H2S Emissions | - | Tons/yr | =Total H2S Flow * (1 - Capture Efficiency) |
| Total Gas Flow to Combustor | 676,353.47 | ft3/yr | = Volumetric flow * Capture Efficiency |
| Total Heat Flow to Combustor | 1,434.55 | MMBtu/yr | =ft3/yr*heat content (Btu/ft3)/1000000 |
| Total VOC Flow to Combustor | 19.78 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total HAP Flow to Combustor | 0.45 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Benzene Flow to Combustor | 0.04 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Toluene Flow to Combustor | 0.03 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Ethylbenzene Flow to Combustor | 0.01 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Xylenes Flow to Combustor | 0.02 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total nHexane Flow to Combustor | 0.32 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total H2S Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| 0000b Tank Analysis | | | |
| Combustor VOC Emissions from All Tanks | 0.40 | Tons/yr | =VOC Flow to Combustor * (1 - Combustor Destruction Efficiency) |
| Total VOC Emissions from All Tanks | 0.89 | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total Methane Emissions from all Tanks | 0.0808924 | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total VOC Emissions per Tank | 0.13 | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |

| 0 - Emissions flow to | | | atm vent |
|--|---------|----------|---|
| Number Oil Storage Tanks | - | # | Equipment Inputs Tab |
| Oil Tank Size | - | bbbl | Equipment Inputs Tab |
| Total Oil Throughput (all tanks) | - | bbbl/day | Production Inputs Tab |
| Emission Rate (volumetric flow) | n/a | ft3/hr | Promax Inputs Tab |
| Heat Content of Emission Stream | - | Btu/ft3 | Promax Inputs Tab |
| Oil Tank Capture Efficiency | 0% | % | Equipment Inputs Tab |
| Combustor Destruction Efficiency | 98% | % | Equipment Inputs Tab |
| Total VOC Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Methane Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total HAP Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Benzene Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Toluene Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Ethylbenzene Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Xylenes Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total n-Hexane Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total H2S Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Uncaptured/Uncontrolled VOC Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled HAP Emissions | - | Tons/yr | =Total HAP Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Benzene Emissions | - | Tons/yr | =Total Benzene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Toluene Emissions | - | Tons/yr | =Total Toluene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Ethylbenzene Emissions | - | Tons/yr | =Total Ethylbenzene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Xylenes Emissions | - | Tons/yr | =Total Xylenes Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled n-Hexanes Emissions | - | Tons/yr | =Total n-Hexane Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled H2S Emissions | - | Tons/yr | =Total H2S Flow * (1 - Capture Efficiency) |
| Total Gas Flow to Combustor | 0.00 | ft3/yr | = Volumetric flow * Capture Efficiency |
| Total Heat Flow to Combustor | 0.00 | MMBtu/yr | =ft3/yr*heat content (Btu/ft3)/1000000 |
| Total VOC Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total HAP Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Benzene Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Toluene Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Ethylbenzene Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Xylenes Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total nHexane Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total H2S Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| 0000a Tank Analysis | | | |
| Combustor VOC Emissions from All Tanks | 0.00 | Tons/yr | =VOC Flow to Combustor * (1 - Combustor Destruction Efficiency) |
| Total VOC Emissions from All Tanks | - | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total Methane Emissions from all Tanks | 0 | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total VOC Emissions per Tank | #DIV/0! | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |

| 0 - Emissions flow to | | | atm vent |
|--|---------|----------|---|
| Number Oil Storage Tanks | - | # | Equipment Inputs Tab |
| Oil Tank Size | - | bbbl | Equipment Inputs Tab |
| Total Oil Throughput (all tanks) | - | bbbl/day | Production Inputs Tab |
| Emission Rate (volumetric flow) | n/a | ft3/yr | Promax Inputs Tab |
| Heat Content of Emission Stream | - | Btu/ft3 | Promax Inputs Tab |
| Oil Tank Capture Efficiency | 0% | % | Equipment Inputs Tab |
| Combustor Destruction Efficiency | 98% | % | Equipment Inputs Tab |
| Total VOC Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Methane Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total HAP Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Benzene Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Toluene Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Ethylbenzene Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total Xylenes Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total n-Hexane Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Total H2S Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Uncaptured/Uncontrolled VOC Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled HAP Emissions | - | Tons/yr | =Total HAP Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Benzene Emissions | - | Tons/yr | =Total Benzene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Toluene Emissions | - | Tons/yr | =Total Toluene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Ethylbenzene Emissions | - | Tons/yr | =Total Ethylbenzene Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled Xylenes Emissions | - | Tons/yr | =Total Xylenes Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled n-Hexanes Emissions | - | Tons/yr | =Total n-Hexane Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled H2S Emissions | - | Tons/yr | =Total H2S Flow * (1 - Capture Efficiency) |
| Total Gas Flow to Combustor | 0.00 | ft3/yr | = Volumetric flow * Capture Efficiency |
| Total Heat Flow to Combustor | 0.00 | MMBtu/yr | =ft3/yr*heat content (Btu/ft3)/1000000 |
| Total VOC Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total HAP Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Benzene Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Toluene Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Ethylbenzene Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total Xylenes Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total nHexane Flow to Combustor | n/a | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| Total H2S Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPY) * Capture Efficiency |
| 0000a Tank Analysis | | | |
| Combustor VOC Emissions from All Tanks | 0.00 | Tons/yr | =VOC Flow to Combustor * (1 - Combustor Destruction Efficiency) |
| Total VOC Emissions from All Tanks | - | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total Methane Emissions from all Tanks | 0 | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total VOC Emissions per Tank | #DIV/0! | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |

