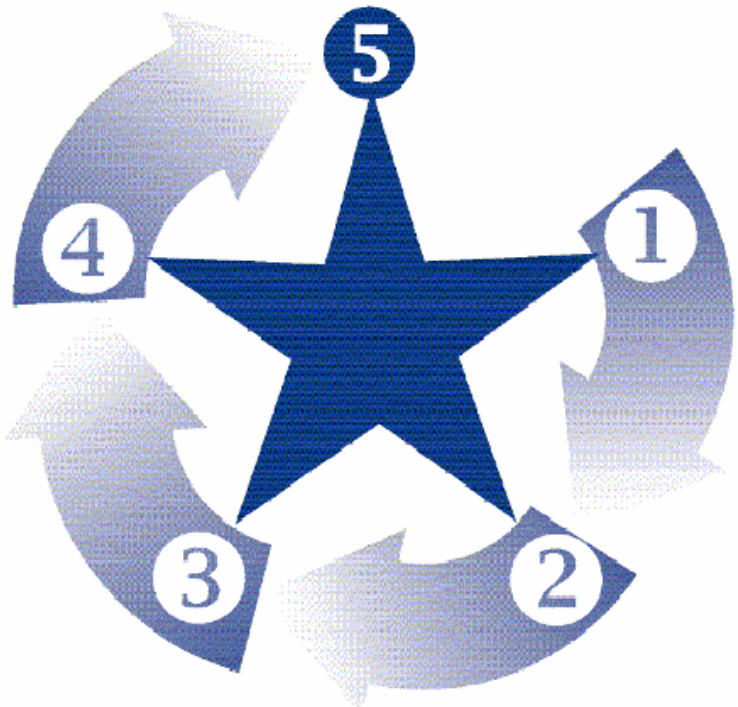
STAR Program
Implementation Workshops

STAR Workshop 102

March 16, 2006

STAR Program

Strategic Toxic Air Reduction



1. Emissions levels
2. Release points
3. Modeling
4. Reduction plan
5. Compliance

Agenda

- Tier 3 Modeling – Billy DeWitt
- Information needed for Tier 4 modeling – Billy Dewitt
- Demonstrating environmental acceptability – Jon Trout
- Determining cumulative risk
  - Dwain Kincaid, Kentuckiana Engineering Co.
  - Todd Royer, URS Corp.

Agenda (Continued)

- SAM 82 – Issues and lessons learned – Bo Fawbush
- SAM 81 – Actual emissions – Bo Fawbush
- Excess emissions reporting – Jess Goldsmith
- Questions
- Suggested topics for STAR Workshop 103

How is Risk Determined?

$$\text{Risk} = \frac{\text{Maximum Concentration } (\mu g/m^3)}{\text{BAC } (\mu g/m^3)}$$

Agenda Bonus

- Useful conversion equations

Lb/hr and µg/m^3

- __Lb/hr x 2.67x10^8 / SCFM = __µg/m^3
- __µg/m^3 x SCFM / 2.67x10^8 = __Lb/hr

ppm & ppb and mg/m^3 & µg/m^3

- __ppm x 0.04088 x mol. wt. = __mg/m^3
- __mg/m^3 x 24.4638 / mol. wt. = __ppm
- __mg/m^3 x 1000 = __µg/m^3
- __µg/m^3 / 1000 = __mg/m^3
- __ppb x 0.04088 x mol wt. = __µg/m^3
- __µg/m^3 x 24.4638 / mol. wt. = __ppb

(ppm & ppb equations @ 77 °F)

Lb/hr and g/sec

- __Lb/hr x 0.126 = __g/sec
- __g/sec x 7.93 = __Lb/hr

Thus, 1 g/sec = 7.93 Lb/hr

Feet, Inches, and Meters

- __feet x 0.3048 = __meters
- __inches x 0.0254 = __meters

- __meters x 3.281 = __feet
- __meters x 39.37 = __inches

Lb/hr and T/yr

Potential @ “24-7” full operation

- __Lb/hr x 4.38 = __T/yr
- __Lb/hr x 8760 = __Lb/yr

Temperature

- [(__°F + 40) x 5/9] – 40 = __°C
- [(__°C + 40) x 9/5] – 40 = __°F
- (__°F + 460) x 5/9 = __°K
- __°C + 273 = __°K

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STAR Program

Strategic Toxic Air Reduction

STAR Tier 3 modeling

Billy DeWitt
Environmental Coordinator
Louisville Metro Air Pollution Control District

Screen Models

- Screening models are used as a conservative first run screening tool and estimate worst case scenario impacts for point, volume, and area sources.
- Screen model outputs portray a dispersion curve showing the change in pollutant concentration as distance from the facility increases

Screen 3 & TSCREEN Model

http://www.epa.gov/scram001/dispersion_screening.htm

Screen 3

- The Screen3 model is a Gaussian, steady-state dispersion model used for making simple screening evaluations for neutrally buoyant, continuous emissions from a single source.

Getting Started – Screen 3

- Convert all lengths and distances to meters
- Convert temperature to degrees Kelvin
- Figure building contributions to air dispersion (stack emissions)
- Screen 3 should be run in regulatory default mode

TSCREEN

TSCREEN is a screening modeling system for toxic releases that consists of four different dispersion models:

- SCREEN3 for neutrally buoyant, continuous releases;
- PUFF for neutrally buoyant, non-continuous releases;
- RVD for dense gas jet releases;
- Britter-McQuaid Model for continuous or puff dense gas area sources.

Getting Started - TSCREEN

- Convert all lengths and distances to meters
- Convert temperature to degrees Kelvin
- Figure building contributions to air dispersion (stack emissions)
- Inputs must be submitted with results because there is no regulatory default mode for TSCREEN

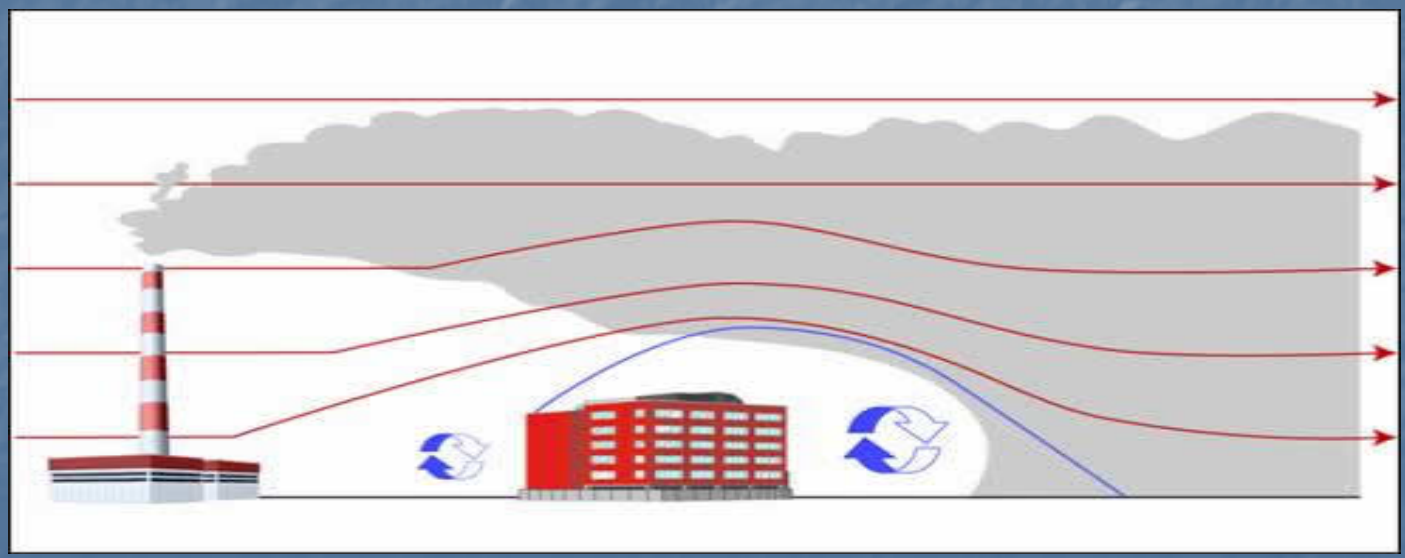
Figuring Building Contributions

- Run the model using building downwash option

Use Building Downwash option for **each building** where the structure lies within GEP 5L Area of Influence. Differing building dimensions create different cavity concentrations.

Building Downwash

- The presence of buildings can create turbulent wake zones that can force pollutants to the surface.



Picture taken from Ontario Ministry of the Environment
http://www.ene.gov.on.ca/envision/techdocs/3614e02.htm

GEP stack height

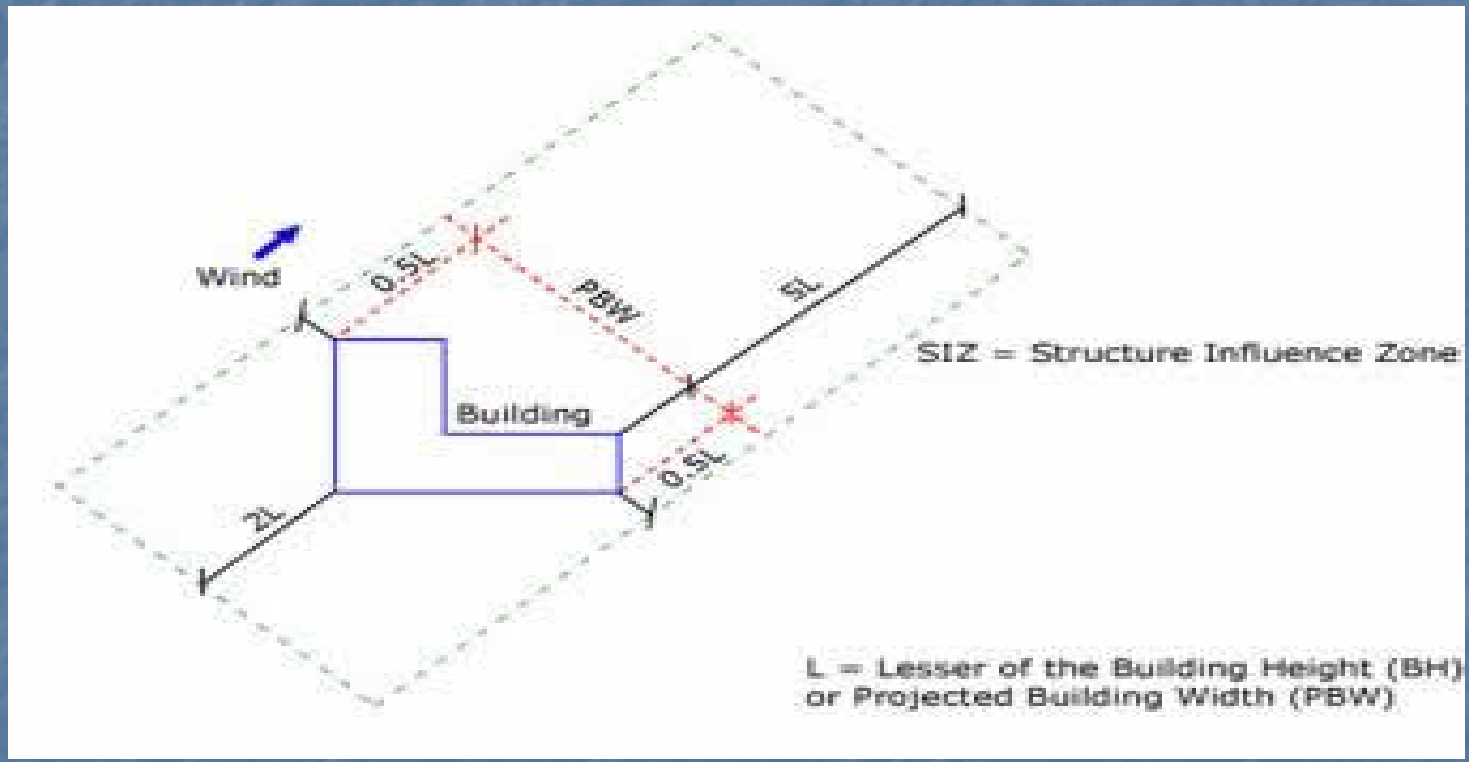
- Building downwash can occur when
  $H_S < H_b + 1.5L$

