

NOTATED_Scenario 01: Old Engine - Scaled for 50

Tuesday, September 14, 2021 5:45 PM

Scenario Info

Casino

- ID: CASINO
- Base elevation: 0
 - o Should have the same base elevation as the engines
- Tiers of Current Building
 1. 32 ft (this is probably above the base elevation)
- Type: Polygonal

#	X Coord [m]	Y Coord [m]
1	575598.31	3730521.14
2	575544.61	3730576.25
3	575576.99	3730605.98
4	575567.15	3730615.39
5	575584.86	3730633.63
6	575633.18	3730628.64
7	575686.63	3730670.19
8	575805.28	3730557.42
9	575763.29	3730514.98
10	575697.96	3730575.96
11	575658.63	3730577.75

Parking Garage

- ID: Garage
- Base elevation: 0
 - o Should have the same base elevation as the engines
- Tiers of Current Building
 1. 34 ft (this is probably above the base elevation)
- Type: Polygonal

#	X Coord	Y Coord
1	575538.06	3730504.43
2	575455.02	3730595.48
3	575518.66	3730668.58
4	575573.97	3730608.17
5	575544.03	37305575.33
6	575577.74	3730541.49

Source Used for Run:

- Source ID: EE_50
 - o Existing engine scaled for 50 hr/yr

- X-Coordinate: 575776.0 m
- Y-Coordinate: 3730638.0 m
- Release Height: 8.0ft (engine is probably 8ft tall)
- Base Elevation: -38ft = -11.58 m
- Release Type: Vertical
- Emission Rate: 0.2271 lb/hr
 - o Emission Factor: 39.78 lb/hr NO_x (from Graton Calculations spreadsheet)
 - o $(39.78 \text{ lb/hr}) * (50 \text{ hr}/8760 \text{ hr}) = 0.2271 \text{ lb/hr}$
 - Scaling for 50 hours of operation per year instead of 8760
- Fixed
- Gas Exit Temperature: 180F
 - o From specs, 180F
 - Note that 180F is the "After Cooler" temperature. 1007.06F is the exhaust stack temperature.
 - **Sheila agrees that it should be after cooler**
- Stack Inside Diameter: 0.254 m
 - o 10 inch diameter
 - o $(10 \text{ in})(2.54 \text{ cm/in})(1 \text{ m}/100 \text{ cm}) = 0.254 \text{ m}$
- Gas Exit Velocity: 100.584 m/s
 - o Auto-populated
- Gas Exit Flow Rate: 10799.24 ft³/min (= 5.0967 m³/s)
 - o From specs, 10799.24 scfm
 - **It's actually cfm, they messed up on pg 5, it's right in the specs**

Initial Baseline Source Scenario Inputs:

- Dispersion: Urban
 - o Census Bureau defines urban as exceeding 2500 ppl
- Population 2,675
 - o Google Search for Mohave Valley Population
- No Debug File
- Pollutant Emission Rate:
 - o 0.2271 lb/hr NO₂ (with Chemistry)
 - OLM
 - In-Stack NO₂/NO_x Ratio: 0.5
 - Ozone Concentration: 69.0ppb
 - **This should be whatever Sheila pulls from the monitor, for 1 hour NO_x and for annual**
 - Annual corresponds to the 500 hours and the 1 hour corresponds to 50 hr
 - 1-hour: 34.0 ppb
 - Annual: 7.0 ppb
- Downwash: Include all Buildings (CASINO, YARD)
 - o Note that checkmark is on CASINO but that shouldn't matter
- Meteorology Parameters
 - o Min Temp: -9.67 F
 - Default value = 250 K
 - o Max Temp: 116 F
 - Google search for highest recorded temp Mohave Valley...does not normally exceed 116 F
 - o Min Wind Speed: 0.5 m/s
 - o Anemometer Height: 10.0m
 - o Do NOT adjust friction velocity
- Surface Characteristics:

- Albedo: 0.29
- Bowen Ratio: 0.925
- Surface Roughness: 0.0403
- Note: If I select desert shrubland, dry, annual average, I get 0.3275, 7.75, 0.2625
- Select Urban, Dry, annual average
- NO AERMET Seasonal Tables
- NO External File
- Include Terrain Effects and Force AERMAP Re-Run
 - Map Type: USGS DEM/CDED
- Source Base Elevation: AERMAP Calculated
- NO Flagpole Receptors
- Minimum Distance to Ambient Air: 1.0 m
- Maximum Distance of Downwind Receptors (Probe Distance): 10.0 km
- NO Additional Receptors
- Do NOT apply inverse break-up fumigation
- Do NOT apply shoreline fumigation