PRODUCED WATER STORAGE TANKS

| Buddy 1 Domicgo 1 Facility - Emissions flow to Combustor | | | |
|--|-----------|------------------|---|
| Number H2O Storage Tanks | 3 | # | Equipment Inputs Tab |
| H2O Tank Size | 400 | bbl | Equipment Inputs Tab |
| Total H2O Throughput (all tanks) | 54.05 | bbl/day | Production Inputs Tab |
| Volumetric Flow Rate of Emissions | 4.12 | ft3/hr | Promax Inputs Tab |
| Heat Content of Emissions | 2,928.80 | Btu/ft3 | Promax Inputs Tab |
| H2O Tank Capture Efficiency | 98% | % | Equipment Inputs Tab |
| Combustor Destruction Efficiency | 98% | % | Equipment Inputs Tab |
| Total VOC Flow (all tanks) | 2.22 | Tons/yr | Promax Inputs Tab |
| Total MethaneFlow (all tanks) | 0.07 | Tons/yr | Promax Inputs Tab |
| Total HAP Flow (all tanks) | 0.13 | Tons/yr | Promax Inputs Tab |
| Total H2S Flow (all tanks) | - | Tons/yr | Promax Inputs Tab |
| Uncaptured/Uncontrolled VOC Emissions | 0.04 | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled HAP Emissions | 0.00 | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled H2S Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Total Gas Flow to Combustor | 35,377.96 | ft3/yr | =Volumetric Flow * (1 - Capture Efficiency) |
| Total Heat Flow to Combustor | 103.61 | MMBtu/yr | =ft3/yr*heat content (Btu/ft3)/1000000 |
| Total VOC Flow to Combustor | 2.17 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| Total HAP Flow to Combustor | 0.13 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| Total H2S Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| OOOo Tank Analysis | | | |
| Combustor VOC Emissions from All Tanks | 0.04 | Tons/yr | =VOC Flow to Combustor * (1 - Combustor Destruction Efficiency) |
| Total VOC Emissions from All Tanks | 0.09 | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total Methane Emissions from All Tanks | 0.002574 | Tons/yr per tank | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total VOC Emissions per Tank | 0.03 | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |

| 0 - Emissions flow to atm vent | | | |
|--|---------|------------------|---|
| Number H2O Storage Tanks | - | # | Equipment Inputs Tab |
| H2O Tank Size | - | bbl | Equipment Inputs Tab |
| Total H2O Throughput (all tanks) | - | bbl/day | Production Inputs Tab |
| Volumetric Flow Rate of Emissions | n/a | ft3/hr | =TPV * 2000 lb/ton * 379.4 scf/lb-mol / Molecular Wt. lb/lb-mol |
| Heat Content of Emissions | - | Btu/ft3 | Promax Inputs Tab |
| H2O Tank Capture Efficiency | 0% | % | Equipment Inputs Tab |
| Combustor Destruction Efficiency | 98% | % | Equipment Inputs Tab |
| Total VOC Flow (all tanks) | - | Tons/yr | =flashing loss + working & breathing loss |
| Total MethaneFlow (all tanks) | - | Tons/yr | =flashing loss + working & breathing loss |
| Total HAP Flow (all tanks) | - | Tons/yr | =flashing loss + working & breathing loss |
| Total H2S Flow (all tanks) | - | Tons/yr | =flashing loss |
| Uncaptured/Uncontrolled VOC Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled HAP Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled H2S Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Total Gas Flow to Combustor | 0.00 | ft3/yr | =flashing + working&breathing * (1 - Capture Efficiency) |
| Total Heat Flow to Combustor | 0.00 | MMBtu/yr | =ft3/yr*heat content (Btu/ft3)/1000000 |
| Total VOC Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| Total HAP Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| Total H2S Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| OOOo Tank Analysis | | | |
| Combustor VOC Emissions from All Tanks | 0.00 | Tons/yr | =VOC Flow to Combustor * (1 - Combustor Destruction Efficiency) |
| Total VOC Emissions from All Tanks | - | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total Methane Emissions from All Tanks | 0 | Tons/yr per tank | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total VOC Emissions per Tank | #DIV/0! | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |

| 0 - Emissions flow to atm vent | | | |
|--|---------|------------------|---|
| Number H2O Storage Tanks | - | # | Equipment Inputs Tab |
| H2O Tank Size | - | bbl | Equipment Inputs Tab |
| Total H2O Throughput (all tanks) | - | bbl/day | Production Inputs Tab |
| Volumetric Flow Rate of Emissions | n/a | ft3/hr | =TPV * 2000 lb/ton * 379.4 scf/lb-mol / Molecular Wt. lb/lb-mol |
| Heat Content of Emissions | - | Btu/ft3 | Promax Inputs Tab |
| H2O Tank Capture Efficiency | 0% | % | Equipment Inputs Tab |
| Combustor Destruction Efficiency | 98% | % | Equipment Inputs Tab |
| Total VOC Flow (all tanks) | - | Tons/yr | =flashing loss + working & breathing loss |
| Total MethaneFlow (all tanks) | - | Tons/yr | =flashing loss + working & breathing loss |
| Total HAP Flow (all tanks) | - | Tons/yr | =flashing loss + working & breathing loss |
| Total H2S Flow (all tanks) | - | Tons/yr | =flashing loss |
| Uncaptured/Uncontrolled VOC Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled HAP Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Uncaptured/Uncontrolled H2S Emissions | - | Tons/yr | =Total VOC Flow * (1 - Capture Efficiency) |
| Total Gas Flow to Combustor | 0.00 | ft3/yr | =flashing + working&breathing * (1 - Capture Efficiency) |
| Total Heat Flow to Combustor | 0.00 | MMBtu/yr | =ft3/yr*heat content (Btu/ft3)/1000000 |
| Total VOC Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| Total HAP Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| Total H2S Flow to Combustor | 0.00 | Tons/yr | =Total Flow (TPV) * Capture Efficiency |
| OOOo Tank Analysis | | | |
| Combustor VOC Emissions from All Tanks | 0.00 | Tons/yr | =VOC Flow to Combustor * (1 - Combustor Destruction Efficiency) |
| Total VOC Emissions from All Tanks | - | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total Methane Emissions from All Tanks | 0 | Tons/yr per tank | =Uncaptured/Uncontrolled + Combustor Emissions |
| Total VOC Emissions per Tank | #DIV/0! | Tons/yr | =Uncaptured/Uncontrolled + Combustor Emissions |