  H_S = Height of Stack
  H_b = Height of Building
  L = lesser of H_b or PBW
  PBW = Maximum Projected Building Width

Screen models will do this calculation when the building downwash option is used. If $H_S > H_b + 1.5L$, then building downwash will not be used in results

Maximum Projected Building Width

- PBW = The maximum length of a building that could affect air flow around and over that building.



Picture taken from Ontario Ministry of the Environment
http://www.ene.gov.on.ca/envision/techdocs/3614e02.htm

GEP 5L Area of Influence

GEP 5L Area of Influence : Each structure produces an area of wake effect influence that extends out to a distance of five times **L** directly downwind from the trailing edge of the structure, where **L** is the lesser of the **BH** or **PBW**. As the wind rotates full circle, each direction-specific area of influence changes and is integrated into one overall area of influence termed the **GEP 5L Area of Influence**. GEP wake effects, for some wind direction or range of wind directions, affect any stack that is on or within the limit line.

Definition taken from Lakes Environmental website

GEP 5L Area of Influence

- If Stack-Building distance < 5L, then a screen run should be performed using the dimensions of that building.

For all Tier 3 modeling assume:

- Receptor height = 0 (Unless otherwise notified)
- Flat Terrain:

  No to both Complex and Simple Terrain options
- Full meteorology option
- Ambient Temperature is 293K

Information Required to run Screen Models for Point Source

- TACs
- BAC for each TAC and averaging period
- Emission rate (g/s)
- Stack Height
- Shortest distance to property line
- Stack airflow in acfm
- Stack gas temperature
- Stack diameter
- Influential Building dimensions

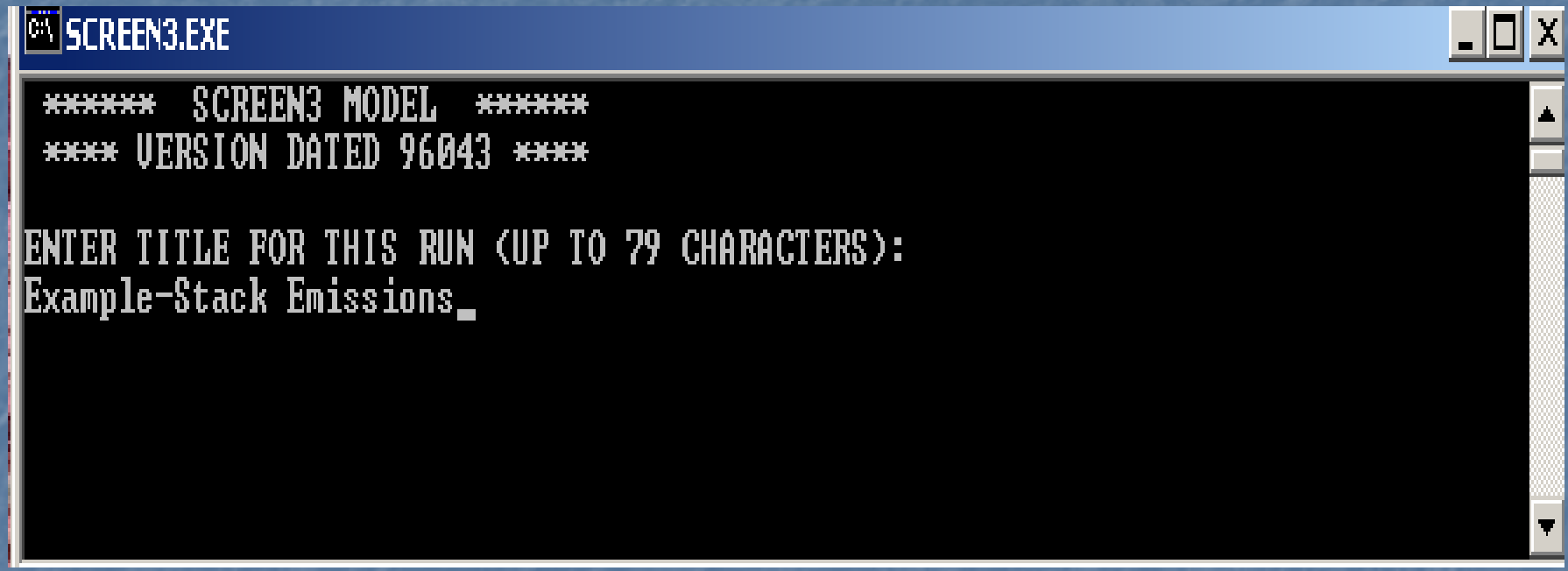
Example – Stack emissions Screen inputs

- Emission rate (g/s) .01 g/s
- Stack Height 50 ft
- Building Height 20 ft
- Shortest Distance to property line 300 ft
- Stack airflow in acfm 20,000 acfm
- Stack gas temperature 70° F
- Stack diameter 45 inches
- Building dimensions 100ft L, 100ftW, 35ftH

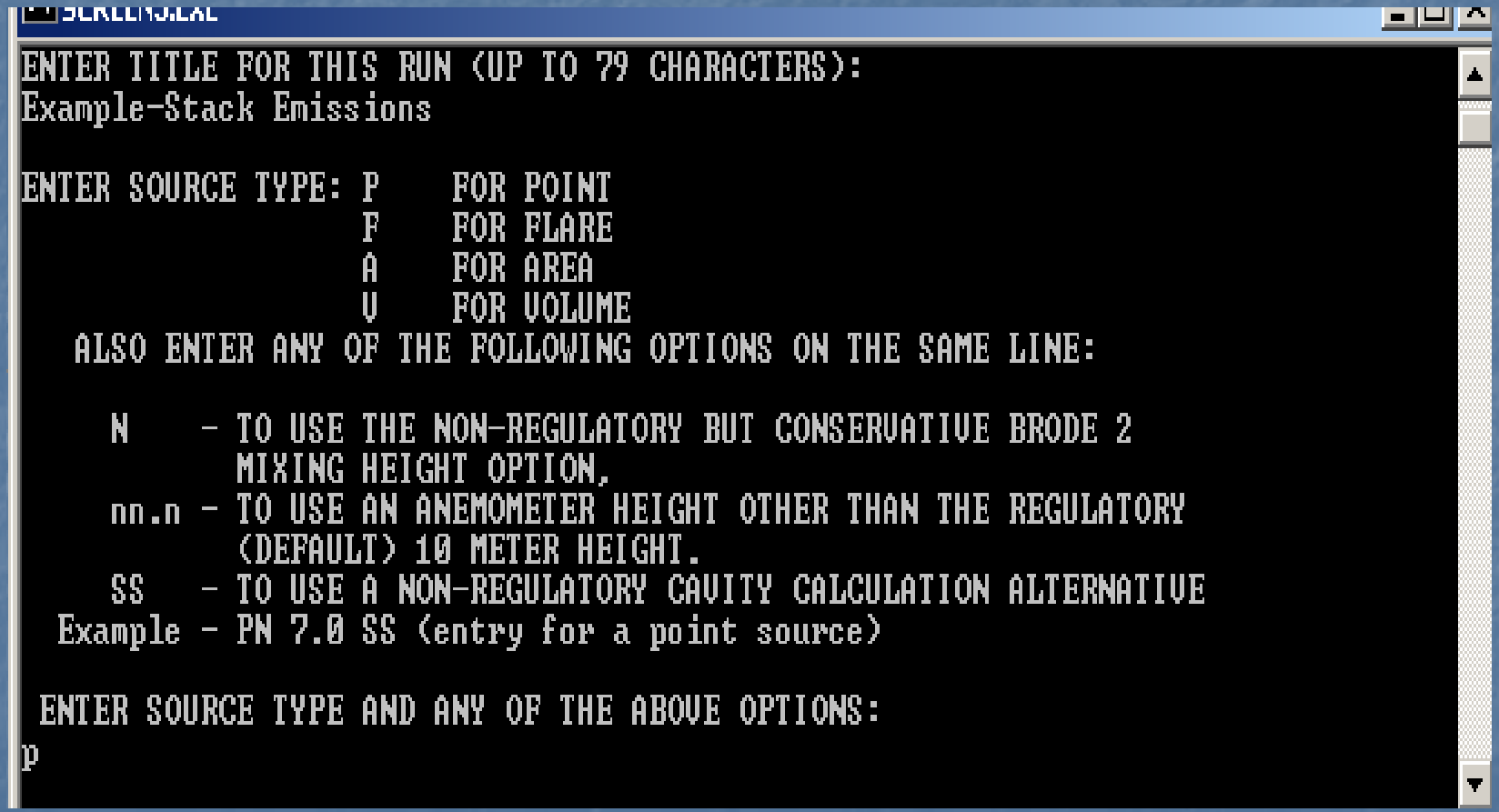
Example – Stack emissions

- Emission rate (g/s) .01 g/s
- Stack Height 15.24m
- Building Height 6.096m
- Shortest Distance to property line 91.44m
- Stack airflow in acfm 20,000 acfm
- Stack gas temperature 294.3° K
- Stack inside diameter 1.143m
- Building dimensions 30.48m L, 30.48m W, 10.67m H

