

# **Non-rule Standard Permit Modification Application**

**July 26, 2022**

**BPX Operating Company  
BPX Energy Inc.  
CN603575937  
RN110925773**

**Facility Name: Grand Slam CDP & Squiggy SWD**

**Orla, Texas  
Reeves County  
TCEQ Region 13**

Table 21  
Bpx Midstream LLC  
Grand Slam CDP & Squiggy SWD  
Reeves County, TX  
Benzene Impacts Analysis

|                                    |     |
|------------------------------------|-----|
| Benzene Short Term ESL<br>(µg/m³): | 170 |
| Benzene Long Term ESL<br>(µg/m³):  | 4.5 |

| Benzene Hourly Steady State - Impact Review |                              |                                              |                                                               |                    |                                             |                                                       |                                       |                                                   |                                                   |
|---------------------------------------------|------------------------------|----------------------------------------------|---------------------------------------------------------------|--------------------|---------------------------------------------|-------------------------------------------------------|---------------------------------------|---------------------------------------------------|---------------------------------------------------|
| EPN                                         | Source Name                  | Which impacts table corresponds to this EPN? | Steady state hourly estimated emissions for each EPN (lbs/hr) | WR <sub>EPNx</sub> | ESL <sub>-benzene, short term</sub> (µg/m³) | Distance from emission point to nearest receptor (ft) | Height of emission release point (ft) | G <sub>EPNx</sub>                                 | E <sub>max,EPNx, hourly,steadystate</sub> (lb/hr) |
| FUG                                         | Fugitive                     | Fugitive                                     | 0.0272                                                        | 0.0709285          | 170                                         | 10000                                                 | 3                                     | 19                                                | 0.63462377                                        |
| LOAD1                                       | CDP Condensate Truck Loading | Loading                                      | 0.0144                                                        | 0.0375975          | 170                                         | 10000                                                 | 10                                    | 25                                                | 0.25566268                                        |
| COMB1                                       | Enclosed Combustor           | Flare/Therm. Dest. Dev.                      | 0.0197                                                        | 0.0514256          | 170                                         | 10000                                                 | 20                                    | 11                                                | 0.79475989                                        |
| COMB2                                       | Enclosed Combustor           | Flare/Therm. Dest. Dev.                      | 0.0197                                                        | 0.0514256          | 170                                         | 10000                                                 | 20                                    | 11                                                | 0.79475989                                        |
| COMB3                                       | Enclosed Combustor           | Flare/Therm. Dest. Dev.                      | 0.0197                                                        | 0.0514256          | 170                                         | 10000                                                 | 20                                    | 11                                                | 0.79475989                                        |
| COMB4                                       | Enclosed Combustor           | Flare/Therm. Dest. Dev.                      | 0.0197                                                        | 0.0514256          | 170                                         | 10000                                                 | 20                                    | 11                                                | 0.79475989                                        |
| GEN-1                                       | Emergency Generator 1        | Eng. 250 < hp ≤ 500                          | 0.0034                                                        | 0.0089662          | 170                                         | 10000                                                 | 8                                     | 17                                                | 0.08966175                                        |
| GEN-2                                       | Emergency Generator 2        | Eng. 250 < hp ≤ 501                          | 0.0009                                                        | 0.00242            | 170                                         | 10000                                                 | 8                                     | 17                                                | 0.02419959                                        |
| FL1                                         | LP Flare                     | Flare/Therm. Dest. Dev.                      | 0.0228                                                        | 0.059475           | 170                                         | 10000                                                 | 20                                    | 11                                                | 0.91915876                                        |
| FL2                                         | HP Flare                     | Flare/Therm. Dest. Dev.                      | 0.0600                                                        | 0.1565314          | 170                                         | 10000                                                 | 20                                    | 11                                                | 2.4191221                                         |
| COMB5                                       | Enclosed Combustor (Dehy)    | Flare/Therm. Dest. Dev.                      | 0.0586                                                        | 0.152793           | 170                                         | 10000                                                 | 20                                    | 11                                                | 2.36134588                                        |
| COMB6                                       | Enclosed Combustor (Dehy)    | Flare/Therm. Dest. Dev.                      | 0.0586                                                        | 0.152793           | 170                                         | 10000                                                 | 20                                    | 11                                                | 2.36134588                                        |
| COMB7                                       | Enclosed Combustor (Dehy)    | Flare/Therm. Dest. Dev.                      | 0.0586                                                        | 0.152793           | 170                                         | 10000                                                 | 20                                    | 11                                                | 2.36134588                                        |
|                                             |                              |                                              | E <sub>estimated,total,hourly,steadystate</sub> (lb/hr)       | Total              | Passed                                      |                                                       |                                       | E <sub>max,total,hourly,steadystate</sub> (lb/hr) |                                                   |
|                                             |                              |                                              | 0.3835                                                        | 1                  |                                             |                                                       |                                       | 14.6055058                                        |                                                   |

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|------------------------------------|-----|
| Benzene Short Term ESL<br>(µg/m³): | 170 |
| Benzene Long Term ESL<br>(µg/m³):  | 4.5 |

| Benzene Hourly Low Pressure Periodic - Impact Review |                                                   |                                              |                                                                   |                                                                      |                                             |                                                       |                                       |                   |                                                               |
|------------------------------------------------------|---------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------|---------------------------------------|-------------------|---------------------------------------------------------------|
| EPN                                                  | Source Name                                       | Which impacts table corresponds to this EPN? | Periodic (low P) hourly estimated emissions for each EPN (lbs/hr) | WR <sub>EPNx</sub>                                                   | ESL <sub>-benzene, short term</sub> (µg/m³) | Distance from emission point to nearest receptor (ft) | Height of emission release point (ft) | G <sub>EPNx</sub> | E <sub>max,EPNx, hourly,periodic(low pressure)</sub> (lb/hr)  |
| MSS-FLARE                                            | Free water KO Stream Blowdown to Flare            | Low P. Blowd./Purg./Pig.                     | 7.01E-05                                                          | 0.0029493                                                            | 170                                         | 10000                                                 | 20                                    | 23                | 0.02179921                                                    |
| MSS-CLING                                            | MSS-Clingage                                      | Low P. Blowd./Purg./Pig.                     | 6.55E-04                                                          | 0.0275669                                                            | 170                                         | 10000                                                 | 10                                    | 24                | 0.19526566                                                    |
| MSS-PIG                                              | MSS-Pigging                                       | Low P. Blowd./Purg./Pig.                     | 2.30E-02                                                          | 0.9675046                                                            | 170                                         | 10000                                                 | 20                                    | 23                | 7.15112117                                                    |
| MSS-PUMP                                             | MSS-Pneumatic Pump                                | Low P. Blowd./Purg./Pig.                     | 0.00E+00                                                          | 0                                                                    | 170                                         | 10000                                                 | 3                                     | 25                | 0                                                             |
| MSS-FLBD                                             | MSS-Flare Blowdown                                | Low P. Blowd./Purg./Pig.                     | 3.23E-05                                                          | 0.0013589                                                            | 170                                         | 10000                                                 | 3                                     | 25                | 0.00924077                                                    |
| MSS-VCBD                                             | MSS-Vapor Combustor Y Strainer and Flare Arrestor | Low P. Blowd./Purg./Pig.                     | 1.47E-05                                                          | 0.0006202                                                            | 170                                         | 10000                                                 | 3                                     | 25                | 0.00421745                                                    |
|                                                      |                                                   |                                              |                                                                   | E <sub>estimated,total, hourly,periodic (low pressure)</sub> (lb/hr) |                                             | Passed                                                |                                       |                   | E <sub>max,total, hourly,periodic(low pressure)</sub> (lb/hr) |
|                                                      |                                                   |                                              |                                                                   | Total                                                                | 1                                           |                                                       |                                       |                   | 7.38164426                                                    |
|                                                      |                                                   |                                              |                                                                   | 0.02                                                                 |                                             |                                                       |                                       |                   |                                                               |