COMBUSTION ENGINE EMISSIONS

| Unit Number | | | 0 | | | Unit Number | | | 0 | | | | | | | | | | | | | | |
|--|-------|-------|------------------------------|-------------------------------|----------|----------------------|--------|------------------------------|---------------------------|----------|-------|--|------------------------------|-----------|----------------------|-------|-------|--|--|--|--|--|--|
| Operating Time/Year (hrs) | | | 8760 | | | Equipment Inputs Tab | | | Operating Time/Year (hrs) | | | 8760 | | | Equipment Inputs Tab | | | | | | | | |
| Make | | | Waukesha | | | Equipment Inputs Tab | | | Make | | | Waukesha | | | Equipment Inputs Tab | | | | | | | | |
| Model | | | VHP-P9394GSI S5 | | | Equipment Inputs Tab | | | Model | | | VHP-P9394GSI S5 | | | Equipment Inputs Tab | | | | | | | | |
| Rated Hp | | | 2386 | | | Equipment Inputs Tab | | | Rated Hp | | | 2386 | | | Equipment Inputs Tab | | | | | | | | |
| Emission Control(s) | | | AFR & Catalyst | | | Equipment Inputs Tab | | | Emission Control(s) | | | AFR & Catalyst | | | Equipment Inputs Tab | | | | | | | | |
| Combustion Type | | | 4SRB - Natural Gas | | | Equipment Inputs Tab | | | Combustion Type | | | 4SRB - Natural Gas | | | Equipment Inputs Tab | | | | | | | | |
| COMBUSTION EMISSION CALCULATIONS | | | | | | | | | | | | COMBUSTION EMISSION CALCULATIONS | | | | | | | | | | | |
| Pollutant | | TOTAL | | Emission Factors ¹ | | Emissions | | Pollutant | | TOTAL | | Emission Factors ¹ | | Emissions | | | | | | | | | |
| | | | | | | (lb/hr) | (T/yr) | | | | | | | (lb/hr) | (T/yr) | | | | | | | | |
| NO _x | 41.47 | TPY | NO _x ¹ | 0.300 | g/bHp-hr | 1.58 | 6.91 | NO _x ¹ | 0.300 | g/bHp-hr | 1.58 | 6.91 | NO _x ¹ | 0.300 | g/bHp-hr | 1.58 | 6.91 | | | | | | |
| CO | 69.12 | TPY | CO ¹ | 0.500 | g/bHp-hr | 2.63 | 11.52 | CO ¹ | 0.500 | g/bHp-hr | 2.63 | 11.52 | CO ¹ | 0.500 | g/bHp-hr | 2.63 | 11.52 | | | | | | |
| VOC | 13.82 | TPY | VOC ¹ | 0.100 | g/bHp-hr | 0.526 | 2.30 | VOC ¹ | 0.100 | g/bHp-hr | 0.526 | 2.30 | VOC ¹ | 0.100 | g/bHp-hr | 0.526 | 2.30 | | | | | | |
| Acetaldehyde | 1.84 | TPY | Acetaldehyde ² | 1.33E-02 | g/bHp-hr | 0.070 | 0.31 | Acetaldehyde ² | 1.33E-02 | g/bHp-hr | 0.070 | 0.31 | Acetaldehyde ² | 1.33E-02 | g/bHp-hr | 0.070 | 0.31 | | | | | | |
| Acrolein | 1.74 | TPY | Acrolein ² | 1.26E-02 | g/bHp-hr | 0.066 | 0.29 | Acrolein ² | 1.26E-02 | g/bHp-hr | 0.066 | 0.29 | Acrolein ² | 1.26E-02 | g/bHp-hr | 0.066 | 0.29 | | | | | | |
| Formaldehyde | 1.38 | TPY | Formaldehyde ² | 1.00E-02 | g/bHp-hr | 0.053 | 0.23 | Formaldehyde ² | 1.00E-02 | g/bHp-hr | 0.053 | 0.23 | Formaldehyde ² | 1.00E-02 | g/bHp-hr | 0.053 | 0.23 | | | | | | |
| Methanol | 2.02 | TPY | Methanol ² | 1.46E-02 | g/bHp-hr | 0.077 | 0.34 | Methanol ² | 1.46E-02 | g/bHp-hr | 0.077 | 0.34 | Methanol ² | 1.46E-02 | g/bHp-hr | 0.077 | 0.34 | | | | | | |
| n-Hexane | 0.00 | TPY | n-Hexane ² | 0.00E+00 | g/bHp-hr | 0.000 | 0.00 | n-Hexane ² | 0.00E+00 | g/bHp-hr | 0.000 | 0.00 | n-Hexane ² | 0.00E+00 | g/bHp-hr | 0.000 | 0.00 | | | | | | |
| Benzene | 1.04 | TPY | Benzene ² | 7.54E-03 | g/bHp-hr | 0.040 | 0.17 | Benzene ² | 7.54E-03 | g/bHp-hr | 0.040 | 0.17 | Benzene ² | 7.54E-03 | g/bHp-hr | 0.040 | 0.17 | | | | | | |
| Toluene | 0.37 | TPY | Toluene ² | 2.66E-03 | g/bHp-hr | 0.014 | 0.06 | Toluene ² | 2.66E-03 | g/bHp-hr | 0.014 | 0.06 | Toluene ² | 2.66E-03 | g/bHp-hr | 0.014 | 0.06 | | | | | | |
| Total HAPS | 9.25 | TPY | Total HAPS ² | 6.69E-02 | g/bHp-hr | 0.352 | 1.54 | Total HAPS ² | 6.69E-02 | g/bHp-hr | 0.352 | 1.54 | Total HAPS ² | 6.69E-02 | g/bHp-hr | 0.352 | 1.54 | | | | | | |
| SO ₂ | 0.49 | TPY | SO ₂ ² | 3.52E-03 | g/bHp-hr | 0.018 | 0.08 | SO ₂ ² | 3.52E-03 | g/bHp-hr | 0.018 | 0.08 | SO ₂ ² | 3.52E-03 | g/bHp-hr | 0.018 | 0.08 | | | | | | |
| PM | 12.81 | TPY | PM ² | 9.27E-02 | g/bHp-hr | 0.487 | 2.13 | PM ² | 9.27E-02 | g/bHp-hr | 0.487 | 2.13 | PM ² | 9.27E-02 | g/bHp-hr | 0.487 | 2.13 | | | | | | |
| NOTE 1 Vendor Spec | | | | | | | | | | | | NOTE 1 Vendor Spec | | | | | | | | | | | |
| NOTE 2 HAP, PM, & SO ₂ Emission factors from AP-42 (reference tables below) | | | | | | | | | | | | NOTE 2 HAP, PM, & SO ₂ Emission factors from AP-42 (reference tables below) | | | | | | | | | | | |