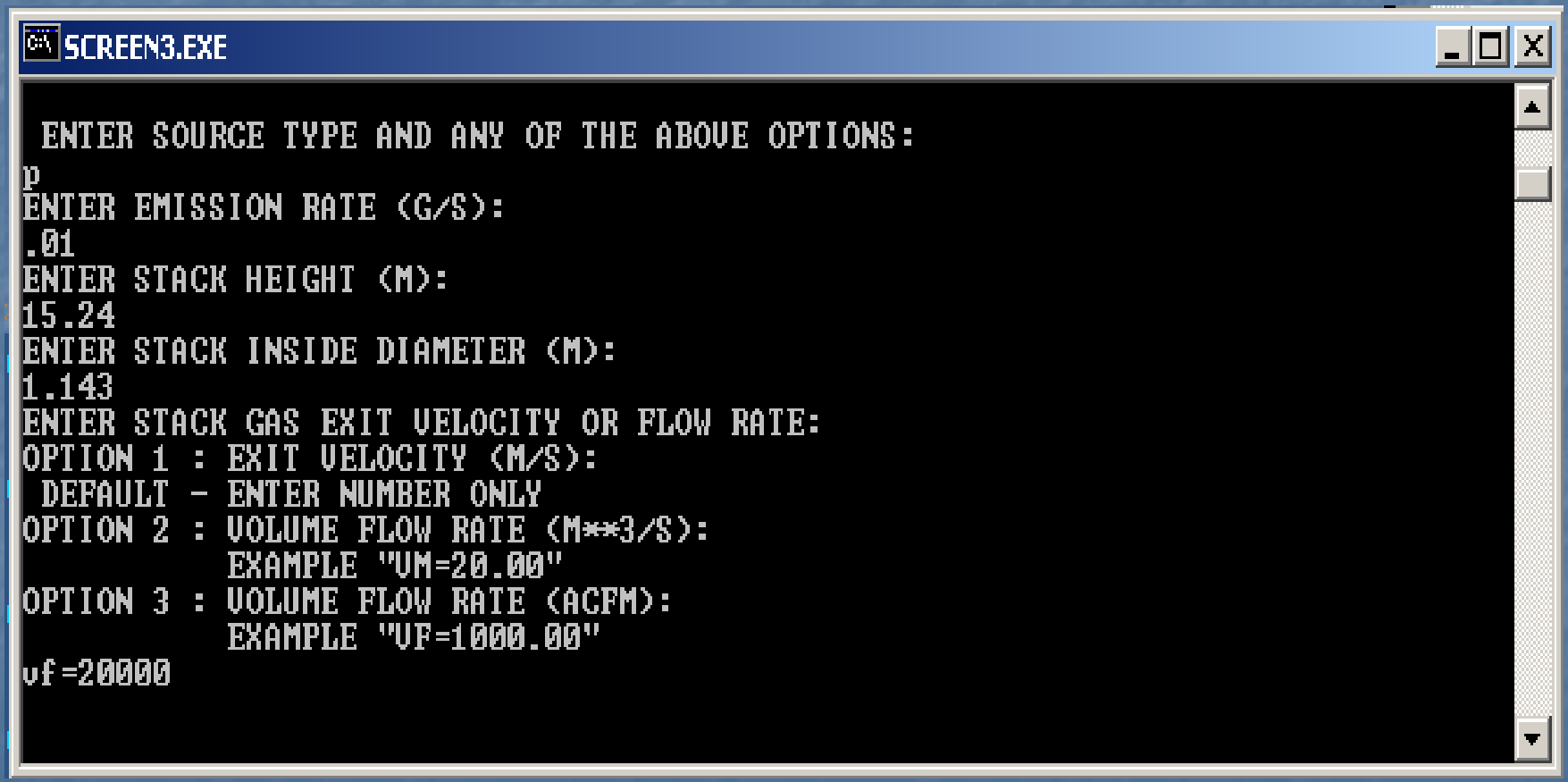
Example – Stack emissions



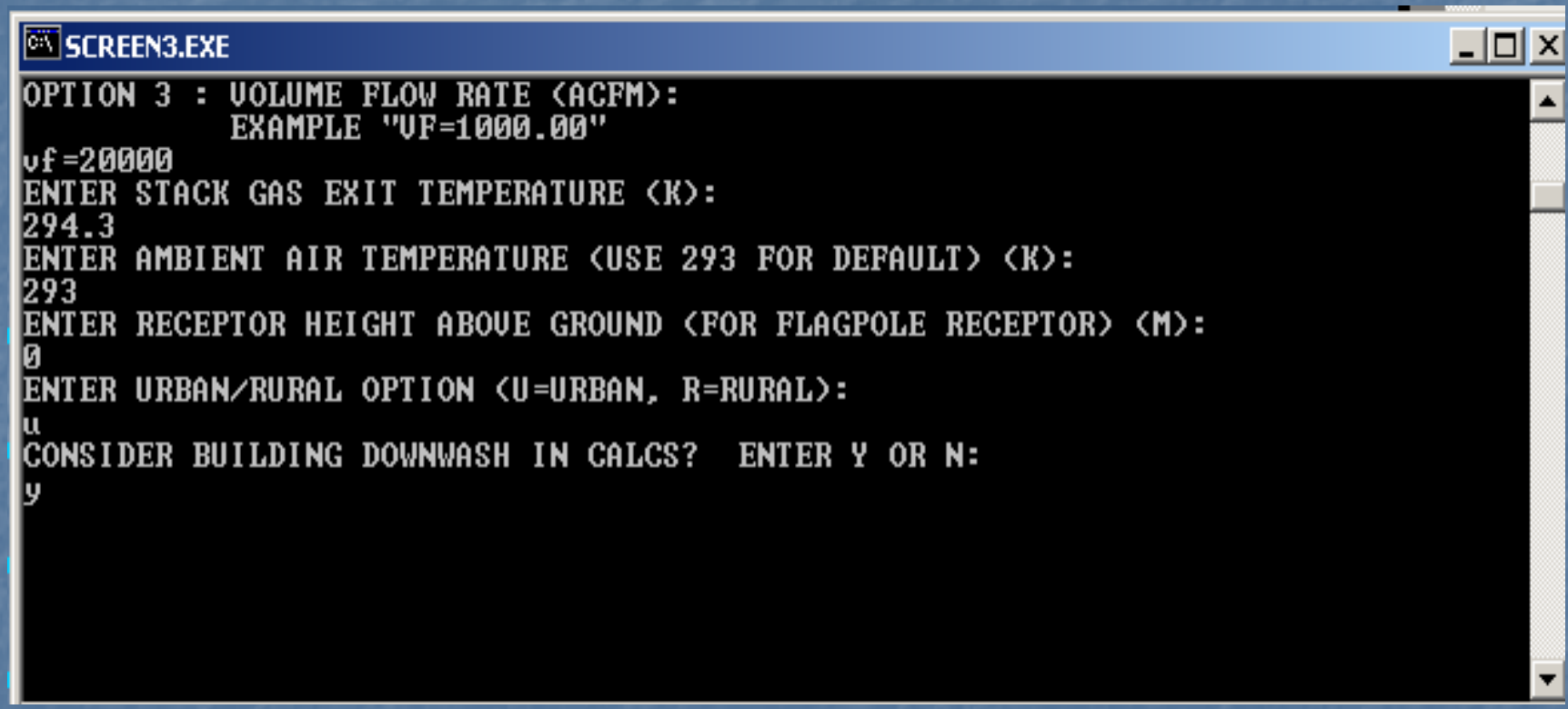
Example – Stack emissions



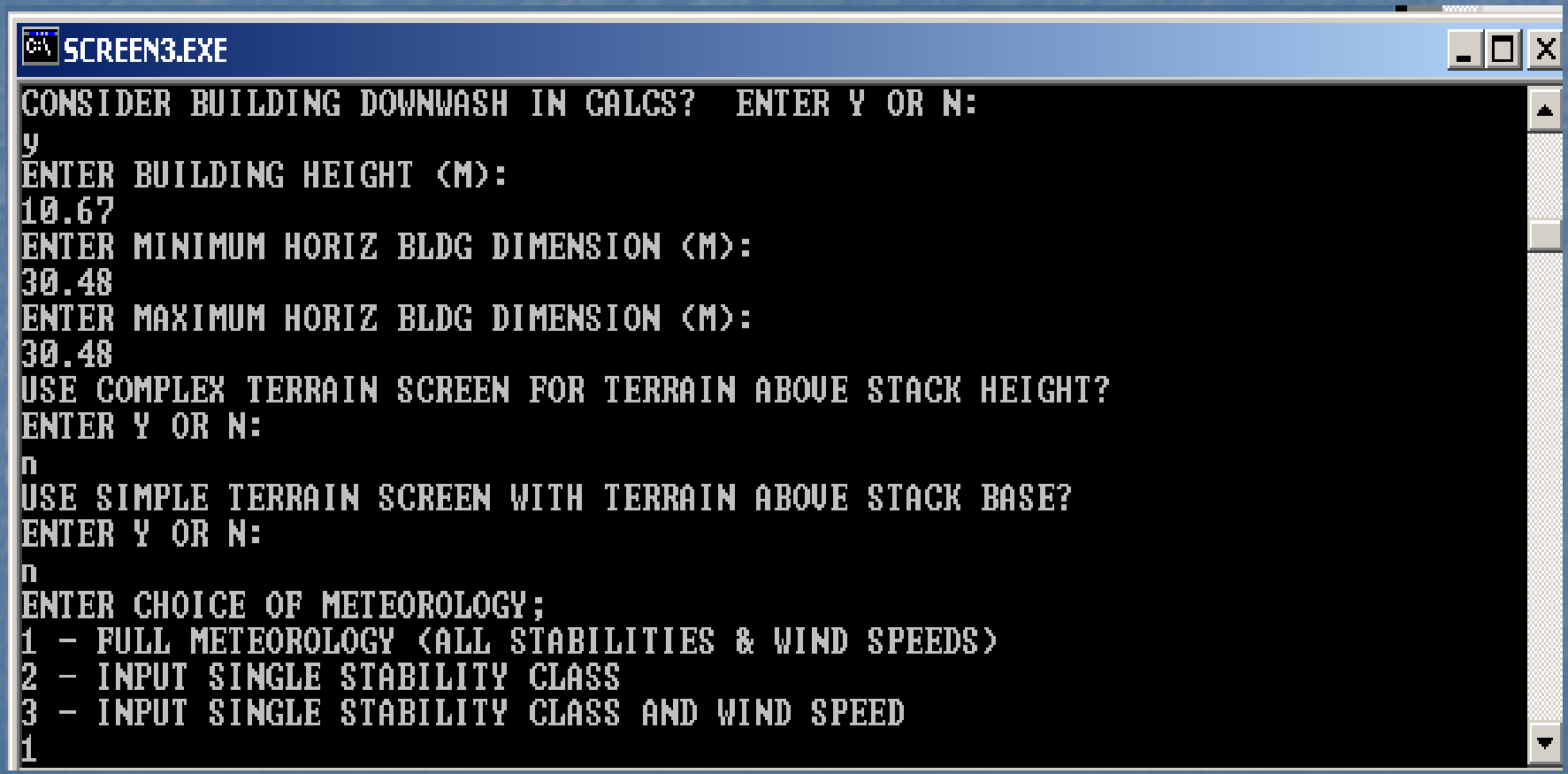
Example – Stack emissions



Example – Stack emissions



Example – Stack emissions



Example – Stack emissions

SCREEN3.EXE

```
ENTER MIN AND MAX DISTANCES TO USE (M):
91.44 500

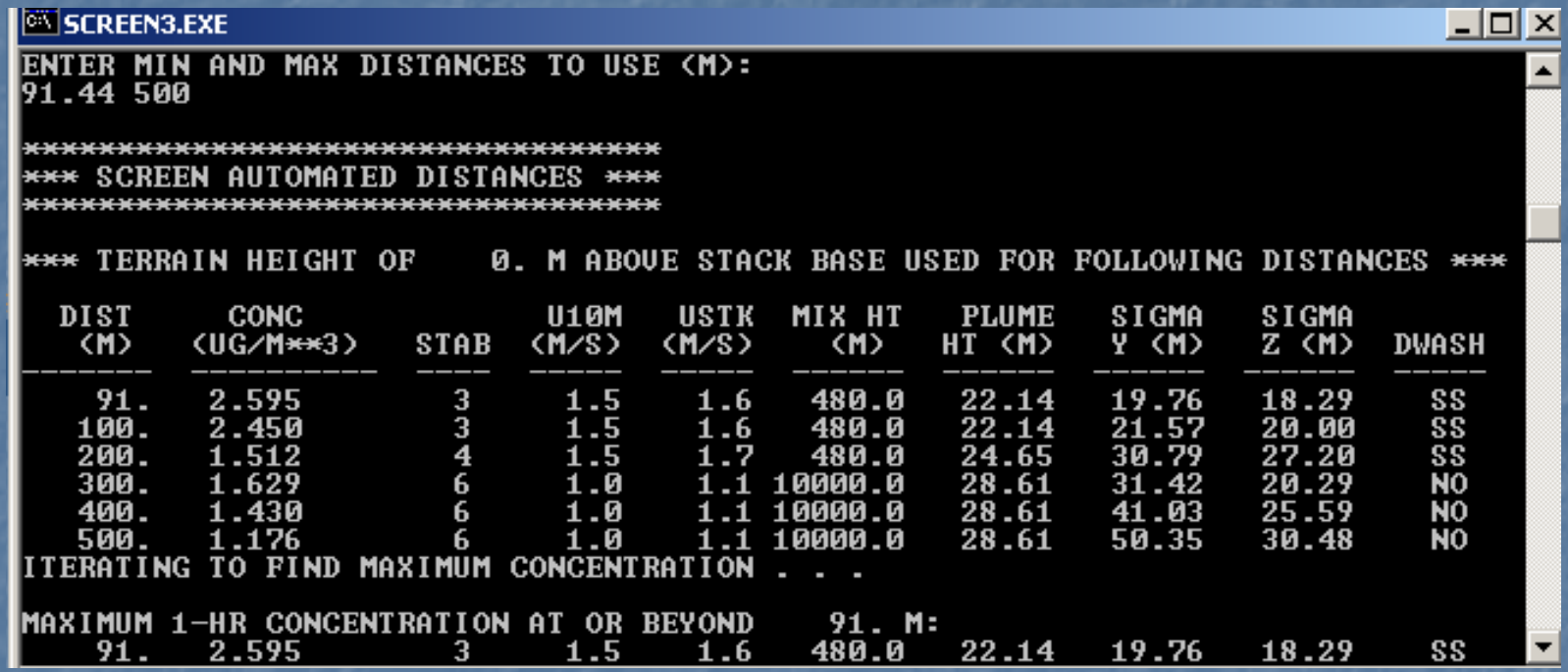
*****************************************
*** SCREEN AUTOMATED DISTANCES ***
*****************************************

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

  DIST      CONC                  U10M   USTK   MIX HT    PLUME    SIGMA    SIGMA
   (M)   (UG/M**3)    STAB      (M/S)  (M/S)     (M)    HT (M)   Y (M)    Z (M)   DWASH
------  ----------   ----      -----  -----   ------    ------   ------   ------   -----
    91.    2.595        3        1.5    1.6    480.0     22.14    19.76    18.29     SS
   100.    2.450        3        1.5    1.6    480.0     22.14    21.57    20.00     SS
   200.    1.512        4        1.5    1.7    480.0     24.65    30.79    27.20     SS
   300.    1.629        6        1.0    1.1  10000.0     28.61    31.42    20.29     NO
   400.    1.430        6        1.0    1.1  10000.0     28.61    41.03    25.59     NO
   500.    1.176        6        1.0    1.1  10000.0     28.61    50.35    30.48     NO
ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND    91. M:
    91.    2.595        3        1.5    1.6    480.0     22.14    19.76    18.29     SS
```

Example – Stack emissions



SCREEN3.EXE

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ENTER MIN AND MAX DISTANCES TO USE (M):
91.44 500