| Benzene Hourly High Pressure Periodic - Impact Review |                                     |                                              |                                                                    |                                                                       |                                             |                                                       |                                       |                   |                                                                |
|-------------------------------------------------------|-------------------------------------|----------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------|---------------------------------------|-------------------|----------------------------------------------------------------|
| EPN                                                   | Source Name                         | Which impacts table corresponds to this EPN? | Periodic (high P) hourly estimated emissions for each EPN (lbs/hr) | WR <sub>EPNx</sub>                                                    | ESL <sub>-benzene, short term</sub> (µg/m³) | Distance from emission point to nearest receptor (ft) | Height of emission release point (ft) | G <sub>EPNx</sub> | E <sub>max,EPNx, hourly,periodic(high pressure)</sub> (lb/hr)  |
| MSS-GVR                                               | MSS-Valve Replacement (Gas Service) | High P. Blowd./Purg./Pig.                    | 1.58E-02                                                           | 0.0648341                                                             | 170                                         | 10000                                                 | 6                                     | 16                | 0.68886279                                                     |
| MSS-MPBD                                              | MSS-Gas Meter Proving               | High P. Blowd./Purg./Pig.                    | 3.96E-03                                                           | 0.0162024                                                             | 170                                         | 10000                                                 | 6                                     | 16                | 0.17215059                                                     |
| MSS-PLCO                                              | MSS-Meter Plate Change-Out          | High P. Blowd./Purg./Pig.                    | 3.07E-04                                                           | 0.0012557                                                             | 170                                         | 10000                                                 | 6                                     | 16                | 0.01334163                                                     |
| MSS-PBBL                                              | MSS-Pig Barrels                     | High P. Blowd./Purg./Pig.                    | 2.00E-02                                                           | 0.0818995                                                             | 170                                         | 10000                                                 | 6                                     | 16                | 0.87018195                                                     |
| MSS-PRV                                               | MSS-PRV Testing                     | High P. Blowd./Purg./Pig.                    | 1.52E-04                                                           | 0.0006212                                                             | 170                                         | 10000                                                 | 6                                     | 16                | 0.00660044                                                     |
| MSS-IBD                                               | MSS-Inlet Filter Blowdown           | High P. Blowd./Purg./Pig.                    | 2.01E-01                                                           | 0.8251819                                                             | 170                                         | 10000                                                 | 6                                     | 16                | 8.76755777                                                     |
| MSS-BLCS                                              | MSS-Blowcasing                      | High P. Blowd./Purg./Pig.                    | 2.44E-03                                                           | 0.0100052                                                             | 170                                         | 10000                                                 | 6                                     | 16                | 0.10630482                                                     |
|                                                       |                                     |                                              |                                                                    | E <sub>estimated,total, hourly,periodic (high pressure)</sub> (lb/hr) |                                             | Passed                                                |                                       |                   | E <sub>max,total, hourly,periodic(high pressure)</sub> (lb/hr) |
|                                                       |                                     |                                              |                                                                    | Total                                                                 | 1                                           |                                                       |                                       |                   | 10.625                                                         |
|                                                       |                                     |                                              |                                                                    | 0.24                                                                  |                                             |                                                       |                                       |                   |                                                                |

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|                                    |     |
|------------------------------------|-----|
| Benzene Short Term ESL<br>(µg/m³): | 170 |
| Benzene Long Term ESL<br>(µg/m³):  | 4.5 |

| Benzene Annual - Impact Review |                                                   |                                                          |                                              |                                                   |                               |                                            |                                                       |                                       |                              |                                                    |
|--------------------------------|---------------------------------------------------|----------------------------------------------------------|----------------------------------------------|---------------------------------------------------|-------------------------------|--------------------------------------------|-------------------------------------------------------|---------------------------------------|------------------------------|----------------------------------------------------|
| EPN                            | Source Name                                       | What amount of time is this source is emitting? (hrs/yr) | Which impacts table corresponds to this EPN? | Annual estimated emissions for each EPN (tons/yr) | WR <sub>EPN<sub>x</sub></sub> | ESL <sub>-benzene, long term</sub> (µg/m³) | Distance from emission point to nearest receptor (ft) | Height of emission release point (ft) | G <sub>EPN<sub>x</sub></sub> | E <sub>max,EPN<sub>x</sub>, annual</sub> (tons/yr) |
| FUG                            | Fugitive                                          | 8760                                                     | Fugitive                                     | 1.19E-01                                          | 0.0979966                     | 4.5                                        | 10000                                                 | 3                                     | 19                           | 1.27073182                                         |
| LOAD1                          | CDP Condensate Truck Loading                      | 8760                                                     | Loading                                      | 4.90E-03                                          | 0.0040328                     | 4.5                                        | 10000                                                 | 10                                    | 25                           | 0.03974311                                         |
| COMB1                          | Enclosed Combustor                                | 8760                                                     | Flare/Therm. Dest. Dev.                      | 2.92E-02                                          | 0.0240025                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 0.53760051                                         |
| COMB2                          | Enclosed Combustor                                | 8760                                                     | Flare/Therm. Dest. Dev.                      | 2.92E-02                                          | 0.0240025                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 0.53760051                                         |
| COMB3                          | Enclosed Combustor                                | 8760                                                     | Flare/Therm. Dest. Dev.                      | 2.92E-02                                          | 0.0240025                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 0.53760051                                         |
| COMB4                          | Enclosed Combustor                                | 8760                                                     | Flare/Therm. Dest. Dev.                      | 2.92E-02                                          | 0.0240025                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 0.53760051                                         |
| GEN-1                          | Emergency Generator 1                             | 100                                                      | Eng. 250 < hp ≤ 500                          | 1.72E-04                                          | 0.0001414                     | 4.5                                        | 10000                                                 | 8                                     | 17                           | 2.3396E-05                                         |
| GEN-2                          | Emergency Generator 2                             | 100                                                      | Eng. 250 < hp ≤ 501                          | 4.64E-05                                          | 3.817E-05                     | 4.5                                        | 10000                                                 | 8                                     | 17                           | 6.3145E-06                                         |
| FL1                            | LP Flare                                          | 8760                                                     | Flare/Therm. Dest. Dev.                      | 9.99E-02                                          | 0.0821721                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 1.8404673                                          |
| FL2                            | HP Flare                                          | 6760                                                     | Flare/Therm. Dest. Dev.                      | 1.02E-01                                          | 0.083513                      | 4.5                                        | 10000                                                 | 20                                    | 11                           | 1.44344648                                         |
| COMB5                          | Enclosed Combustor (Dehy)                         | 8760                                                     | Flare/Therm. Dest. Dev.                      | 2.57E-01                                          | 0.2111024                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 4.7282146                                          |
| COMB6                          | Enclosed Combustor (Dehy)                         | 8760                                                     | Flare/Therm. Dest. Dev.                      | 2.57E-01                                          | 0.2111024                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 4.7282146                                          |
| COMB7                          | Enclosed Combustor (Dehy)                         | 8760                                                     | Flare/Therm. Dest. Dev.                      | 2.57E-01                                          | 0.2111024                     | 4.5                                        | 10000                                                 | 20                                    | 11                           | 4.7282146                                          |
| MSS-FLARE                      | Free water KO Stream Blowdown to Flare            | 400                                                      | Low P. Blowd./Purg./ Pig.                    | 1.40E-05                                          | 1.153E-05                     | 4.5                                        | 10000                                                 | 20                                    | 23                           | 5.6379E-06                                         |
| MSS-CLING                      | MSS-Clingage                                      | 800                                                      | Low P. Blowd./Purg./ Pig.                    | 1.31E-04                                          | 0.0001077                     | 4.5                                        | 10000                                                 | 10                                    | 24                           | 0.000101                                           |
| MSS-PIG                        | MSS-Pigging                                       | 78.00                                                    | Low P. Blowd./Purg./ Pig.                    | 8.96E-04                                          | 0.0007373                     | 4.5                                        | 10000                                                 | 20                                    | 23                           | 7.0327E-05                                         |
| MSS-PUMP                       | MSS-Pneumatic Pump                                | 26                                                       | Low P. Blowd./Purg./ Pig.                    | 0.00E+00                                          | 0                             | 4.5                                        | 10000                                                 | 3                                     | 25                           | 0                                                  |
| MSS-FLBD                       | MSS-Flare Blowdown                                | 1.00                                                     | Low P. Blowd./Purg./ Pig.                    | 1.61E-08                                          | 1.328E-08                     | 4.5                                        | 10000                                                 | 3                                     | 25                           | 1.49E-11                                           |
| MSS-VCBD                       | MSS-Vapor Combustor Y Strainer and Flare Arrestor | 4                                                        | Low P. Blowd./Purg./ Pig.                    | 2.95E-08                                          | 2.424E-08                     | 4.5                                        | 10000                                                 | 3                                     | 25                           | 1.09E-10                                           |
| MSS-GVR                        | MSS-Valve Replacement (Gas Service)               | 48                                                       | High P. Blowd./Purg./ Pig.                   | 3.80E-04                                          | 0.0003125                     | 4.5                                        | 10000                                                 | 6                                     | 16                           | 2.6369E-05                                         |
| MSS-MPBD                       | MSS-Gas Meter Proving                             | 48                                                       | High P. Blowd./Purg./ Pig.                   | 9.49E-05                                          | 7.81E-05                      | 4.5                                        | 10000                                                 | 6                                     | 16                           | 6.5899E-06                                         |
| MSS-PLCO                       | MSS-Meter Plate Change-Out                        | 48                                                       | High P. Blowd./Purg./ Pig.                   | 7.36E-06                                          | 6.053E-06                     | 4.5                                        | 10000                                                 | 6                                     | 16                           | 5.1071E-07                                         |
| MSS-PBBL                       | MSS-Pig Barrels                                   | 125                                                      | High P. Blowd./Purg./ Pig.                   | 1.25E-03                                          | 0.0010281                     | 4.5                                        | 10000                                                 | 6                                     | 16                           | 0.0002259                                          |
| MSS-PRV                        | MSS-PRV Testing                                   | 100                                                      | High P. Blowd./Purg./ Pig.                   | 7.58E-06                                          | 6.239E-06                     | 4.5                                        | 10000                                                 | 6                                     | 16                           | 1.0966E-06                                         |
| MSS-IBD                        | MSS-Inlet Filter Blowdown                         | 6                                                        | High P. Blowd./Purg./ Pig.                   | 6.04E-04                                          | 0.0004972                     | 4.5                                        | 10000                                                 | 6                                     | 16                           | 5.2441E-06                                         |
| MSS-BLCS                       | MSS-Blowcasing                                    | 4                                                        | High P. Blowd./Purg./ Pig.                   | 4.89E-06                                          | 4.019E-06                     | 4.5                                        | 10000                                                 | 6                                     | 16                           | 2.8259E-08                                         |
|                                |                                                   |                                                          |                                              | E <sub>estimated, total, annual</sub> (tons/yr)   | Total                         |                                            | Passed                                                |                                       |                              | E <sub>max, total, annual</sub> (tons/yr)          |
|                                |                                                   |                                                          |                                              | 1.2157                                            | 1                             |                                            |                                                       |                                       |                              | 20.9299069                                         |