| Pollutant | TOTAL |
|-----------------|-----------|
| NO _x | 41.47 TPY |
| CO | 69.12 TPY |
| VOC | 13.82 TPY |
| Acetaldehyde | 1.84 TPY |
| Acrolein | 1.74 TPY |
| Formaldehyde | 1.38 TPY |
| Methanol | 2.02 TPY |
| n-Hexane | 0.00 TPY |
| Benzene | 1.04 TPY |
| Toluene | 0.37 TPY |
| Total HAPS | 9.25 TPY |
| SO ₂ | 0.49 TPY |
| PM | 12.81 TPY |

| Pollutant | TOTAL |
|-----------------|-------------|
| NO _x | 9.47 lb/hr |
| CO | 15.78 lb/hr |
| VOC | 3.16 lb/hr |
| Acetaldehyde | 0.42 lb/hr |
| Acrolein | 0.40 lb/hr |
| Formaldehyde | 0.32 lb/hr |
| Methanol | 0.46 lb/hr |
| n-Hexane | 0.00 lb/hr |
| Benzene | 0.24 lb/hr |
| Toluene | 0.08 lb/hr |
| Total HAPS | 2.11 lb/hr |
| SO ₂ | 0.11 lb/hr |
| PM | 2.92 lb/hr |

| AP-42 Chapter 3 | Table 3.2-2. 4-STROKE LEAN-BURN ENGINES | | Table 3.2-3. 4-STROKE RICH-BURN ENGINES | | Fuel input |
|---|---|----------|---|----------|------------|
| Pollutant | (lb/MMBTU) (Fuel Input) | g/bHP-hr | (lb/MMBTU) (Fuel Input) | g/bHP-hr | |
| NO _x | 4.08 | 1.95E+01 | 2.27 | 1.08E+01 | BTU/hp-hr |
| CO | 0.557 | 2.66E+00 | 3.72 | 1.78E+01 | 10,525 |
| VOC | 0.118 | 5.63E-01 | 2.96E-02 | 1.41E-01 | |
| Acetaldehyde | 8.36E-03 | 3.99E-02 | 2.79E-03 | 1.33E-02 | |
| Acrolein | 5.14E-03 | 2.45E-02 | 2.63E-03 | 1.26E-02 | |
| Formaldehyde | 5.28E-02 | 2.52E-01 | 2.05E-02 | 9.79E-02 | |
| Methanol | 2.50E-03 | 1.19E-02 | 3.06E-03 | 1.46E-02 | |
| n-Hexane | 1.11E-03 | 5.30E-03 | 0.00E+00 | 0.00E+00 | |
| Benzene | 4.40E-04 | 2.10E-03 | 1.58E-03 | 7.54E-03 | |
| Toluene | 4.08E-04 | 1.95E-03 | 5.58E-04 | 2.66E-03 | |
| Total HAPS | 7.22E-02 | 3.45E-01 | 3.24E-02 | 1.55E-01 | |
| SO ₂ (AP-42 average sulfur) | 5.88E-04 | 2.81E-03 | 5.88E-04 | 2.81E-03 | |
| PM (filterable + condensable) | 9.99E-03 | 4.77E-02 | 1.94E-02 | 9.27E-02 | |
| Site Specific Fuel Gas Sulfur Adjustment | | | | | |
| On-site fuel gas H2S | 4 | ppm | 4 | ppm | |
| On-site fuel gas H2S | 2.51E+03 | gr/MMscf | 2.51E+03 | gr/MMscf | |
| SO ₂ (adjusted for actual H2S) | 7.37E-04 | 3.52E-03 | 7.37E-04 | 3.52E-03 | |

2,544 Btu/hp-hr
24% mech. Efficiency

IF treated, max of P/L spec or gas sample. IF NOT treated, = pre-treatment ppm
=(ppm/15.967) * 10,000
sulfur adjustment = lb/MMBtu * (site specific gr/MMft3 / 2000 gr/MMft3)