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

  DIST      CONC                 U10M    USTK   MIX HT    PLUME    SIGMA    SIGMA
   (M)   (UG/M**3)    STAB     (M/S)   (M/S)     (M)    HT (M)   Y (M)    Z (M)   DWASH
-------  ---------   ----    -------  -------  -------   ------   ------   ------   -----
    91.   2.595         3       1.5      1.6    480.0    22.14    19.76    18.29     SS
   100.   2.450         3       1.5      1.6    480.0    22.14    21.57    20.00     SS
   200.   1.512         4       1.5      1.7    480.0    24.65    30.79    27.20     SS
   300.   1.629         6       1.0      1.1  10000.0    28.61    31.42    20.29     NO
   400.   1.430         6       1.0      1.1  10000.0    28.61    41.03    25.59     NO
   500.   1.176         6       1.0      1.1  10000.0    28.61    50.35    30.48     NO
ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND    91. M:
    91.   2.595         3       1.5      1.6    480.0    22.14    19.76    18.29     SS
```

The most conservative scenario gives a maximum 1-hr concentration of 2.595 ug/m³ at a distance of 91 meters

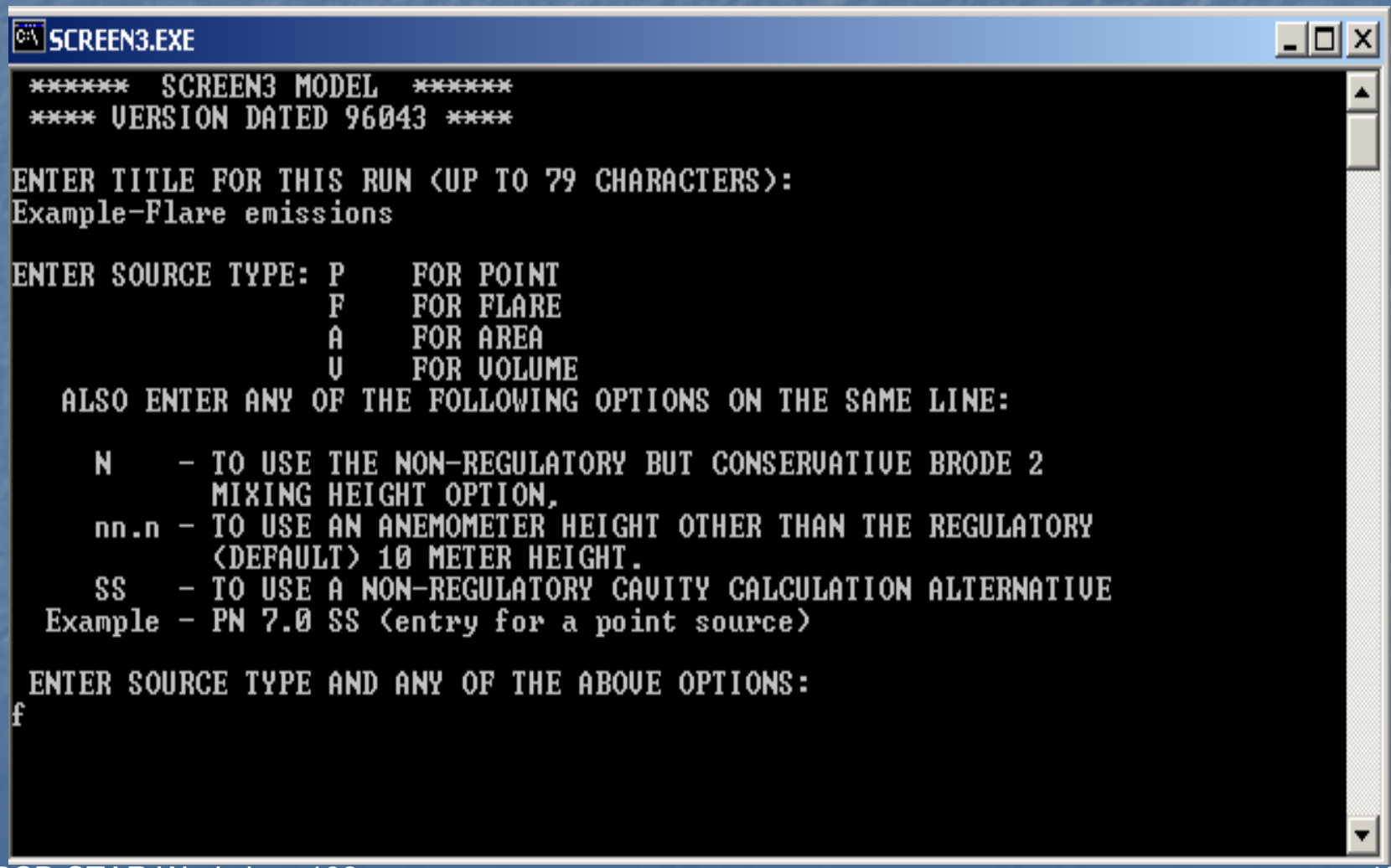
Flare Emissions

- Elevated point source

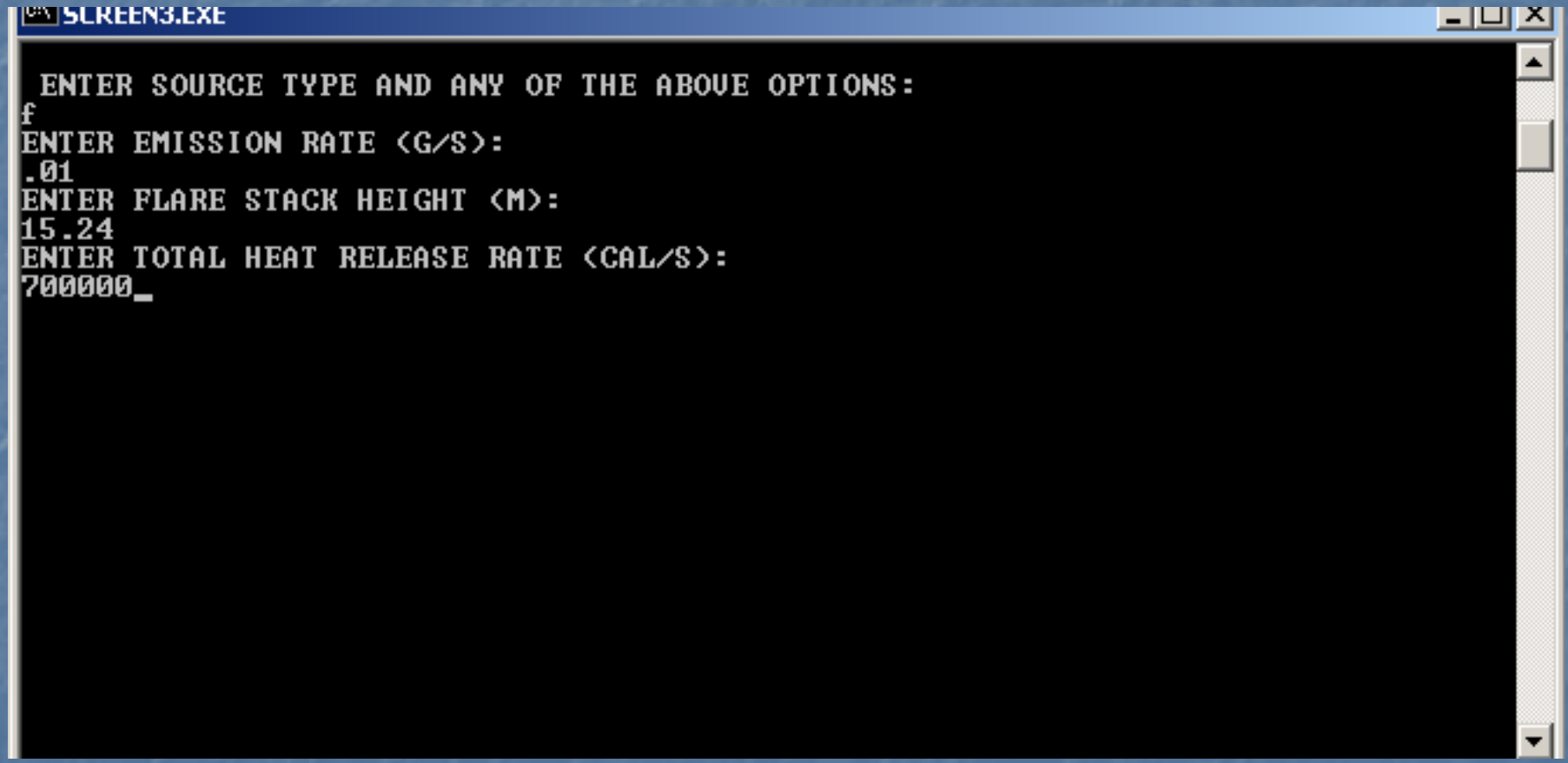
Information Required to run Screen Models for Flare Source

- Emission Rate
- Flare Stack Height
- Total Heat Release Rate
- Shortest Distance to property line
- Influential Building Dimensions

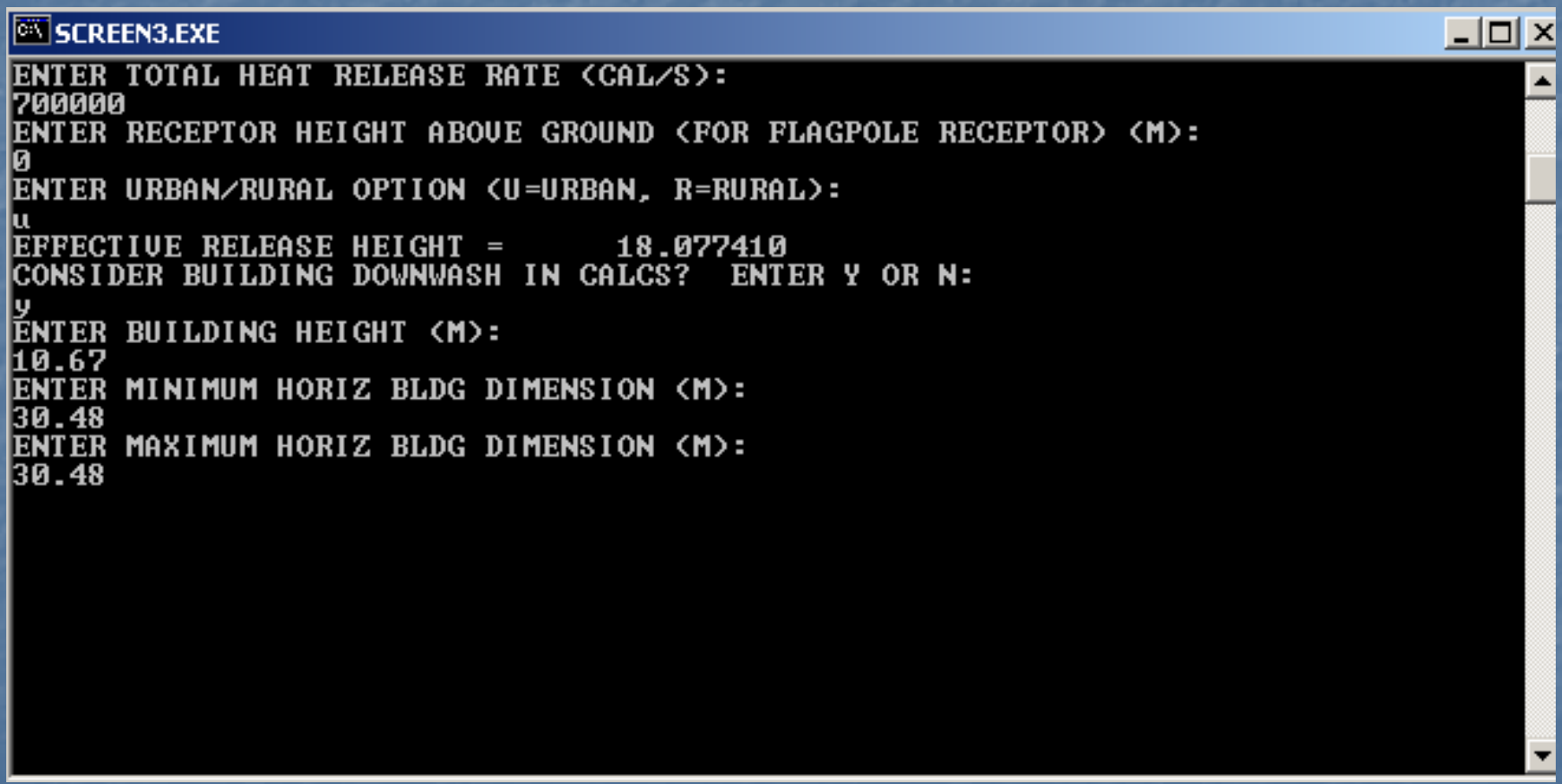
Example – Flare emissions



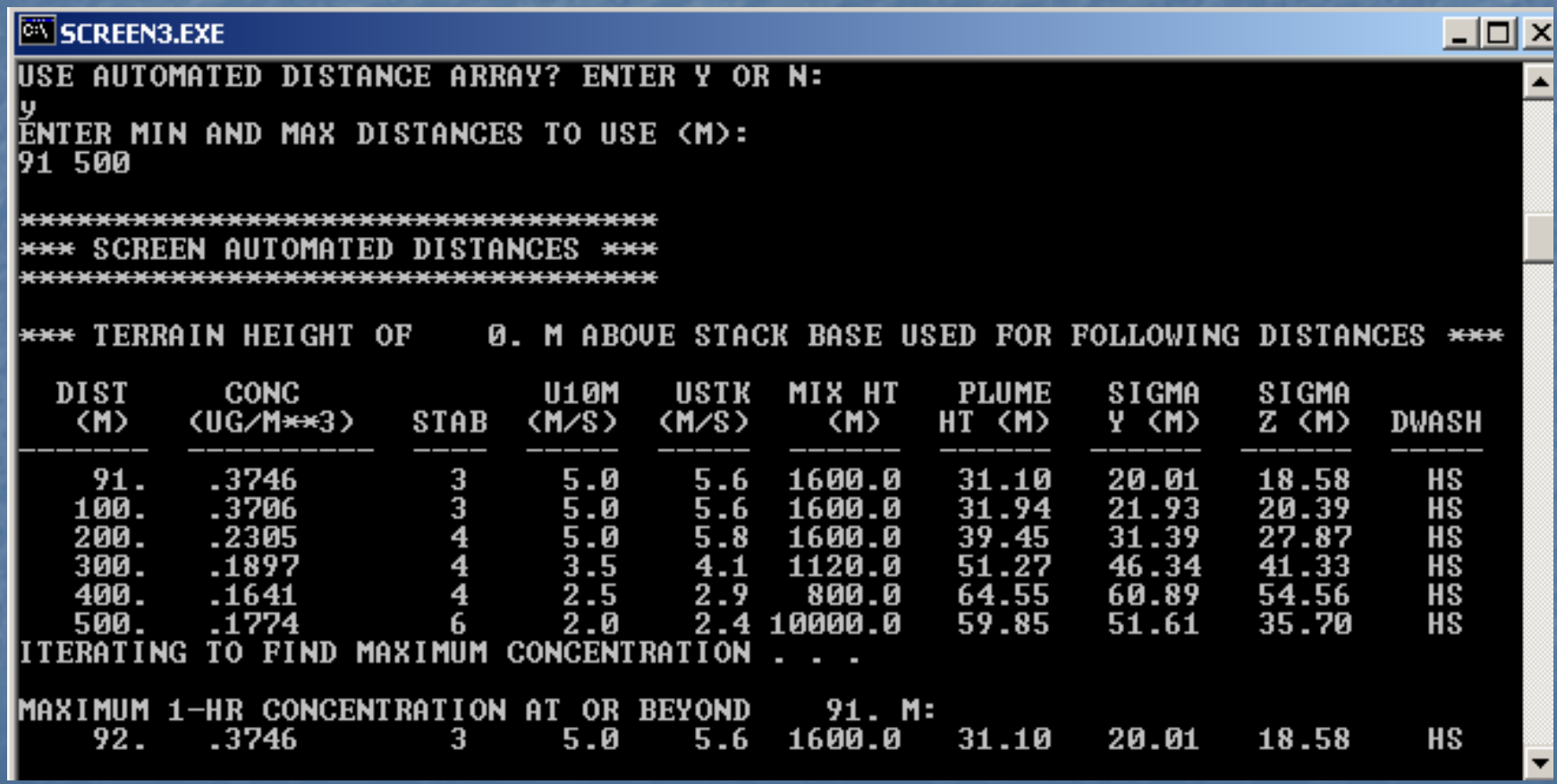
Example – Flare emissions



Example – Flare emissions



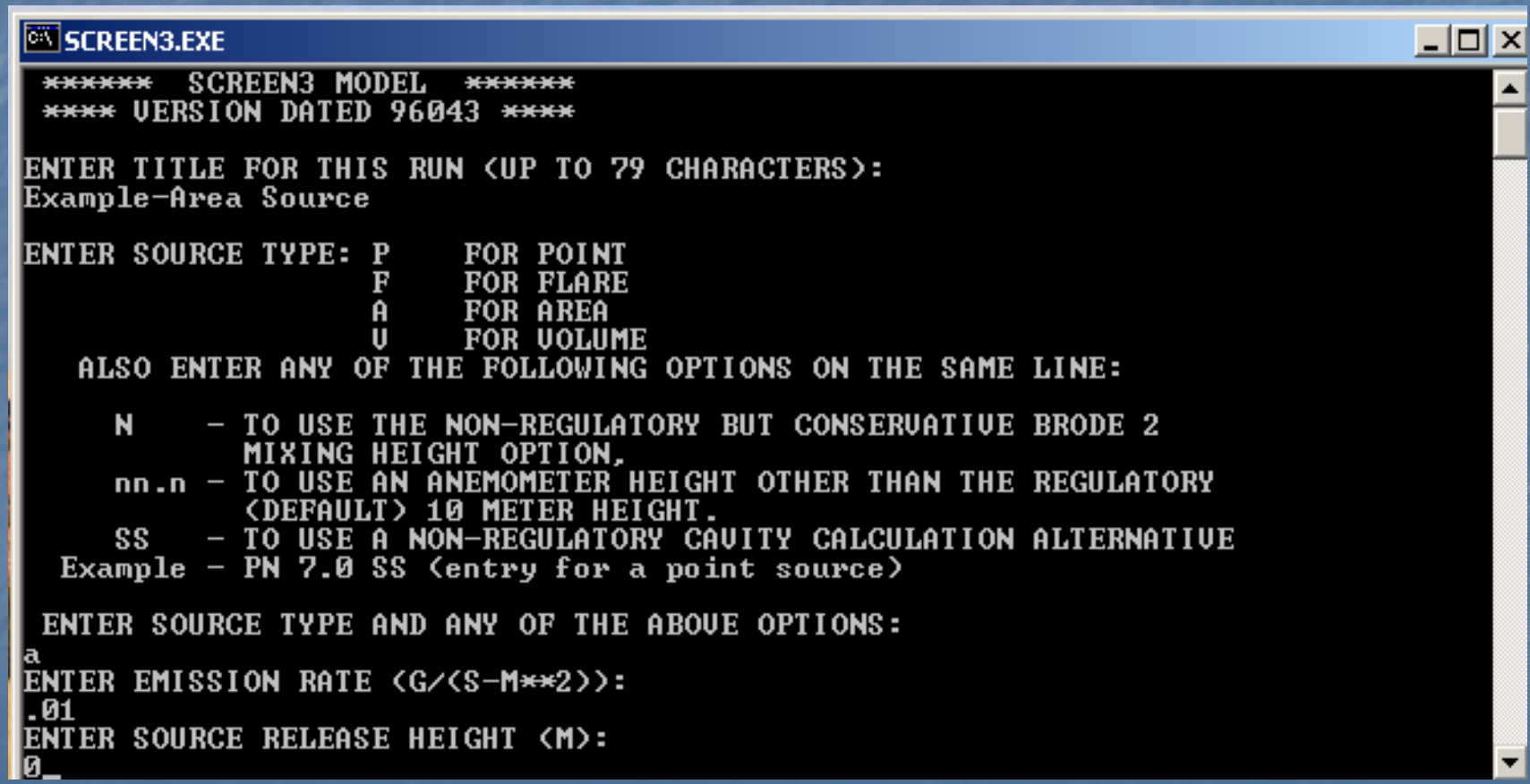
Example – Flare emissions



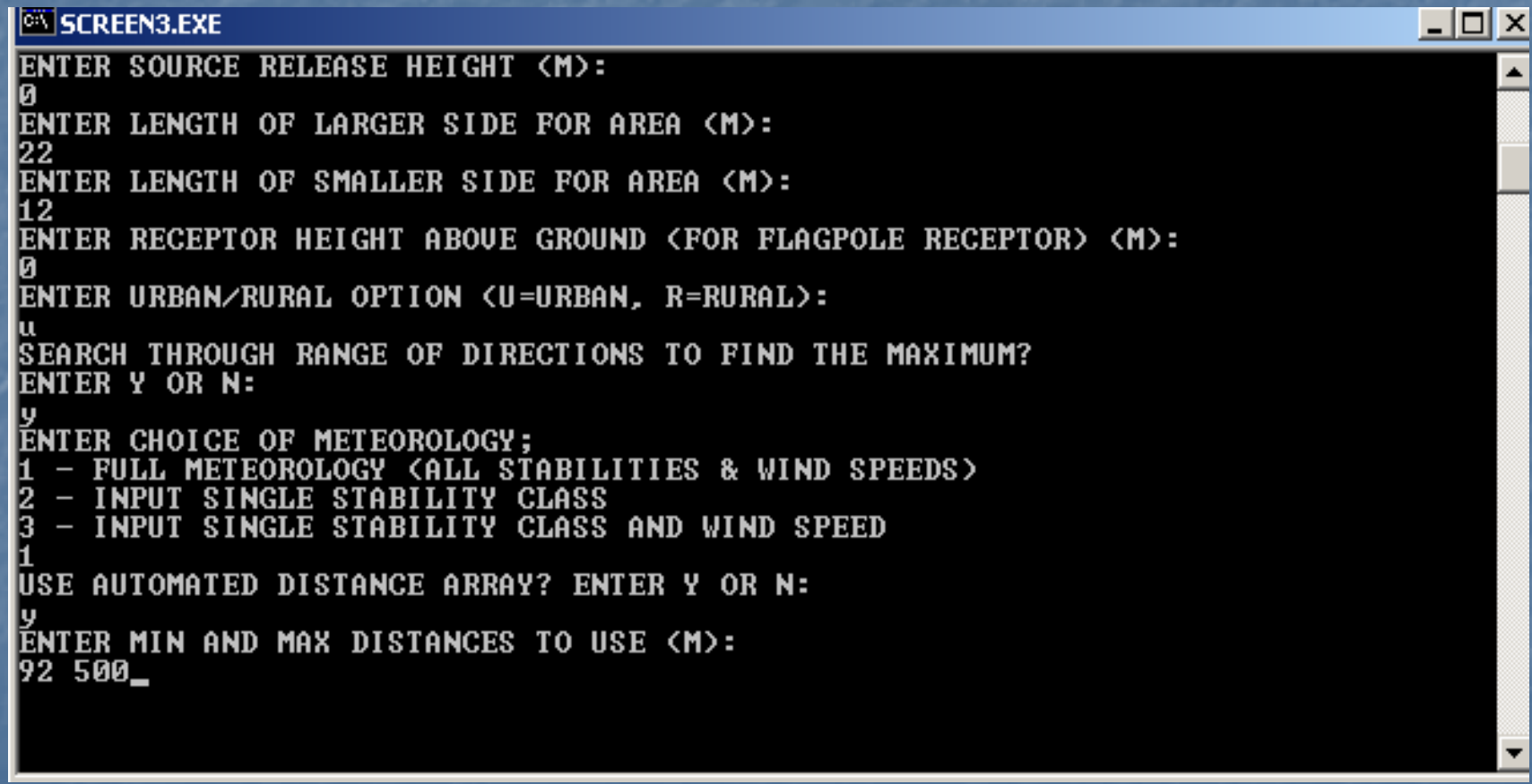
Information Required to run Screen Models for Area Source

- Emission Rate
- Source Release Height