Table 22  
Bpx Midstream LLC  
Grand Slam CDP & Squiggy SWD  
Reeves County, TX  
AMBIENT AIR IMPACT ANALYSIS - NO<sub>2</sub>

| EPN                        | FIN                        | Description                  | NO <sub>x</sub> Emission<br>Rate <sup>[1]</sup> | NO <sub>x</sub> Emission<br>Rate <sup>[1]</sup> | Stack Height <sup>[1]</sup> | Stack Diameter <sup>[1]</sup> | Stack Velocity <sup>[1]</sup> | Stack<br>Temperature <sup>[1]</sup> | Distance at GLC <sub>MAX</sub> |      | Modeled NO <sub>x</sub><br>GLC <sub>MAX</sub><br>(1 hr avg) <sup>[2]</sup> | NO <sub>x</sub> GLC <sub>MAX</sub><br>(annual avg) <sup>[3]</sup> | NO <sub>2</sub> /NO <sub>x</sub> Ratio <sup>[4]</sup>     | 1-hour NO <sub>2</sub><br>Concentration <sup>[5]</sup> | Annual NO <sub>2</sub><br>Concentration <sup>[5]</sup> |
|----------------------------|----------------------------|------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------------|------|----------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
|                            |                            |                              | (lb/hr)                                         | (g/s)                                           | (m)                         | (m)                           | (m/s)                         | (K)                                 | (m)                            | (ft) | (µg/m <sup>3</sup> )/(g/s)                                                 | (µg/m3)/(g/s)                                                     |                                                           | (µg/m <sup>3</sup> )                                   | (µg/m <sup>3</sup> )                                   |
| FL1                        | FL1                        | LP Flare                     | 0.49                                            | 0.0613                                          | 6.0976                      | -                             | -                             | -                                   | 149                            | 489  | 72.49                                                                      | 5.80                                                              | 1.00                                                      | 4.45                                                   | 0.36                                                   |
| FL2                        | FL2                        | HP Flare                     | 2.24                                            | 0.2824                                          | 6.0976                      | -                             | -                             | -                                   | 308                            | 1010 | 18.13                                                                      | 1.45                                                              | 1.00                                                      | 5.12                                                   | 0.41                                                   |
| COMB1, COMB2, COMB3, COMB4 | COMB1, COMB2, COMB3, COMB4 | Vapor Combustor -Tanks       | 14.16                                           | 1.7835                                          | 6.0976                      | -                             | -                             | -                                   | 851                            | 2791 | 2.84                                                                       | 0.23                                                              | 1.00                                                      | 5.06                                                   | 0.40                                                   |
| COMB5, COMB6, COMB7        | COMB5, COMB6, COMB7        | Vapor Combustor - Dehydrator | 0.49                                            | 0.0621                                          | 6.0976                      | -                             | -                             | -                                   |                                | 0    | 71.75                                                                      | 5.74                                                              | 1.00                                                      | 4.45                                                   | 0.36                                                   |
| MSS-FLARE                  | MSS-FLARE                  | MSS Flare                    | 28.25                                           | 3.5598                                          | 6.0976                      | -                             | -                             | -                                   | 1224                           | 4015 | 1.25                                                                       | 0.10                                                              | 1.00                                                      | 4.45                                                   | 0.36                                                   |
| GEN-1                      | GEN-1                      | Emergency Generator 1        | 3.10                                            | 0.3912                                          | 2.4390                      | -                             | -                             | -                                   | 62                             | 203  | 60.00                                                                      | 4.80                                                              | 1.00                                                      | 23.47                                                  | 1.88                                                   |
| GEN-1                      | GEN-1                      | Emergency Generator 2        | 0.65                                            | 0.0824                                          | 2.4390                      | -                             | -                             | -                                   | 62                             | 203  | 97.00                                                                      | 7.76                                                              | 1.00                                                      | 7.99                                                   | 0.64                                                   |
| HT1, HT2, HT3, HT4         | HT1, HT2, HT3, HT4         | Process Heater Treaters      | 1.23                                            | 0.1544                                          | 7.6220                      | 0.6098                        | 12.5000                       | 533.00                              | 139                            | 456  | 66.11                                                                      | 5.29                                                              | 1.00                                                      | 10.21                                                  | 0.82                                                   |
| RHT1, RHT2, RHT3           | RHT1, RHT2, RHT3           | Reboiler Heaters             | 0.44                                            | 0.0556                                          | 7.6220                      | 0.6098                        | 12.5000                       | 533.00                              | 139                            | 456  | 66.11                                                                      | 5.29                                                              | 1.00                                                      | 3.67                                                   | 0.29                                                   |
| <b>Conversions</b>         |                            |                              |                                                 |                                                 |                             |                               |                               |                                     |                                |      |                                                                            |                                                                   | Total NO <sub>2</sub> Concentration:                      | 68.87                                                  | 5.51                                                   |
|                            |                            |                              |                                                 |                                                 |                             |                               |                               |                                     |                                |      |                                                                            |                                                                   | NO <sub>2</sub> Background Concentration <sup>[6]</sup> : | 70                                                     | 20                                                     |
|                            |                            |                              |                                                 |                                                 |                             |                               |                               |                                     |                                |      |                                                                            |                                                                   | Final NO <sub>2</sub> Concentration:                      | 138.87                                                 | 25.51                                                  |
|                            |                            |                              |                                                 |                                                 |                             |                               |                               |                                     |                                |      |                                                                            |                                                                   | NAAQS <sup>[7]</sup> :                                    | 188                                                    | 100                                                    |
|                            |                            |                              |                                                 |                                                 |                             |                               |                               |                                     |                                |      |                                                                            |                                                                   | MEET NAAQS:                                               | YES                                                    | YES                                                    |

1 meter (m) =3.28 ft

1 pound (lb) =453.6 g

1 British thermal unit (Btu) =252.2 cal

|                                   |           |
|-----------------------------------|-----------|
| Receptor Height =                 | 0.00 m    |
| Urban/Rural =                     | Rural     |
| Building Downwash =               | No        |
| Full Meteorological Data =        | Yes       |
| Receptor Grids =                  | Automated |
| Terrain height above stack base = | 0 m       |

**Notes:**

[1] NO<sub>x</sub> emission rates, NO<sub>x</sub> emission factors, stack heights, diameters, velocities, and temperatures are based on manufacturer data.

[2] GLC<sub>MAX</sub> (1 hour average) was determined by SCREEN3 model. Diesel generator GLCMAX derived from generic modeling results Table 5A Generic Modeling Results for Engines Less Than or Equal to 250 hp andTable 5B Engines Greater Than 250 and Less Than or Equal to 500 hp.

[3] GLC<sub>MAX</sub> (annual average) was determined by multiplying the GLC<sub>MAX</sub> (1 hour average) by 8%

[4] NO<sub>2</sub>/NO<sub>x</sub> ratio was assumed 1 to be conservative.

