

# Scenario 02: New Engine - Scaled for 500 hours

Wednesday, July 20, 2022 12:15 PM

## Scenario Info

### Casino

- ID: CASINO
- Base Elevation: -40.19 ft (= -12.25 m)
- Tiers of Current Building
  - o 32.0 ft (= 9.75 m)
- 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: PARKING
- Base Elevation: -40.19 ft (= -12.25 m)
- Tiers of Current Building
  - o 34 ft (= 10.36 m)
- Type: Polygonal

#	X Coord [m]	Y Coord [m]
1	575538.06	3730504.43
2	575455.02	3730595.48
3	575518.06	3730668.58
4	575573.97	3730608.17
5	575544.03	3730575.33
6	575577.74	3730541.49

### Source Used for Run:

- Source ID: NE\_500
- X-Coordinate: 575638.0 m
- Y-Coordinate: 3730651.0 m
- Release Stack Height: 8.0 ft (= 2.44 m)(Engine is probably 8 ft tall.)

- Base Elevation: -40.19 ft (= -12.25 m)
- Release Type: Vertical Stack
- Emission Rate: 2.406 lb/hr
  - o Emission Factor: 42.16 lb/hr NO<sub>x</sub> (from Manufacturer's Performance Data)
  - o Scaled emission rate = (42.16 lb/hr) \* (500 hr/8760 hr) = 2.406 lb/hr
    - Scaling for 500 hour of operation per year instead of 8,760 hours.
- Fixed
- Plume Exit Temperature: 853.1 deg F (= 729.3 K)
- Stack Inside Diameter: 0.3048 m
  - o 12 inches in diameter
  - o (12 in) \* (2.54 cm/in) \* (1 m/100 cm) = 0.3048 m
- Plume Exit Flow Rate: 18497.4 ft<sup>3</sup>/min (from Manufacturer's Performance Data)
- Plume Exit Velocity: 392.53 ft/s (= 119.64 m/s)
  - o Auto-populated

## Source Scenario Inputs

- Dispersion: Urban
- Population: 2,675
- No Debug File
- Pollutant Emission Rate:
  - o 2.406 lb/hr NO<sub>2</sub> (with Chemistry)
    - OLM
    - In-Stack NO<sub>2</sub>/NO<sub>x</sub> Ratio: 0.50
    - Ozone Concentration: 7.0 ppb
      - Annual NO<sub>2</sub> Site-Level 2020 Design Values for Palm Springs (060655001)
- Downwash: Include all Buildings (CASINO, PARKING)
- Meteorology Parameters
  - o Min Temp: -9.67 deg F (= 250.0 K)
  - o Max Temp: 116 deg F (= 319.8 K)
  - o Min Wind Speed: 0.5 m/s
  - o Anemometer Height: 10.0 m
  - o Do NOT adjust friction velocity
- Surface Characteristics (urban, dry, annual average):
  - o Condition: Dry
  - o Land Use Type: Urban
  - o Season: Annual Average
  - o Albedo: 0.2075
  - o Bowen Ratio: 3.0
  - o Surface Roughness: 1.0 m
- NO AERMET Seasonal Tables
- NO External File
- Include Terrain Effects and Force AERMAP Re-Run
  - o Map Type: USGS DEM/CDED
- Source Base Elevation: -40.19 ft
- NO Flagpole Receptors
- Minimum Distance to Ambient Air (Distance from Source to Fence): 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