- Larger Side Length of Rectangular Area
- Smaller Side Length of Rectangular Area
- Shortest Distance to property line

Example – Area Source



Example – Area Source



Information Required to run Screen Models for Volume Source

- Emission Rate
- Source Release Height
- Initial Lateral Dimension
- Initial Vertical Dimension
- Shortest Distance to Property Line

Volume Source

- Source Release Height is the center of the Volume Source:

  If the Source is from a building, the release height is set equal to one half of the building height.
- Volume sources are modeled as a square in Screen3. If the source is not square, the width should be set to the minimum length.

Volume Source
Initial Lateral Dimension (σ_{y0})

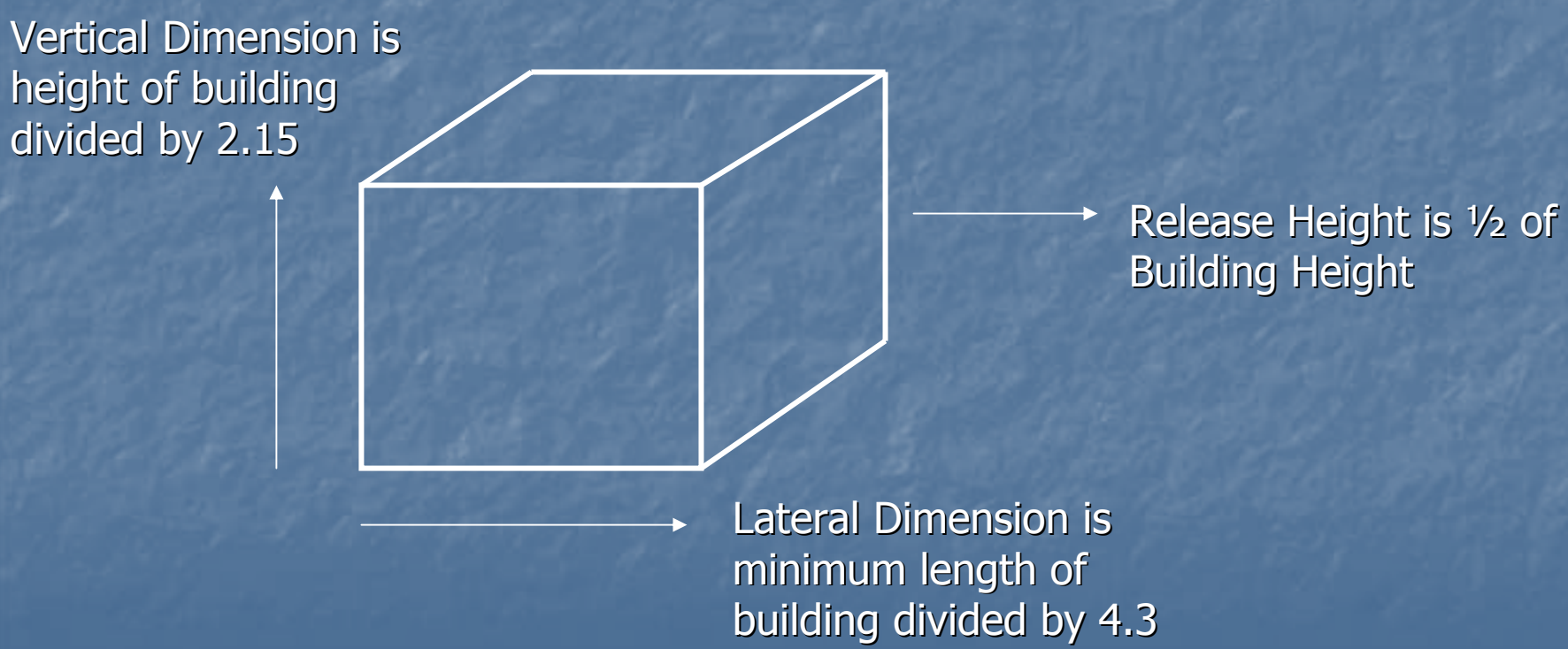
Single Volume Source σ_{y0} = length of side divided by 4.3
Line Source composed of several volume sources σ_{y0} = length of side divided by 2.15