WELL WORKOVER AND LIQUID UNLOADING

Basis is Eq. W-8 from 40 CFR Part 98 Subpart W w/HR_{p,q} = 1 (hours well left open to atm during unloading events = 1)

| Buddy 1 Domindgo 1 | | | |
|---|--------|---------------|---|
| | | Units | Reference |
| Total Well Workover/Blowdown Volume (all wells combined) | 36,680 | scf/blowdowns | Production Inputs Tab (volume to blowdown/unload all wells, one time each) |
| Gas Molecular Weight | 22 | lb/lb-mole | Average from production inputs tab |
| Total mass from blowdown of all wells combined (one time for each well) | 1.04 | TPY/blowdowns | = (scf/blowdowns/379.4(ft ³ /lb-mol)) * MW (lb/lb-mol)/2000 (lb/ton) |
| Heat Content | 1,240 | Btu/scf | Average from producton inputs tab |
| Weight % VOC | 13.38% | percent | Average from producton inputs tab |
| Weight % HAP | 0.49% | percent | Average from producton inputs tab |
| Weight % Benzene | 0.03% | percent | Average from producton inputs tab |
| Weight % Toluene | 0.03% | percent | Average from producton inputs tab |
| Weight % Ethylbenzene | 0.00% | percent | Average from producton inputs tab |
| Weight % Xylenes | 0.03% | percent | Average from producton inputs tab |
| Weight % n-Hexane | 0.39% | percent | Average from producton inputs tab |
| Weight % H2S | 0.01% | percent | Average from producton inputs tab |
| Emissions from Well Venting/Blowdowns to Atmosheree | | | |
| Number of times each well is blown down/vented to atmosphere per year | 1 | # | Production Inputs Tab |
| VOC Emissions | 0.14 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| HAP Emissions | 0.01 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Benzene Emissions | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Toluene Emissions | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Ethylbenzene Emissions | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Xylenes Emissions | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| n-Hexane Emissions | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| H2S Emissions | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Gas vented to LP Combustor from Liquid Unloading Events | | | |
| Number of times per year that each well is blown down to combustor | 12 | # | Production Inputs Tab |
| Heat flow to Combustor | 546 | MMBtu/yr | =scf/blowdowns X blowdowns/yr X Btu/scf / 1,000,000 |
| VOC Emissions | 1.67 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| HAP to Combustor | 0.06 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Benzene to Combustor | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Toluene to Combustor | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Ethylbenzene to Combustor | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| Xylenes to Combustor | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| n-Hexane to Combustor | 0.05 | TPY | =TPY/blowdowns X # blowdowns/yr X % |
| H2S to Combustor | 0.00 | TPY | =TPY/blowdowns X # blowdowns/yr X % |

COMPRESSOR EMISSIONS

Blowdown Emissions

| Unit Number | - | Units | |
|---------------------------------|-------------------|------------|---|
| Make/Model | Select Compressor | | Equipment Inputs Tab |
| Operating Time/Year (hrs) | - | hrs | Production Inputs Tab |
| Blowdown Volume | #N/A | scf/event | Total Cylinder Volume X 2 X Pi (psia)/14.7 (doubling accounts for pipping blowdown) |
| Number Blowdown Events per Year | - | #/yr | Equipment Inputs Tab |
| SSM Blowdown Emission Flow Rate | - | scf/yr | = blowdown volum X blowdowns/yr |
| Gas Molecular Weight | 21.54 | lb/lb-mole | Production Inputs Tab |
| Weight % VOC | 13.38% | percent | Production Inputs Tab |
| Weight % HAP | 0.49% | percent | Production Inputs Tab |
| Total Emissions | - | TPY | = Flow (ft3/yr)/379.4 (ft3/lb-mol) * Gas M.W. / 2000 (lb/ton) |
| VOC Emissions | - | TPY | TPY * % VOC |
| HAP Emissions | - | TPY | TPY * % HAP |
| Benzene Emissions | 0 | TPY | TPY * % (from production inputs tab) |
| Toluene Emissions | 0 | TPY | TPY * % (from production inputs tab) |
| Ethylbenzene Emissions | 0 | TPY | TPY * % (from production inputs tab) |
| Xylenes Emissions | 0 | TPY | TPY * % (from production inputs tab) |
| n-Hexane Emissions | 0 | TPY | TPY * % (from production inputs tab) |
| H2S Emissions | 0 | TPY | TPY * % (from production inputs tab) |

| Unit Number | - | Units | |
|---------------------------------|-------------------|------------|---|
| Make/Model | Select Compressor | | Equipment Inputs Tab |
| Operating Time/Year (hrs) | - | hrs | Production Inputs Tab |
| Blowdown Volume | #N/A | scf | Total Cylinder Volume X 2 X Pi (psia)/14.7 (doubling accounts for pipping blowdown) |
| Number Blowdown Events per Year | - | #/yr | Equipment Inputs Tab |
| SSM Blowdown Emission Flow Rate | - | scf/yr | = blowdown volum X blowdowns/yr |
| Gas Molecular Weight | 21.54 | lb/lb-mole | Production Inputs Tab |
| Weight % VOC | 13.38% | percent | Production Inputs Tab |
| Weight % HAP | 0.49% | percent | Production Inputs Tab |
| Total Emissions | - | TPY | = Flow (ft3/yr)/379.4 (ft3/lb-mol) * Gas M.W. / 2000 (lb/ton) |
| VOC Emissions | - | TPY | TPY * % |
| HAP Emissions | - | TPY | TPY * % |
| Benzene Emissions | - | TPY | TPY * % |
| Toluene Emissions | - | TPY | TPY * % |
| Ethylbenzene Emissions | - | TPY | TPY * % |
| Xylenes Emissions | - | TPY | TPY * % |
| n-Hexane Emissions | - | TPY | TPY * % |
| H2S Emissions | - | TPY | TPY * % |