[5] NO<sub>x</sub> concentration for engines was converted to NO<sub>2</sub> concentration by multiplying GLC<sub>MAX</sub> (annual average) by NO<sub>2</sub>/NO<sub>x</sub> ratio.

[6] Interim 1-hour Screening Background Concentrations provided by TCEQ’s Interim 1-Hour Nitrogen Dioxide (NO<sub>2</sub>) NAAQS Implementation, dated July 22, 2010.  
Annual Screen Background Concentrations provided TCEQ’s memo on Modeling Guidance for Exemption 106.512, dated September 4, 1998.

[7] NAAQS annual and short term limits for NO<sub>2</sub> are 100 ug/m<sup>3</sup> and 188 ug/m<sup>3</sup> respectively.

# **Appendix E**

## **SCREEN3 Modeling Results**

07/26/22

08:57:00

\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 13043 \*\*\*

Grand Slam Flare F1

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = FLARE  
EMISSION RATE (G/S) = 1.000000  
FLARE STACK HEIGHT (M) = 6.0976  
TOT HEAT RLS (CAL/S) = 249765.  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
EFF RELEASE HEIGHT (M) = 7.8313  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BOUY. FLUX = 4.141 M\*\*4/S\*\*3; MOM. FLUX = 2.525 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

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\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*

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\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

| DIST<br>(M) | CONC<br>(UG/M**3) | STAB | U10M<br>(M/S) | USTK<br>(M/S) | MIX HT<br>(M) | PLUME<br>HT (M) | SIGMA<br>Y (M) | SIGMA<br>Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 5.          | 0.000             | 1    | 1.0           | 1.0           | 320.0         | 70.03           | 2.80           | 2.30           | NO    |
| 100.        | 60.51             | 3    | 10.0          | 10.0          | 3200.0        | 14.05           | 12.56          | 7.61           | NO    |
| 200.        | 69.05             | 3    | 5.0           | 5.0           | 1600.0        | 20.27           | 23.89          | 14.47          | NO    |
| 300.        | 63.65             | 4    | 8.0           | 8.0           | 2560.0        | 15.61           | 22.72          | 12.30          | NO    |
| 400.        | 59.33             | 4    | 5.0           | 5.0           | 1600.0        | 20.27           | 29.67          | 15.68          | NO    |
| 500.        | 53.68             | 4    | 4.0           | 4.0           | 1280.0        | 23.38           | 36.42          | 18.83          | NO    |
| 600.        | 48.67             | 4    | 3.5           | 3.5           | 1120.0        | 25.60           | 43.02          | 21.81          | NO    |
| 700.        | 44.46             | 4    | 3.0           | 3.0           | 960.0         | 28.56           | 49.54          | 24.75          | NO    |
| 800.        | 40.86             | 4    | 2.5           | 2.5           | 800.0         | 32.71           | 56.03          | 27.71          | NO    |
| 900.        | 37.67             | 4    | 2.5           | 2.5           | 800.0         | 32.71           | 62.29          | 30.31          | NO    |
| 1000.       | 35.13             | 4    | 2.0           | 2.0           | 640.0         | 38.93           | 68.70          | 33.30          | NO    |
| 1100.       | 32.79             | 4    | 2.0           | 2.0           | 640.0         | 38.93           | 74.84          | 35.26          | NO    |
| 1200.       | 30.57             | 4    | 2.0           | 2.0           | 640.0         | 38.93           | 80.93          | 37.17          | NO    |
| 1300.       | 28.51             | 4    | 2.0           | 2.0           | 640.0         | 38.93           | 86.97          | 39.03          | NO    |

|        |       |   |     |     |         |       |         |       |    |
|--------|-------|---|-----|-----|---------|-------|---------|-------|----|
| 1400.  | 27.11 | 5 | 1.0 | 1.0 | 10000.0 | 55.56 | 70.54   | 30.02 | NO |
| 1500.  | 27.65 | 5 | 1.0 | 1.0 | 10000.0 | 55.56 | 74.95   | 31.08 | NO |
| 1600.  | 28.00 | 5 | 1.0 | 1.0 | 10000.0 | 55.56 | 79.33   | 32.13 | NO |
| 1700.  | 28.18 | 5 | 1.0 | 1.0 | 10000.0 | 55.56 | 83.69   | 33.16 | NO |
| 1800.  | 28.70 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 58.96   | 23.18 | NO |
| 1900.  | 29.67 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 61.82   | 23.80 | NO |
| 2000.  | 30.50 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 64.67   | 24.41 | NO |
| 2100.  | 30.93 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 67.51   | 24.93 | NO |
| 2200.  | 31.25 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 70.34   | 25.44 | NO |
| 2300.  | 31.50 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 73.16   | 25.94 | NO |
| 2400.  | 31.67 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 75.97   | 26.43 | NO |
| 2500.  | 31.77 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 78.76   | 26.92 | NO |
| 2600.  | 31.82 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 81.55   | 27.40 | NO |
| 2700.  | 31.81 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 84.33   | 27.87 | NO |
| 2800.  | 31.76 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 87.10   | 28.34 | NO |
| 2900.  | 31.67 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 89.86   | 28.80 | NO |
| 3000.  | 31.55 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 92.62   | 29.25 | NO |
| 3500.  | 30.11 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 106.26  | 31.11 | NO |
| 4000.  | 28.53 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 119.71  | 32.85 | NO |
| 4500.  | 26.94 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 132.98  | 34.48 | NO |
| 5000.  | 25.41 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 146.11  | 36.03 | NO |
| 5500.  | 23.97 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 159.09  | 37.51 | NO |
| 6000.  | 22.63 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 171.95  | 38.91 | NO |
| 6500.  | 21.38 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 184.69  | 40.27 | NO |
| 7000.  | 20.24 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 197.32  | 41.57 | NO |
| 7500.  | 19.16 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 209.84  | 42.69 | NO |
| 8000.  | 18.18 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 222.27  | 43.77 | NO |
| 8500.  | 17.29 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 234.61  | 44.81 | NO |
| 9000.  | 16.47 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 246.87  | 45.82 | NO |
| 9500.  | 15.71 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 259.04  | 46.80 | NO |
| 10000. | 15.01 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 271.14  | 47.74 | NO |
| 15000. | 10.22 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 388.59  | 56.04 | NO |
| 20000. | 7.679 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 501.08  | 61.35 | NO |
| 25000. | 6.115 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 609.86  | 65.84 | NO |
| 30000. | 5.060 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 715.68  | 69.76 | NO |
| 40000. | 3.765 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 920.29  | 75.34 | NO |
| 50000. | 2.987 | 6 | 1.0 | 1.0 | 10000.0 | 47.44 | 1117.48 | 80.00 | NO |

|                                         |       |   |     |     |        |       |       |       |    |
|-----------------------------------------|-------|---|-----|-----|--------|-------|-------|-------|----|
| MAXIMUM 1-HR CONCENTRATION AT OR BEYOND |       |   |     |     | 5. M:  |       |       |       |    |
| 149.                                    | 72.49 | 3 | 8.0 | 8.0 | 2560.0 | 15.61 | 18.26 | 11.01 | NO |

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
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| CALCULATION<br>PROCEDURE | MAX CONC<br>(UG/M**3) | DIST TO<br>MAX (M) | TERRAIN<br>HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| -----                    | -----                 | -----              | -----             |
| SIMPLE TERRAIN           | 72.49                 | 149.               | 0.                |

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\*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*

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07/26/22

09:03:17

\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 13043 \*\*\*

Grand Salm FL-2

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = FLARE  
EMISSION RATE (G/S) = 1.000000  
FLARE STACK HEIGHT (M) = 6.0976  
TOT HEAT RLS (CAL/S) = 0.114034E+07  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
EFF RELEASE HEIGHT (M) = 9.6804  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BOUY. FLUX = 18.907 M\*\*4/S\*\*3; MOM. FLUX = 11.529 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

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\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*