Line Source composed of separated volume sources σ_{y0} = center to center distance divided by 2.15

Volume Source
Initial Vertical Dimension (σ_{z0})

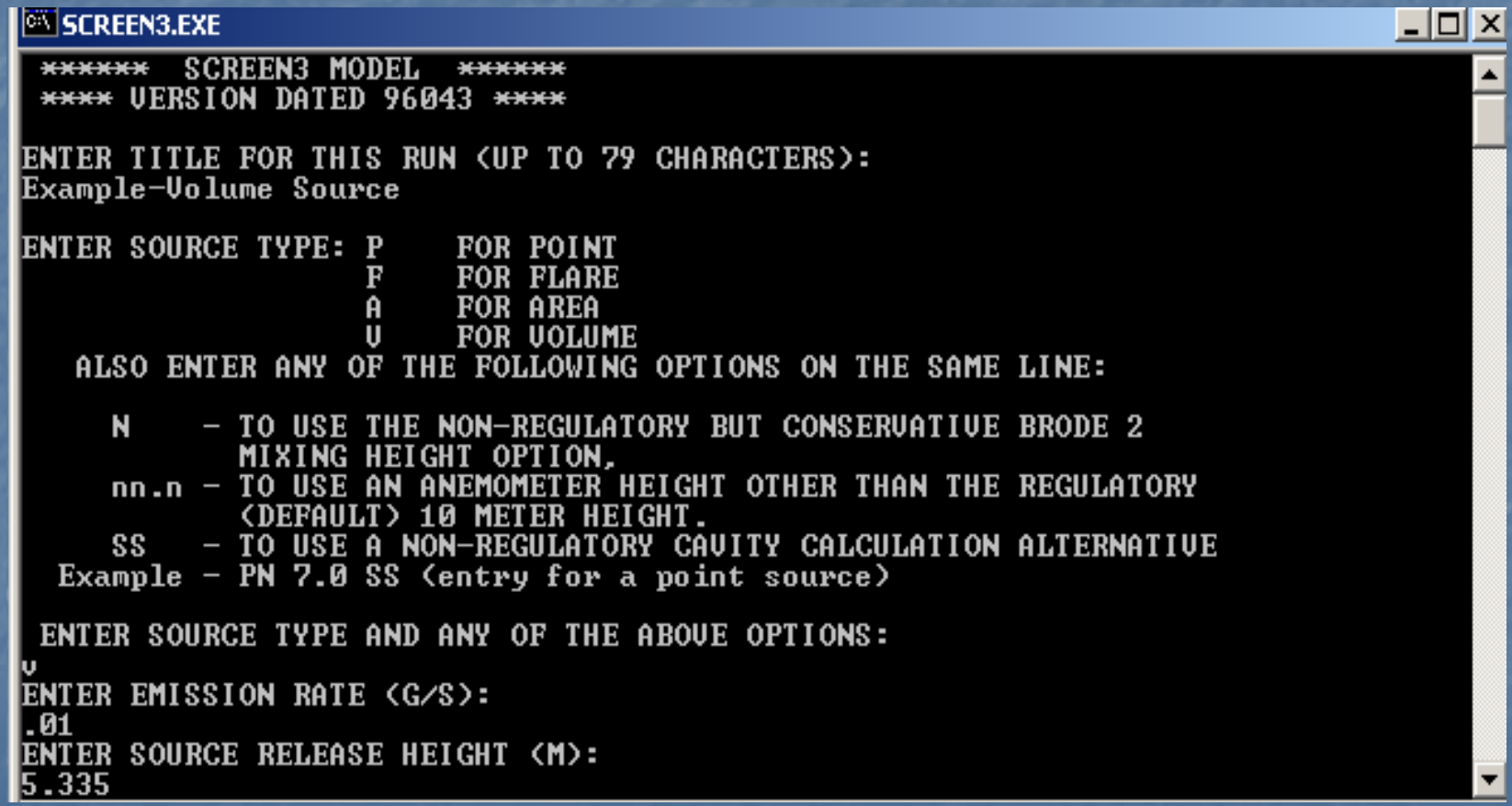
Surface-Based Source σ_{z0} = vertical dimension of source divided by 2.15
Elevated Source on or adjacent to a building σ_{z0} = building height divided by 2.15
Elevated Source not on or adjacent to a building σ_{z0} = vertical dimension of source divided by 4.3

Example – Volume Source

Volume Source from a Building



Example – Volume Source

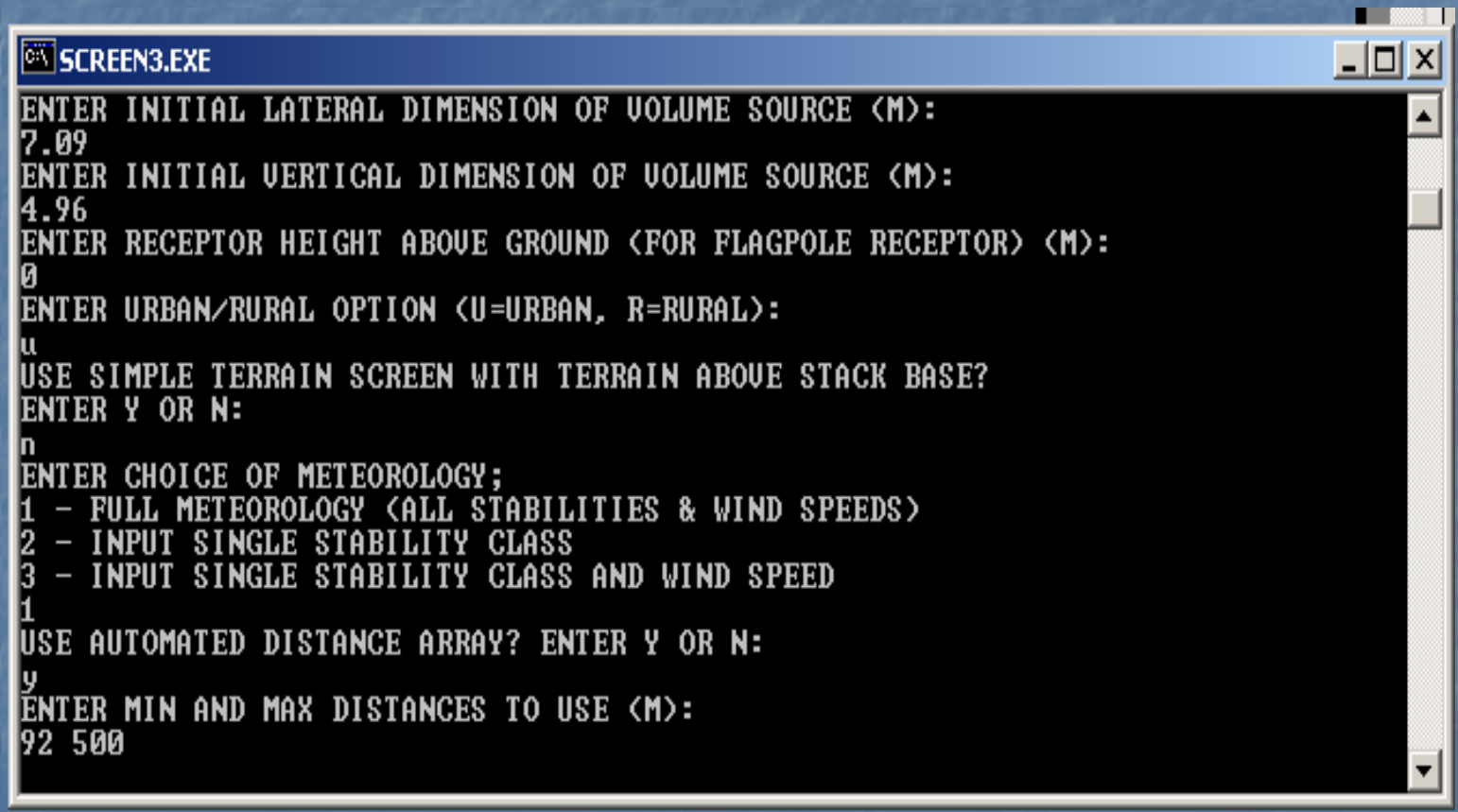


Example – Volume Source

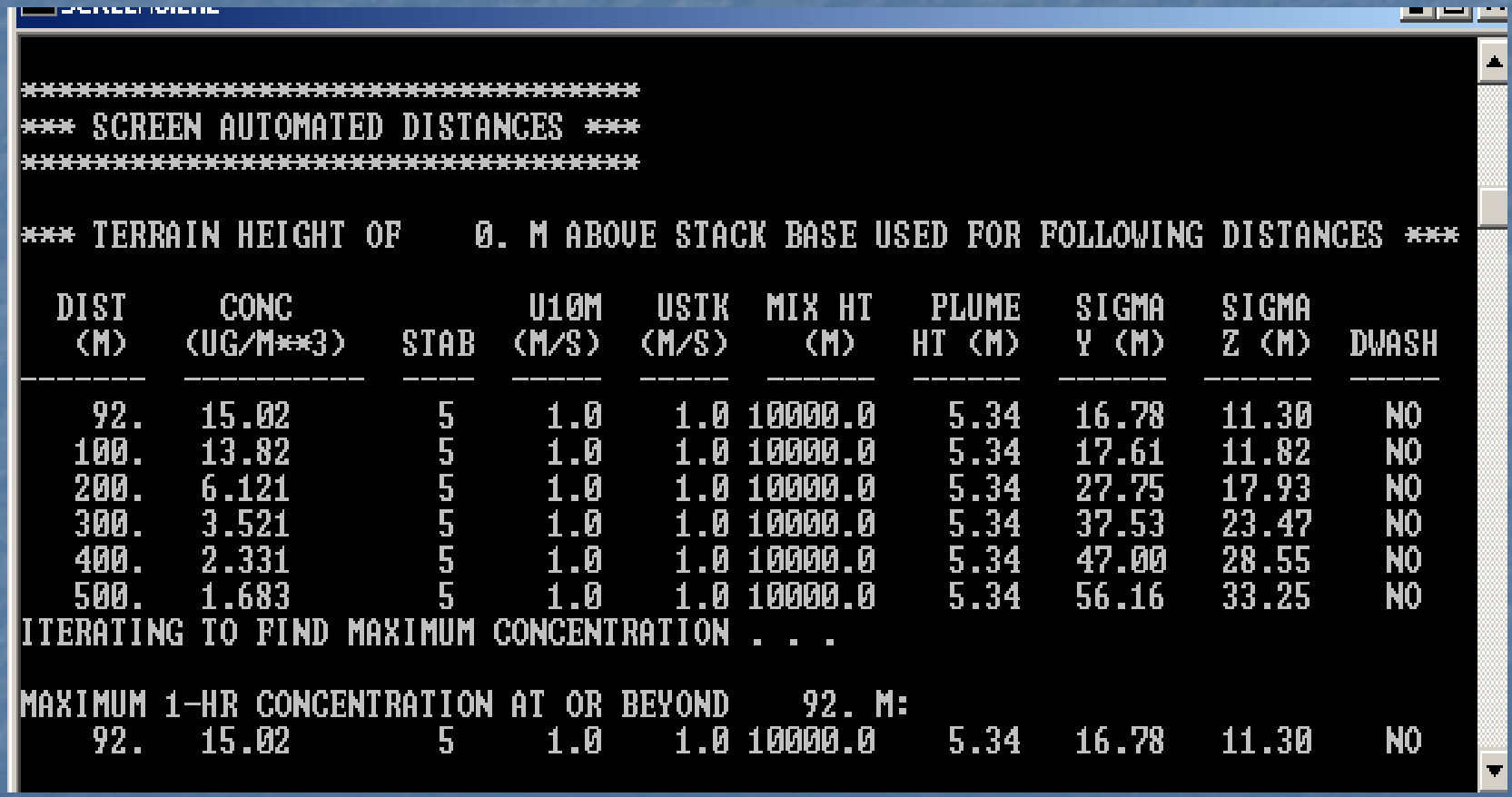
Initial Lateral Dimension obtained by taking building length of 30.48m divided by 4.3

Using a building as the volume source, so the initial vertical dimension is the height of the building divided by 2.15

Example – Volume Source



Example – Volume Source