Rod Packing Emissions Using Subpart W Equation W-29E

| | | | |
|---|------------|----------|--|
| Total number of Compressors | 0 | unitless | Production Inputs Tab |
| Mole Fraction of Methane | 0.70 | unitless | Production Inputs Tab |
| Methane Emissions from Rod Packing Slippage/Compressor | 152,577.55 | scf/yr | = 213,000 scf/yr * (mole frac/ 98) |
| Methane Emissions from Rod Packing Slippage for all Compressors | - | TPY | = slippage flow (ft3/yr)/379.4 (ft3/lb-mol)*16 (lb/lb-mol) * total # of compressors/2000 |
| VOC to Methane wt% Ratio | 0.2558562 | unitless | = %VOC (prod inputs tab) / %CH4 (production inputs tab) |
| VOC Emissions from Rod Packing Slippage for all Compressors | - | TPY | = methane emissions * VOC/CH4 ratio |
| HAP to Methane wt% Ratio | 0.01 | unitless | = %VOC (prod inputs tab) / %CH4 (production inputs tab) |
| HAP Emissions from Rod Packing Slippage for all Compressors | - | TPY | = methane emissions * HAP/CH4 ratio |
| Blowdown Benzene Emissions | - | TPY | TPY * % (from production inputs tab) |
| Blowdown Toluene Emissions | - | TPY | TPY * % (from production inputs tab) |
| Blowdown Ethylbenzene Emissions | - | TPY | TPY * % (from production inputs tab) |
| Blowdown Xylenes Emissions | - | TPY | TPY * % (from production inputs tab) |
| Blowdown n-Hexane Emissions | - | TPY | TPY * % (from production inputs tab) |
| Blowdown H2S Emissions | - | TPY | TPY * % (from production inputs tab) |

TOTAL EMISSIONS FROM ALL COMPRESSORS

| | | | |
|--------------|---|-----|------------------------------------|
| VOC | - | TPY | = blowdowns + rod packing slippage |
| HAP | - | TPY | = blowdowns + rod packing slippage |
| Benzene | - | TPY | = blowdowns + rod packing slippage |
| Toluene | - | TPY | = blowdowns + rod packing slippage |
| Ethylbenzene | - | TPY | = blowdowns + rod packing slippage |
| Xylenes | - | TPY | = blowdowns + rod packing slippage |
| n-Hexane | - | TPY | = blowdowns + rod packing slippage |
| H2S | - | TPY | = blowdowns + rod packing slippage |