\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

| DIST<br>(M) | CONC<br>(UG/M**3) | STAB | U10M<br>(M/S) | USTK<br>(M/S) | MIX HT<br>(M) | PLUME<br>HT (M) | SIGMA<br>Y (M) | SIGMA<br>Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 5.          | 0.000             | 1    | 1.0           | 1.0           | 320.0         | 203.94          | 3.99           | 3.65           | NO    |
| 100.        | 0.3517            | 3    | 10.0          | 10.0          | 3200.0        | 29.11           | 12.74          | 7.89           | NO    |
| 200.        | 12.55             | 3    | 10.0          | 10.0          | 3200.0        | 29.11           | 23.98          | 14.63          | NO    |
| 300.        | 18.10             | 4    | 20.0          | 20.0          | 6400.0        | 18.69           | 22.77          | 12.40          | NO    |
| 400.        | 16.79             | 4    | 20.0          | 20.0          | 6400.0        | 18.69           | 29.58          | 15.52          | NO    |
| 500.        | 15.23             | 4    | 15.0          | 15.0          | 4800.0        | 22.40           | 36.34          | 18.67          | NO    |
| 600.        | 13.96             | 4    | 10.0          | 10.0          | 3200.0        | 29.11           | 43.08          | 21.93          | NO    |
| 700.        | 12.99             | 4    | 10.0          | 10.0          | 3200.0        | 29.11           | 49.50          | 24.67          | NO    |
| 800.        | 12.09             | 4    | 8.0           | 8.0           | 2560.0        | 33.96           | 56.00          | 27.67          | NO    |
| 900.        | 11.25             | 4    | 8.0           | 8.0           | 2560.0        | 33.96           | 62.27          | 30.27          | NO    |
| 1000.       | 10.36             | 4    | 8.0           | 8.0           | 2560.0        | 33.96           | 68.48          | 32.83          | NO    |
| 1100.       | 9.515             | 4    | 8.0           | 8.0           | 2560.0        | 33.96           | 74.63          | 34.82          | NO    |
| 1200.       | 9.090             | 4    | 5.0           | 5.0           | 1600.0        | 48.53           | 81.20          | 37.76          | NO    |
| 1300.       | 8.696             | 4    | 5.0           | 5.0           | 1600.0        | 48.53           | 87.23          | 39.59          | NO    |

|        |       |   |     |     |         |       |         |       |    |
|--------|-------|---|-----|-----|---------|-------|---------|-------|----|
| 1400.  | 8.296 | 4 | 5.0 | 5.0 | 1600.0  | 48.53 | 93.22   | 41.38 | NO |
| 1500.  | 7.902 | 4 | 5.0 | 5.0 | 1600.0  | 48.53 | 99.17   | 43.12 | NO |
| 1600.  | 7.521 | 4 | 5.0 | 5.0 | 1600.0  | 48.53 | 105.08  | 44.83 | NO |
| 1700.  | 7.192 | 4 | 4.5 | 4.5 | 1440.0  | 52.85 | 111.09  | 46.82 | NO |
| 1800.  | 6.887 | 4 | 4.5 | 4.5 | 1440.0  | 52.85 | 116.94  | 48.46 | NO |
| 1900.  | 6.922 | 5 | 1.5 | 1.5 | 10000.0 | 78.85 | 93.46   | 37.97 | NO |
| 2000.  | 7.146 | 5 | 1.5 | 1.5 | 10000.0 | 78.85 | 97.72   | 38.89 | NO |
| 2100.  | 7.360 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 102.55  | 41.20 | NO |
| 2200.  | 7.558 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 106.76  | 41.98 | NO |
| 2300.  | 7.736 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 110.95  | 42.75 | NO |
| 2400.  | 7.894 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 115.13  | 43.51 | NO |
| 2500.  | 8.034 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 119.30  | 44.26 | NO |
| 2600.  | 8.156 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 123.46  | 45.01 | NO |
| 2700.  | 8.262 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 127.61  | 45.74 | NO |
| 2800.  | 8.353 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 131.74  | 46.47 | NO |
| 2900.  | 8.430 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 135.86  | 47.19 | NO |
| 3000.  | 8.494 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 139.97  | 47.90 | NO |
| 3500.  | 8.652 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 160.36  | 51.36 | NO |
| 4000.  | 8.608 | 5 | 1.0 | 1.0 | 10000.0 | 88.86 | 180.48  | 54.67 | NO |
| 4500.  | 8.473 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 133.83  | 37.60 | NO |
| 5000.  | 8.591 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 146.88  | 39.02 | NO |
| 5500.  | 8.638 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 159.80  | 40.39 | NO |
| 6000.  | 8.628 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 172.60  | 41.70 | NO |
| 6500.  | 8.576 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 185.30  | 42.96 | NO |
| 7000.  | 8.493 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 197.89  | 44.19 | NO |
| 7500.  | 8.344 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 210.38  | 45.24 | NO |
| 8000.  | 8.187 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 222.78  | 46.26 | NO |
| 8500.  | 8.024 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 235.09  | 47.25 | NO |
| 9000.  | 7.860 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 247.32  | 48.21 | NO |
| 9500.  | 7.694 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 259.47  | 49.13 | NO |
| 10000. | 7.530 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 271.55  | 50.04 | NO |
| 15000. | 6.064 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 388.88  | 58.01 | NO |
| 20000. | 4.931 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 501.30  | 63.15 | NO |
| 25000. | 4.143 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 610.04  | 67.52 | NO |
| 30000. | 3.566 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 715.83  | 71.35 | NO |
| 40000. | 2.781 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 920.42  | 76.82 | NO |
| 50000. | 2.279 | 6 | 1.0 | 1.0 | 10000.0 | 75.39 | 1117.58 | 81.39 | NO |

|                                               |       |   |      |      |        |       |       |       |    |
|-----------------------------------------------|-------|---|------|------|--------|-------|-------|-------|----|
| MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 5. M: |       |   |      |      |        |       |       |       |    |
| 308.                                          | 18.13 | 4 | 20.0 | 20.0 | 6400.0 | 18.69 | 23.40 | 12.69 | NO |

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
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| CALCULATION<br>PROCEDURE | MAX CONC<br>(UG/M**3) | DIST TO<br>MAX (M) | TERRAIN<br>HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| -----                    | -----                 | -----              | -----             |
| SIMPLE TERRAIN           | 18.13                 | 308.               | 0.                |

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\*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*

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07/26/22

09:07:25

\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 13043 \*\*\*

Grand Slam MSS-Flare

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = FLARE  
EMISSION RATE (G/S) = 1.000000  
FLARE STACK HEIGHT (M) = 6.0976  
TOT HEAT RLS (CAL/S) = 0.143496E+08  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
EFF RELEASE HEIGHT (M) = 18.1184  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BOUY. FLUX = 237.921 M\*\*4/S\*\*3; MOM. FLUX = 145.079 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

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\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*

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\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

| DIST<br>(M) | CONC<br>(UG/M**3) | STAB | U10M<br>(M/S) | USTK<br>(M/S) | MIX HT<br>(M) | PLUME<br>HT (M) | SIGMA<br>Y (M) | SIGMA<br>Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 5.          | 0.000             | 1    | 1.0           | 1.0           | 1009.1        | 1008.07         | 8.14           | 7.99           | NO    |
| 100.        | 0.6196E-01        | 5    | 1.0           | 1.2           | 10000.0       | 189.95          | 49.48          | 49.22          | NO    |
| 200.        | 0.6549E-01        | 5    | 1.0           | 1.2           | 10000.0       | 189.95          | 50.45          | 49.49          | NO    |
| 300.        | 0.7043E-01        | 5    | 1.0           | 1.2           | 10000.0       | 189.95          | 51.92          | 49.86          | NO    |
| 400.        | 0.7588E-01        | 5    | 1.0           | 1.2           | 10000.0       | 189.95          | 53.80          | 50.27          | NO    |
| 500.        | 0.1540            | 4    | 20.0          | 21.9          | 6400.0        | 62.38           | 37.06          | 20.03          | NO    |
| 600.        | 0.4689            | 1    | 3.0           | 3.1           | 960.0         | 348.10          | 147.67         | 166.88         | NO    |
| 700.        | 0.8124            | 1    | 3.0           | 3.1           | 960.0         | 348.10          | 168.22         | 224.96         | NO    |
| 800.        | 0.9114            | 1    | 3.0           | 3.1           | 960.0         | 348.10          | 188.33         | 293.57         | NO    |
| 900.        | 1.065             | 4    | 20.0          | 21.9          | 6400.0        | 62.38           | 63.05          | 31.84          | NO    |
| 1000.       | 1.195             | 4    | 20.0          | 21.9          | 6400.0        | 62.38           | 69.35          | 34.61          | NO    |
| 1100.       | 1.238             | 4    | 20.0          | 21.9          | 6400.0        | 62.38           | 75.52          | 36.69          | NO    |
| 1200.       | 1.249             | 4    | 20.0          | 21.9          | 6400.0        | 62.38           | 81.56          | 38.53          | NO    |
| 1300.       | 1.246             | 4    | 20.0          | 21.9          | 6400.0        | 62.38           | 87.56          | 40.32          | NO    |

|        |        |   |      |      |         |        |         |        |    |
|--------|--------|---|------|------|---------|--------|---------|--------|----|
| 1400.  | 1.233  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 93.53   | 42.08  | NO |
| 1500.  | 1.212  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 99.46   | 43.80  | NO |
| 1600.  | 1.186  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 105.36  | 45.48  | NO |
| 1700.  | 1.157  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 111.23  | 47.14  | NO |
| 1800.  | 1.125  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 117.06  | 48.76  | NO |
| 1900.  | 1.092  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 122.87  | 50.36  | NO |
| 2000.  | 1.059  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 128.65  | 51.93  | NO |
| 2100.  | 1.026  | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 134.41  | 53.48  | NO |
| 2200.  | 0.9929 | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 140.13  | 55.00  | NO |
| 2300.  | 0.9605 | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 145.84  | 56.51  | NO |
| 2400.  | 0.9290 | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 151.51  | 57.99  | NO |
| 2500.  | 0.8985 | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 157.17  | 59.45  | NO |
| 2600.  | 0.8690 | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 162.80  | 60.90  | NO |
| 2700.  | 0.8405 | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 168.42  | 62.32  | NO |
| 2800.  | 0.8131 | 4 | 20.0 | 21.9 | 6400.0  | 62.38  | 174.01  | 63.73  | NO |
| 2900.  | 0.7901 | 4 | 15.0 | 16.4 | 4800.0  | 79.64  | 179.97  | 66.20  | NO |
| 3000.  | 0.7730 | 4 | 15.0 | 16.4 | 4800.0  | 79.64  | 185.51  | 67.55  | NO |
| 3500.  | 0.6898 | 4 | 15.0 | 16.4 | 4800.0  | 79.64  | 212.95  | 73.71  | NO |
| 4000.  | 0.6160 | 4 | 15.0 | 16.4 | 4800.0  | 79.64  | 239.98  | 79.55  | NO |
| 4500.  | 0.6250 | 5 | 3.5  | 4.3  | 10000.0 | 131.30 | 201.69  | 61.93  | NO |
| 5000.  | 0.6536 | 5 | 3.0  | 3.7  | 10000.0 | 137.26 | 221.49  | 65.29  | NO |
| 5500.  | 0.6801 | 5 | 2.5  | 3.1  | 10000.0 | 144.73 | 241.15  | 68.74  | NO |
| 6000.  | 0.7044 | 5 | 2.0  | 2.5  | 10000.0 | 154.50 | 260.70  | 72.45  | NO |
| 6500.  | 0.7253 | 5 | 2.0  | 2.5  | 10000.0 | 154.50 | 279.67  | 74.59  | NO |
| 7000.  | 0.7469 | 5 | 1.5  | 1.8  | 10000.0 | 168.23 | 299.03  | 78.74  | NO |
| 7500.  | 0.7658 | 5 | 1.5  | 1.8  | 10000.0 | 168.23 | 317.68  | 80.71  | NO |
| 8000.  | 0.7812 | 5 | 1.5  | 1.8  | 10000.0 | 168.23 | 336.21  | 82.64  | NO |
| 8500.  | 0.7991 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 355.43  | 87.84  | NO |
| 9000.  | 0.8166 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 373.68  | 89.62  | NO |
| 9500.  | 0.8317 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 391.83  | 91.36  | NO |
| 10000. | 0.8444 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 409.87  | 93.07  | NO |
| 15000. | 0.8610 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 585.45  | 107.43 | NO |
| 20000. | 0.8145 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 753.92  | 119.82 | NO |
| 25000. | 0.7365 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 916.98  | 128.61 | NO |
| 30000. | 0.6684 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 1075.66 | 136.45 | NO |
| 40000. | 0.5594 | 5 | 1.0  | 1.2  | 10000.0 | 189.95 | 1382.59 | 150.12 | NO |
| 50000. | 0.4969 | 6 | 1.0  | 1.4  | 10000.0 | 155.17 | 1118.11 | 88.34  | NO |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 5. M:

|       |       |   |      |      |        |       |       |       |    |
|-------|-------|---|------|------|--------|-------|-------|-------|----|
| 1224. | 1.250 | 4 | 20.0 | 21.9 | 6400.0 | 62.38 | 82.95 | 38.94 | NO |
|-------|-------|---|------|------|--------|-------|-------|-------|----|

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\* INVERSION BREAK-UP FUMIGATION CALC. \*\*\*

CONC (UG/M\*\*3) = 1.962

DIST TO MAX (M) = 11600.69

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

| CALCULATION<br>PROCEDURE | MAX CONC<br>(UG/M**3) | DIST TO<br>MAX (M) | TERRAIN<br>HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| -----                    | -----                 | -----              | -----             |
| SIMPLE TERRAIN           | 1.250                 | 1224.              | 0.                |
| INV BREAKUP FUMI         | 1.962                 | 11601.             | --                |

\*\*\*\*\*  
 \*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*  
 \*\*\*\*\*

# Reboiler Heaters.OUT

04/08/20

11:23:54

\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 13043 \*\*\*

## Reboiler Heaters

### SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT  
 EMISSION RATE (G/S) = 1.000000  
 STACK HEIGHT (M) = 7.6220  
 STK INSIDE DIAM (M) = 0.6098  
 STK EXIT VELOCITY (M/S)= 12.5000  
 STK GAS EXIT TEMP (K) = 533.0000  
 AMBIENT AIR TEMP (K) = 293.0000  
 RECEPTOR HEIGHT (M) = 0.0000  
 URBAN/RURAL OPTION = RURAL  
 BUILDING HEIGHT (M) = 0.0000  
 MIN HORIZ BLDG DIM (M) = 0.0000  
 MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 5.131 M\*\*4/S\*\*3; MOM. FLUX = 7.985 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*

\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*

\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

| DIST<br>(M) | CONC<br>(UG/M**3) | STAB | U10M<br>(M/S) | USTK<br>(M/S) | MIX HT<br>(M) | PLUME<br>HT (M) | SIGMA<br>Y (M) | SIGMA<br>Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 5.          | 0.000             | 1    | 1.0           | 1.0           | 320.0         | 80.66           | 3.11           | 2.67           | NO    |
| 100.        | 52.94             | 3    | 10.0          | 10.0          | 3200.0        | 14.62           | 12.58          | 7.63           | NO    |
| 200.        | 62.88             | 4    | 15.0          | 15.0          | 4800.0        | 11.68           | 15.63          | 8.61           | NO    |
| 300.        | 56.49             | 4    | 8.0           | 8.0           | 2560.0        | 16.75           | 22.76          | 12.37          | NO    |
| 400.        | 50.43             | 4    | 5.0           | 5.0           | 1600.0        | 22.23           | 29.75          | 15.83          | NO    |
| 500.        | 46.27             | 4    | 4.5           | 4.5           | 1440.0        | 23.85           | 36.44          | 18.88          | NO    |
| 600.        | 41.95             | 4    | 4.0           | 4.0           | 1280.0        | 25.88           | 43.03          | 21.84          | NO    |
| 700.        | 38.24             | 4    | 3.5           | 3.5           | 1120.0        | 28.49           | 49.55          | 24.76          | NO    |
| 800.        | 35.12             | 4    | 3.0           | 3.0           | 960.0         | 31.97           | 56.01          | 27.67          | NO    |
| 900.        | 32.30             | 4    | 2.5           | 2.5           | 800.0         | 36.84           | 62.44          | 30.63          | NO    |