| TRUCK LOADING EMISSION INPUTS | Buddy 1 Dominggo 1 Facility | 0 | 0 | Units | |
|--|-----------------------------|---------|---------|---------------|---|
| Oil Throughput | 77.38 | 0.00 | 0.00 | bbbl/day | Production Inputs Tab |
| Oil Molecular Weight of Vapors | 37.33 | 0.00 | 0.00 | lb/lb-Mol | Promax Inputs Tab |
| Oil True Vapor Pressure | 5.11 | n/a | n/a | psia | Production Inputs Tab |
| HAP to VOC Ratio (Oil) | 2% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Benzene to VOC Ratio (Oil) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Toluene to VOC Ratio (Oil) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Ethylbenzene to VOC Ratio (Oil) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Xylenes to VOC Ratio (Oil) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| n-Hexane to VOC Ratio (Oil) | 2% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| H2S to VOC Ratio (Oil) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Percent Oil Sold Through LACT | 0% | 0% | 0% | percent | Production Inputs Tab |
| Oil Loaded to Trucks | 1,186.25 | 0.00 | 0.00 | Kgallons/yr | Throughput (bbbl/day) * (1- % to LACT) * 42 (gal/bbbl) * 365 (days/yr) / 1000 |
| Truck Load Size | 150.00 | 0.00 | 0.00 | bbbl | Equipment Inputs Tab |
| Number of Trucks Loaded | 189 | n/a | n/a | Loads/Yr | |
| Oil Loading Vapor Disposition | Vent | 0.00 | 0.00 | n/a | Equipment Inputs Tab |
| Oil Loading Vapor Collection Efficiency | 0.00% | 0.00% | 0.00% | percent | Equipment Inputs Tab |
| Oil Loading Vapor Heat Content | 2,121.00 | 0.00 | 0.00 | Btu/ft3 | Promax Inputs Tab (based on flash gas composition) |
| Emission Rate for Oil Loading | 2.84 | n/a | n/a | lb/Kgallons | AP-42, Section 5.2, = 12.46 X S X P X M / (T + 460) |
| VOC Emissions from Oil Loading | 1.68 | 0.00 | 0.00 | TPY | = Emission Rate (lb/Kgal) * Amount loaded (kgal/yr) / 2000 (lb/ton) * (1-CE%) |
| HAP Emissions from Oil Loading | 0.04 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| H2S Emissions from Oil Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * H2S/VOC Ratio |
| Benzene Emissions from Oil Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Toluene Emissions from Oil Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Ethylbenzene Emissions from Oil Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Xylene Emissions from Oil Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| n-Hexane Emissions from Oil Loading | 0.03 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Volume Flow to Combustor from Oil Loading | n/a | n/a | n/a | ft3/yr | =TPY*2000 (lb/ton) *379.4 (scf/lb-mol) / Molecular Wt (lb-lb/mol)) |
| Heat Flow to Combustor from Oil Loading | 0.00 | n/a | n/a | MMBtu/yr | = ft3/yr * Btu/ft3 / 1000000 |
| VOC to Combustor from Oil Loading | 0.00 | n/a | n/a | TPY | = Emission Rate (lb/Kgal) * Amount loaded (kgal/yr) / 2000 (lb/ton) |
| HAP to Combustor from Oil Loading | 0.00 | n/a | n/a | TPY | = VOC * HAP/VOC Ratio |
| H2S to Combustor from Oil Loading | 0.00 | #VALUE! | #VALUE! | TPY | = VOC * H2S/VOC Ratio |
| Benzene to Combustor from Oil Loading | 0.00 | #VALUE! | #VALUE! | TPY | = VOC * Benzene/VOC Ratio |
| Toluene to Combustor from Oil Loading | 0.00 | #VALUE! | #VALUE! | TPY | = VOC * Toluene/VOC Ratio |
| Ethylbenzene to Combustor from Oil Loading | 0.00 | #VALUE! | #VALUE! | TPY | = VOC * Ethylbenzene/VOC Ratio |
| Xylenes to Combustor from Oil Loading | 0.00 | #VALUE! | #VALUE! | TPY | = VOC * Xylenes/VOC Ratio |
| n-Hexane to Combustor from Oil Loading | 0.00 | #VALUE! | #VALUE! | TPY | = VOC * n-Hexane/VOC Ratio |
| Saturation Factor (S) | 0.60 | 0.60 | 0.60 | dimensionless | AP-42, Table 5.2-1, for dedicated submerged loading |
| Bulk Liquid Temperature | 43.30 | 43.30 | 0.00 | F | Production Inputs Tab |
| H2O Throughput | 54.05 | 0.00 | 0.00 | bbbl/day | Production Inputs Tab |
| H2O Molecular Weight of Vapors | 52.27 | 0.00 | 0.00 | lb/lb-Mol | Promax Inputs Tab |
| H2O True Vapor Pressure | 0.22 | #NUM! | #NUM! | psia | Promax Inputs Tab |
| HAP to VOC Ratio (H2O) | 6% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Benzene to VOC Ratio (H2O) | 1% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Toluene to VOC Ratio (H2O) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Ethylbenzene to VOC Ratio (H2O) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Xylenes to VOC Ratio (H2O) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| n-Hexane to VOC Ratio (H2O) | 4% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| H2S to VOC Ratio (H2O) | 0% | #DIV/0! | #DIV/0! | dimensionless | Promax Inputs Tab |
| Percent H2O Piped Out | 0% | 0% | 0% | percent | Production Inputs Tab |
| Truck Load Size | 120.00 | 0.00 | 0.00 | bbbl | Equipment Inputs Tab |
| Number of Trucks Loaded | 165 | n/a | n/a | Loads/Yr | |
| H2O Loaded to Trucks | 828.62 | 0.00 | 0.00 | Kgallons/yr | Throughput (bbbl/day) * (1- % Piped) * 42 (gal/bbbl) * 365 (days/yr) / 1000 |
| H2O Loading Vapor Disposition | Vent | 0.00 | 0.00 | n/a | Equipment Inputs Tab |
| H2O Loading Vapor Collection Efficiency | 0.00% | 0.00% | 0.00% | percent | Equipment Inputs Tab |
| H2O Loading Vapor Heat Content | 2,928.80 | 0.00 | 0.00 | Btu/ft3 | Promax Inputs Tab |
| Emission Rate for H2O Loading | 0.17 | n/a | n/a | lb/Kgallons | AP-42, Section 5.2, = 12.46 X S X P X M / (T + 460) |
| VOC Emissions from H2O Loading | 0.07 | 0.00 | 0.00 | TPY | = Emission Rate (lb/Kgal) * Amount loaded (kgal/yr) / 2000 (lb/ton) |
| HAP Emissions from H2O Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| H2S Emissions from H2O Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Benzene Emissions from H2O Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Toluene Emissions from H2O Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Ethylbenzene Emissions from H2O Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Xylenes Emissions from H2O Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| n-Hexane Emissions from H2O Loading | 0.00 | 0.00 | 0.00 | TPY | = VOC * HAP/VOC Ratio |
| Volume Flow to Combustor from H2O Loading | n/a | n/a | n/a | ft3/yr | =TPY*2000 (lb/ton) *379.4 (scf/lb-mol) / Molecular Wt (lb-lb/mol)) |
| Heat Flow to Combustor from H2O Loading | 0.00 | n/a | n/a | MMBtu/yr | = ft3/yr * Btu/ft3 / 1000000 |
| VOC to Combustor from H2O Loading | 0.00 | n/a | n/a | TPY | = Emission Rate (lb/Kgal) * Amount loaded (kgal/yr) / 2000 (lb/ton) |
| HAP to Combustor from H2O Loading | 0.00 | n/a | n/a | TPY | = VOC * HAP/VOC Ratio |
| Saturation Factor (S) | 0.60 | 0.60 | 0.60 | dimensionless | AP-42, Table 5.2-1, for dedicated submerged loading |
| Bulk Liquid Temperature | 43.30 | 43.30 | 0.00 | F | Production Inputs Tab |