Reboiler Heaters.OUT

|        |       |   |     |     |         |       |         |       |    |
|--------|-------|---|-----|-----|---------|-------|---------|-------|----|
| 1000.  | 30.18 | 4 | 2.5 | 2.5 | 800.0   | 36.84 | 68.64   | 33.16 | NO |
| 1100.  | 27.97 | 4 | 2.5 | 2.5 | 800.0   | 36.84 | 74.78   | 35.13 | NO |
| 1200.  | 26.19 | 4 | 2.0 | 2.0 | 640.0   | 44.14 | 81.11   | 37.57 | NO |
| 1300.  | 24.75 | 4 | 2.0 | 2.0 | 640.0   | 44.14 | 87.15   | 39.41 | NO |
| 1400.  | 23.36 | 4 | 2.0 | 2.0 | 640.0   | 44.14 | 93.14   | 41.20 | NO |
| 1500.  | 23.50 | 5 | 1.0 | 1.0 | 10000.0 | 58.89 | 75.14   | 31.54 | NO |
| 1600.  | 23.98 | 5 | 1.0 | 1.0 | 10000.0 | 58.89 | 79.51   | 32.57 | NO |
| 1700.  | 24.30 | 5 | 1.0 | 1.0 | 10000.0 | 58.89 | 83.86   | 33.59 | NO |
| 1800.  | 24.50 | 5 | 1.0 | 1.0 | 10000.0 | 58.89 | 88.20   | 34.59 | NO |
| 1900.  | 24.79 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 61.98   | 24.21 | NO |
| 2000.  | 25.63 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 64.82   | 24.81 | NO |
| 2100.  | 26.10 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 67.66   | 25.32 | NO |
| 2200.  | 26.50 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 70.48   | 25.82 | NO |
| 2300.  | 26.82 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 73.29   | 26.31 | NO |
| 2400.  | 27.08 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 76.10   | 26.80 | NO |
| 2500.  | 27.28 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 78.89   | 27.28 | NO |
| 2600.  | 27.42 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 81.67   | 27.76 | NO |
| 2700.  | 27.52 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 84.45   | 28.22 | NO |
| 2800.  | 27.57 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 87.22   | 28.68 | NO |
| 2900.  | 27.59 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 89.97   | 29.14 | NO |
| 3000.  | 27.57 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 92.72   | 29.59 | NO |
| 3500.  | 26.64 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 106.35  | 31.43 | NO |
| 4000.  | 25.51 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 119.79  | 33.15 | NO |
| 4500.  | 24.30 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 133.06  | 34.77 | NO |
| 5000.  | 23.09 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 146.18  | 36.30 | NO |
| 5500.  | 21.92 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 159.16  | 37.77 | NO |
| 6000.  | 20.81 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 172.01  | 39.17 | NO |
| 6500.  | 19.76 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 184.74  | 40.51 | NO |
| 7000.  | 18.78 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 197.37  | 41.81 | NO |
| 7500.  | 17.85 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 209.89  | 42.92 | NO |
| 8000.  | 16.99 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 222.32  | 43.99 | NO |
| 8500.  | 16.20 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 234.65  | 45.03 | NO |
| 9000.  | 15.47 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 246.91  | 46.03 | NO |
| 9500.  | 14.79 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 259.08  | 47.01 | NO |
| 10000. | 14.16 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 271.18  | 47.95 | NO |
| 15000. | 9.785 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 388.62  | 56.21 | NO |
| 20000. | 7.406 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 501.10  | 61.51 | NO |
| 25000. | 5.925 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 609.87  | 65.98 | NO |
| 30000. | 4.918 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 715.69  | 69.90 | NO |
| 40000. | 3.674 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 920.30  | 75.47 | NO |
| 50000. | 2.922 | 6 | 1.0 | 1.0 | 10000.0 | 50.16 | 1117.49 | 80.12 | NO |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 5. M:

|      |       |   |      |      |        |       |       |       |    |
|------|-------|---|------|------|--------|-------|-------|-------|----|
| 139. | 66.11 | 3 | 10.0 | 10.0 | 3200.0 | 14.62 | 17.13 | 10.34 | NO |
|------|-------|---|------|------|--------|-------|-------|-------|----|

DWASH= MEANS NO CALC MADE (CONC = 0.0)

DWASH=NO MEANS NO BUILDING DOWNWASH USED

DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED

DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE,  $X < 3 \cdot LB$

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

| CALCULATION<br>PROCEDURE | MAX CONC<br>(UG/M**3) | DIST TO<br>MAX (M) | TERRAIN<br>HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| -----                    | -----                 | -----              | -----             |
| SIMPLE TERRAIN           | 66.11                 | 139.               | 0.                |

\*\*\*\*\*  
 \*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*  
 \*\*\*\*\*

07/26/22  
12:58:19

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 13043 \*\*\*

Grand Slam Vapor Combustor -Tanks

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = FLARE  
EMISSION RATE (G/S) = 1.000000  
FLARE STACK HEIGHT (M) = 6.0976  
TOT HEAT RLS (CAL/S) = 0.685174E+07  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
EFF RELEASE HEIGHT (M) = 14.5402  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BOUY. FLUX = 113.604 M\*\*4/S\*\*3; MOM. FLUX = 69.273 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

| DIST<br>(M) | CONC<br>(UG/M**3) | STAB | U10M<br>(M/S) | USTK<br>(M/S) | MIX HT<br>(M) | PLUME<br>HT (M) | SIGMA<br>Y (M) | SIGMA<br>Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 5.          | 0.000             | 1    | 1.0           | 1.0           | 660.7         | 659.72          | 6.56           | 6.36           | NO    |
| 100.        | 0.1056            | 5    | 1.0           | 1.1           | 10000.0       | 152.34          | 39.84          | 39.53          | NO    |
| 200.        | 0.1150            | 5    | 1.0           | 1.1           | 10000.0       | 152.34          | 41.05          | 39.86          | NO    |
| 300.        | 0.1625            | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 23.09          | 12.97          | NO    |
| 400.        | 0.8130            | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 30.00          | 16.29          | NO    |
| 500.        | 1.644             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 36.74          | 19.45          | NO    |
| 600.        | 2.288             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 43.36          | 22.48          | NO    |
| 700.        | 2.665             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 49.88          | 25.41          | NO    |
| 800.        | 2.823             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 56.29          | 28.24          | NO    |
| 900.        | 2.826             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 62.53          | 30.79          | NO    |
| 1000.       | 2.756             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 68.71          | 33.32          | NO    |
| 1100.       | 2.625             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 74.85          | 35.28          | NO    |
| 1200.       | 2.489             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 80.94          | 37.18          | NO    |
| 1300.       | 2.353             | 4    | 20.0          | 21.2          | 6400.0        | 43.92           | 86.98          | 39.04          | NO    |

|        |        |   |      |      |         |        |         |        |    |
|--------|--------|---|------|------|---------|--------|---------|--------|----|
| 1400.  | 2.222  | 4 | 20.0 | 21.2 | 6400.0  | 43.92  | 92.98   | 40.85  | NO |
| 1500.  | 2.098  | 4 | 20.0 | 21.2 | 6400.0  | 43.92  | 98.95   | 42.62  | NO |
| 1600.  | 1.985  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 105.17  | 45.05  | NO |
| 1700.  | 1.912  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 111.05  | 46.72  | NO |
| 1800.  | 1.839  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 116.89  | 48.36  | NO |
| 1900.  | 1.768  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 122.71  | 49.97  | NO |
| 2000.  | 1.698  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 128.50  | 51.55  | NO |
| 2100.  | 1.631  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 134.26  | 53.11  | NO |
| 2200.  | 1.567  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 139.99  | 54.64  | NO |
| 2300.  | 1.506  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 145.70  | 56.16  | NO |
| 2400.  | 1.447  | 4 | 15.0 | 15.9 | 4800.0  | 55.45  | 151.38  | 57.65  | NO |
| 2500.  | 1.401  | 4 | 10.0 | 10.6 | 3200.0  | 77.15  | 157.61  | 60.60  | NO |
| 2600.  | 1.371  | 4 | 10.0 | 10.6 | 3200.0  | 77.15  | 163.23  | 62.02  | NO |
| 2700.  | 1.341  | 4 | 10.0 | 10.6 | 3200.0  | 77.15  | 168.83  | 63.42  | NO |
| 2800.  | 1.311  | 4 | 10.0 | 10.6 | 3200.0  | 77.15  | 174.40  | 64.80  | NO |
| 2900.  | 1.281  | 4 | 10.0 | 10.6 | 3200.0  | 77.15  | 179.96  | 66.17  | NO |
| 3000.  | 1.251  | 4 | 10.0 | 10.6 | 3200.0  | 77.15  | 185.50  | 67.53  | NO |
| 3500.  | 1.313  | 5 | 2.5  | 2.8  | 10000.0 | 116.07 | 161.38  | 54.48  | NO |
| 4000.  | 1.415  | 5 | 2.0  | 2.3  | 10000.0 | 123.91 | 181.76  | 58.76  | NO |
| 4500.  | 1.479  | 5 | 1.5  | 1.7  | 10000.0 | 134.92 | 202.03  | 63.03  | NO |
| 5000.  | 1.535  | 5 | 1.5  | 1.7  | 10000.0 | 134.92 | 221.55  | 65.47  | NO |
| 5500.  | 1.586  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 241.65  | 70.48  | NO |
| 6000.  | 1.637  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 260.76  | 72.67  | NO |
| 6500.  | 1.678  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 279.72  | 74.80  | NO |
| 7000.  | 1.708  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 298.54  | 76.88  | NO |
| 7500.  | 1.730  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 317.23  | 78.90  | NO |
| 8000.  | 1.744  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 335.78  | 80.87  | NO |
| 8500.  | 1.752  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 354.22  | 82.80  | NO |
| 9000.  | 1.755  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 372.53  | 84.68  | NO |
| 9500.  | 1.753  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 390.73  | 86.53  | NO |
| 10000. | 1.747  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 408.82  | 88.33  | NO |
| 15000. | 1.559  | 5 | 1.0  | 1.1  | 10000.0 | 152.34 | 584.71  | 103.35 | NO |
| 20000. | 1.371  | 6 | 1.0  | 1.2  | 10000.0 | 126.07 | 501.96  | 68.20  | NO |
| 25000. | 1.282  | 6 | 1.0  | 1.2  | 10000.0 | 126.07 | 610.58  | 72.26  | NO |
| 30000. | 1.198  | 6 | 1.0  | 1.2  | 10000.0 | 126.07 | 716.30  | 75.85  | NO |
| 40000. | 1.035  | 6 | 1.0  | 1.2  | 10000.0 | 126.07 | 920.78  | 81.02  | NO |
| 50000. | 0.9123 | 6 | 1.0  | 1.2  | 10000.0 | 126.07 | 1117.88 | 85.36  | NO |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 5. M:

|      |       |   |      |      |        |       |       |       |    |
|------|-------|---|------|------|--------|-------|-------|-------|----|
| 851. | 2.836 | 4 | 20.0 | 21.2 | 6400.0 | 43.92 | 59.54 | 29.57 | NO |
|------|-------|---|------|------|--------|-------|-------|-------|----|

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
DWASH=NO MEANS NO BUILDING DOWNWASH USED  
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
\*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
\*\*\*\*\*

| CALCULATION<br>PROCEDURE | MAX CONC<br>(UG/M**3) | DIST TO<br>MAX (M) | TERRAIN<br>HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| -----                    | -----                 | -----              | -----             |
| SIMPLE TERRAIN           | 2.836                 | 851.               | 0.                |

\*\*\*\*\*

\*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*

\*\*\*\*\*

07/26/22

09:14:33

\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 13043 \*\*\*

Grand Slam Vapor Combustor - Dehydrator

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = FLARE  
EMISSION RATE (G/S) = 1.000000  
FLARE STACK HEIGHT (M) = 6.0976  
TOT HEAT RLS (CAL/S) = 252806.  
RECEPTOR HEIGHT (M) = 0.0000  
URBAN/RURAL OPTION = RURAL  
EFF RELEASE HEIGHT (M) = 7.8414  
BUILDING HEIGHT (M) = 0.0000  
MIN HORIZ BLDG DIM (M) = 0.0000  
MAX HORIZ BLDG DIM (M) = 0.0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.

THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 4.192 M\*\*4/S\*\*3; MOM. FLUX = 2.556 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*

\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*

\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

| DIST<br>(M) | CONC<br>(UG/M**3) | STAB | U10M<br>(M/S) | USTK<br>(M/S) | MIX HT<br>(M) | PLUME<br>HT (M) | SIGMA<br>Y (M) | SIGMA<br>Z (M) | DWASH |
|-------------|-------------------|------|---------------|---------------|---------------|-----------------|----------------|----------------|-------|
| 5.          | 0.000             | 1    | 1.0           | 1.0           | 320.0         | 70.60           | 2.80           | 2.31           | NO    |
| 100.        | 59.56             | 3    | 10.0          | 10.0          | 3200.0        | 14.12           | 12.56          | 7.61           | NO    |
| 200.        | 68.25             | 3    | 5.0           | 5.0           | 1600.0        | 20.39           | 23.89          | 14.48          | NO    |
| 300.        | 63.12             | 4    | 8.0           | 8.0           | 2560.0        | 15.69           | 22.72          | 12.30          | NO    |
| 400.        | 58.74             | 4    | 5.0           | 5.0           | 1600.0        | 20.39           | 29.67          | 15.68          | NO    |
| 500.        | 53.15             | 4    | 4.0           | 4.0           | 1280.0        | 23.53           | 36.42          | 18.84          | NO    |
| 600.        | 48.22             | 4    | 3.5           | 3.5           | 1120.0        | 25.77           | 43.02          | 21.82          | NO    |
| 700.        | 44.05             | 4    | 3.0           | 3.0           | 960.0         | 28.76           | 49.55          | 24.77          | NO    |
| 800.        | 40.45             | 4    | 2.5           | 2.5           | 800.0         | 32.95           | 56.03          | 27.73          | NO    |
| 900.        | 37.35             | 4    | 2.5           | 2.5           | 800.0         | 32.95           | 62.30          | 30.33          | NO    |
| 1000.       | 34.77             | 4    | 2.0           | 2.0           | 640.0         | 39.22           | 68.71          | 33.32          | NO    |
| 1100.       | 32.49             | 4    | 2.0           | 2.0           | 640.0         | 39.22           | 74.85          | 35.28          | NO    |
| 1200.       | 30.32             | 4    | 2.0           | 2.0           | 640.0         | 39.22           | 80.94          | 37.19          | NO    |
| 1300.       | 28.29             | 4    | 2.0           | 2.0           | 640.0         | 39.22           | 86.98          | 39.04          | NO    |

|        |       |   |     |     |         |       |         |       |    |
|--------|-------|---|-----|-----|---------|-------|---------|-------|----|
| 1400.  | 26.82 | 5 | 1.0 | 1.0 | 10000.0 | 55.76 | 70.56   | 30.04 | NO |
| 1500.  | 27.37 | 5 | 1.0 | 1.0 | 10000.0 | 55.76 | 74.96   | 31.11 | NO |
| 1600.  | 27.73 | 5 | 1.0 | 1.0 | 10000.0 | 55.76 | 79.34   | 32.15 | NO |
| 1700.  | 27.92 | 5 | 1.0 | 1.0 | 10000.0 | 55.76 | 83.70   | 33.18 | NO |
| 1800.  | 28.35 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 58.97   | 23.21 | NO |
| 1900.  | 29.33 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 61.83   | 23.82 | NO |
| 2000.  | 30.16 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 64.68   | 24.43 | NO |
| 2100.  | 30.59 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 67.52   | 24.95 | NO |
| 2200.  | 30.92 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 70.35   | 25.46 | NO |
| 2300.  | 31.18 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 73.17   | 25.96 | NO |
| 2400.  | 31.35 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 75.97   | 26.45 | NO |
| 2500.  | 31.47 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 78.77   | 26.94 | NO |
| 2600.  | 31.52 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 81.56   | 27.42 | NO |
| 2700.  | 31.52 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 84.34   | 27.89 | NO |
| 2800.  | 31.48 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 87.11   | 28.36 | NO |
| 2900.  | 31.40 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 89.87   | 28.82 | NO |
| 3000.  | 31.28 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 92.62   | 29.27 | NO |
| 3500.  | 29.88 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 106.26  | 31.13 | NO |
| 4000.  | 28.33 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 119.71  | 32.86 | NO |
| 4500.  | 26.77 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 132.99  | 34.50 | NO |
| 5000.  | 25.26 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 146.11  | 36.04 | NO |
| 5500.  | 23.84 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 159.10  | 37.52 | NO |
| 6000.  | 22.51 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 171.95  | 38.93 | NO |
| 6500.  | 21.28 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 184.69  | 40.28 | NO |
| 7000.  | 20.14 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 197.32  | 41.58 | NO |
| 7500.  | 19.08 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 209.85  | 42.70 | NO |
| 8000.  | 18.11 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 222.28  | 43.78 | NO |
| 8500.  | 17.22 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 234.61  | 44.82 | NO |
| 9000.  | 16.40 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 246.87  | 45.83 | NO |
| 9500.  | 15.65 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 259.04  | 46.81 | NO |
| 10000. | 14.96 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 271.14  | 47.76 | NO |
| 15000. | 10.19 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 388.59  | 56.05 | NO |
| 20000. | 7.662 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 501.08  | 61.36 | NO |
| 25000. | 6.104 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 609.86  | 65.84 | NO |
| 30000. | 5.051 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 715.68  | 69.77 | NO |
| 40000. | 3.760 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 920.29  | 75.35 | NO |
| 50000. | 2.983 | 6 | 1.0 | 1.0 | 10000.0 | 47.61 | 1117.48 | 80.00 | NO |

|                                         |       |   |     |     |        |       |       |       |    |
|-----------------------------------------|-------|---|-----|-----|--------|-------|-------|-------|----|
| MAXIMUM 1-HR CONCENTRATION AT OR BEYOND | 5. M: |   |     |     |        |       |       |       |    |
| 150.                                    | 71.75 | 3 | 8.0 | 8.0 | 2560.0 | 15.69 | 18.37 | 11.08 | NO |

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

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 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
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| CALCULATION<br>PROCEDURE | MAX CONC<br>(UG/M**3) | DIST TO<br>MAX (M) | TERRAIN<br>HT (M) |
|--------------------------|-----------------------|--------------------|-------------------|
| -----                    | -----                 | -----              | -----             |
| SIMPLE TERRAIN           | 71.75                 | 150.               | 0.                |

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\*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*

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