Start-up/Shut-down and Maintenance Emissions

| PIGGING | | | | | |
|---|------------------------------------|---------|---------|---------|--------------|
| CLR 4" Pigging Stations | <i>Buddy 1 Dominggo 1 Facility</i> | 0 | 0 | 0 | <i>Units</i> |
| Number of 4" Pigging Stations | 0 | 0 | 0 | 0 | # |
| Length of 4" piping between isolation valves | | | | | ft |
| Length of Pig Launch/Receive Barrell | | | | | ft |
| Diameter of Pig Launch/Receive Barrell | | | | | ft |
| Line Pressure | 79.70 | 14.70 | 14.70 | 14.70 | psia |
| Blowdown Volume | 0.00 | 0.00 | 0.00 | 0.00 | ft3 |
| Gas Molecular Weight | 21.54 | 0.00 | 0.00 | 0.00 | lb/lb-mole |
| Gas % VOC | 13% | 0% | 0% | 0% | % |
| Gas % HAP | 0% | 0% | 0% | 0% | % |
| Blowdown Mass (@ 70 F, 529.7 R) per Blowdown | 0.00 | 0.00 | 0.00 | 0.00 | lbs |
| Number of Blowdowns per Year | 0 | 0 | 0 | 0 | # |
| Blowdown Mass per Year | 0.00 | 0.00 | 0.00 | 0.00 | TPY |
| Blowdown VOC | - | - | - | - | TPY |
| Blowdown HAP | - | - | - | - | TPY |
| CLR 6" Pigging Stations | <i>Buddy 1 Dominggo 1 Facility</i> | 0 | 0 | 0 | <i>Units</i> |
| Number of 6" Pigging Stations | 0 | 0 | 0 | 0 | # |
| Length of 6" piping between isolation valves | | | | | ft |
| Length of Pig Launch/Receive Barrell | | | | | ft |
| Diameter of Pig Launch/Receive Barrell | | | | | ft |
| Line Pressure | 79.70 | 14.70 | 14.70 | 14.70 | psia |
| Blowdown Volume | 0.00 | 0.00 | 0.00 | 0.00 | ft3 |
| Gas Molecular Weight | 21.54 | 0.00 | 0.00 | 0.00 | lb/lb-mole |
| Gas % VOC | 13% | 0% | 0% | 0% | % |
| Gas % HAP | 0% | 0% | 0% | 0% | % |
| Blowdown Mass (@ 70 F, 529.7 R) per Blowdown | 0.00 | 0.00 | 0.00 | 0.00 | lbs |
| Number of Blowdowns per Year | 0 | 0 | 0 | 0 | # |
| Blowdown Mass per Year | 0.00 | 0.00 | 0.00 | 0.00 | TPY |
| Blowdown VOC | - | - | - | - | TPY |
| Blowdown HAP | - | - | - | - | TPY |
| Total VOC Emissions from Pigging | - | - | - | - | <i>Units</i> |
| Total HAP Emissions from Pigging | - | - | - | - | <i>Units</i> |
| TANK VENTING | | | | | |
| Facility Start-up Purge (tank venting prior to combustor ignition) | <i>Buddy 1 Dominggo 1 Facility</i> | 0 | 0 | 0 | <i>Units</i> |
| Duration of Start-up/Purge | 4 | 4 | 4 | 4 | hours |
| VOC Emission Rate | 23.62 | n/a | n/a | n/a | TPY |
| HAP Emission Rate | 0.64 | n/a | n/a | n/a | TPY |
| VOC From Start-up Purge | 0.01 | #VALUE! | #VALUE! | #VALUE! | TPY |
| HAP From Start-up Purge | 0.00 | #VALUE! | #VALUE! | #VALUE! | TPY |
| Shut-in Emissions (uncombusted working & standings losses) | <i>Buddy 1 Dominggo 1 Facility</i> | 0.00 | 0.00 | 0.00 | <i>Units</i> |
| Well Downtime (no pilot gas supply) | 720.00 | 720.00 | 720.00 | 720.00 | hrs/yr |
| Oil Tanks VOC Emission Rate (W&S) | 0.50 | 0.50 | 0.50 | 0.50 | TPY |
| Water Tanks VOC Emission Rate (W&S) | 0.50 | 0.50 | 0.50 | 0.50 | TPY |
| Total VOC Emissions from Well Shut-ins | 0.08 | 0.08 | 0.08 | 0.08 | TPY |
| Oil Tanks HAP Emission Rate (W&S) | 0.10 | 0.10 | 0.10 | 0.10 | TPY |
| Water Tanks HAP Emission Rate (W&S) | 0.10 | 0.10 | 0.10 | 0.10 | TPY |
| Total HAP Emissions from Well Shut-ins | 0.02 | 0.02 | 0.02 | 0.02 | TPY |
| Total VOC Emissions from Tank Venting | 0.09 | #VALUE! | #VALUE! | #VALUE! | TPY |
| Total HAP Emissions from Tank Venting | 0.02 | #VALUE! | #VALUE! | #VALUE! | TPY |
| Total VOC Emissions from Combined MSS | 0.09 | - | - | - | TPY |
| Total HAP Emissions from Combined MSS | 0.02 | - | - | - | TPY |

Equipment Inputs Tab

Equipment Inputs Tab + 14.7

= 3.14*(2/12)^2 X pipe length + 3.14*(barrell dia/2)^2 X barrell length

Production Inputs Tab

Production Inputs Tab

Production Inputs Tab

= (line pressure X blowdown volume X gas M.W.)/(529.7 X 10.731)

Equipment Inputs Tab

= (blowdown mass per blowdown * blowdowns/year)/2000

= blowdown mass * percent VOC

= blowdown mass * percent HAP

Equipment Inputs Tab

Equipment Inputs Tab + 14.7

= 3.14*(3/12)^2 X pipe length + 3.14*(barrell dia/2)^2 X barrell length

Production Inputs Tab

Production Inputs Tab

Production Inputs Tab

= (line pressure X blowdown volume X gas M.W.)/(529.7 X 10.731)

Equipment Inputs Tab

= (blowdown mass per blowdown * blowdowns/year)/2000

= blowdown mass * percent VOC

= blowdown mass * percent HAP

= VOC from 4" + VOC from 6"

=HAP from 4" + HAP from 6"

Assumed maximum time to achieve safe ignition of combustor

From LP Combustor Tab (max feed to Combustor)

From LP Combustor Tab (max feed to Combustor)

assumed maximum based on operational history of similar sites

modelling of 500 gallons/year, no flash, midcon oil

modelling of 500 gallons/year, no flash, midcon oil

= (hrs/8760) X (Oil rate + Water rate)

modelling of 500 gallons/year, no flash, midcon oil, 20% HAP

modelling of 500 gallons/year, no flash, midcon oil, 20% HAP