```
**************************************
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**************************************

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  DIST      CONC                 U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)  Y (M)  Z (M)  DWASH
------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
    92.   15.02        5     1.0    1.0 10000.0    5.34   16.78   11.30    NO
   100.   13.82        5     1.0    1.0 10000.0    5.34   17.61   11.82    NO
   200.   6.121        5     1.0    1.0 10000.0    5.34   27.75   17.93    NO
   300.   3.521        5     1.0    1.0 10000.0    5.34   37.53   23.47    NO
   400.   2.331        5     1.0    1.0 10000.0    5.34   47.00   28.55    NO
   500.   1.683        5     1.0    1.0 10000.0    5.34   56.16   33.25    NO
ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND    92. M:
    92.   15.02        5     1.0    1.0 10000.0    5.34   16.78   11.30    NO
```

Screen model results

- Screen model results are all maximum 1-hr concentrations. Depending on the averaging period for the BAC for each TAC, you must convert the result

Screen model results

BAC Conversion Factors

- For a BAC with an 8-hour averaging time, multiply by 0.44
- For a BAC with an 24-hour averaging time, multiply by 0.22
- For a BAC with an annual averaging time, multiply by 0.02

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Tier 4 Modeling
EPA-Approved Dispersion Models
Info Needed for Point Sources

- TACs
- BAC for each TAC and averaging period
- Emissions
- Stack height
- Detailed dimensions of property line
- Stack airflow
- Stack gas temperature
- Stack diameter
- Detailed building dimensions (Including tiers)
- Detailed plot plan (Including coordinates and type of coordinates used)

Tier 4 Modeling
EPA-Approved Dispersion Models
Info Needed for Area Sources

- TACs
- BAC for each TAC and averaging period
- Emissions
- Coordinates for Area Source
- Source Base Elevation
- Detailed dimensions of property line
- Detailed building dimensions (Including tiers)
- Detailed plot plan (Including coordinates and type of coordinates used)

Tier 4 Modeling
EPA-Approved Dispersion Models
Info Needed for Volume Sources

- TACs
- BAC for each TAC and averaging period
- Emissions
- Coordinates for Volume Source
- Source Base Elevation
- Source Height
- Initial horizontal dimension
- Initial vertical dimension
- Detailed dimensions of property line
- Detailed building dimensions (Including tiers)
- Detailed plot plan (Including coordinates and type of coordinates used)

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A BAC is ...

- Concentration ($\mu g/m^3$) and Averaging Period used for determining environmental acceptability
- BAC_C
  - One-in-one million risk
- BAC_{NC}
  - Hazard Quotient of 1.0

What is Environmental Acceptability?

- **Environmental Acceptability (EA) means the risk meets the established goals**

- **Risk can be:**
  - **Cancer risk – how many in one million**
    e.g., 1×10^{-6} or 10×10^{-6}
  - **Noncancer risk – Hazard Quotient**
    e.g., 1.0 HQ

How is Risk Determined?

$$\text{Risk} = \frac{\text{Maximum Concentration } (\mu g/m^3)}{\text{BAC } (\mu g/m^3)}$$

Construction Permit Requirements of STAR Program

- Regulation 5.21 Section 3
  - Demonstrate environmental acceptability
  - If appropriate, emission or parametric monitoring, recordkeeping, reporting
- Regulation 5.21 section 2.2
  - Environmental acceptability (EA) goals

Construction Permit Requirements
STAR Program Applicability

- Stationary Sources
  - Group 1 stationary sources (Title V)
  - Group 2 stationary sources (FEDOOP, 25 tpy)
- Categories of TACs
  - Category 1, 2, 3, and 4 TACs
    - New and modified P/PE

Consideration of Multiple Pollutants

- Carcinogens – Accumulate risk from all "applicable" carcinogens
- Noncancer risk – Does NOT accumulate HQ from similar adverse-effect TACs

E. A. Goals for New/Modified Processes/Process Equipment

	Applicable Source Sector	Applicable Process or Process Equipment [1]	Applicable TACs	EAG_C [2, 3] Risk ($\otimes 10^{-6}$)[6]	EAG_{NC} [4, 5] HQ
2.2.1	Point source	Individual stationary source, individual new or modified P/PE	Individual TAC	1.0	1.0
2.2.2	Point source	Individual stationary source, all new or modified P/PE	Individual TAC		1.0
2.2.3	Point source	Individual stationary source, all new or modified P/PE	Total for all applicable TACs	3.8	

What are the EA Goals?

- Carcinogens – Cancer Risk Goals
  - ► **1×10^{-6} – single process/single TAC**
  - ► **3.8×10^{-6} – all new or modified processes/ all TACs/single company**
  - ► **7.5×10^{-6} – all processes/all TACs/single company**
  - 10×10^{-6} – all processes/all TACs/multiple companies

What are the EA Goals?

- Noncancer risk – Hazard Quotient (HQ) Goals
  - ► **1.0 HQ – single process/single TAC**
  - ► **1.0 HQ – new or modified processes/ single TAC/single company**
  - ► **1.0 HQ – all processes/single TAC/single company**
  - 1.0 HQ – all processes/single TAC/multiple companies

What is included in EA Demonstration for New/Modified Process/Process Equipment?

- First N/M P/PE (Single P/PE)
  - Single carcinogen - 1 x 10^{-6} risk
  - All applicable carcinogens – 3.8 x 10^{-6} risk
  - Single TAC (noncarcinogen) – 1.0 HQ
  - Category 2 TACs not reported to EPA's Toxic Release Inventory (TRI)
  - TAC determined not to comply with Reg 5.01 Section 3 (general duty clause)

What is included in EA Demonstration for New/Modified Process/Process Equipment?

- 2nd, 3rd, etc. N/M P/PE (Include all N/M P/PE)
  - Single carcinogen permit at hand - 1 x 10^{-6} risk
  - All applicable carcinogens – 3.8 x 10^{-6} risk
  - Single TAC (noncarcinogen) – 1.0 HQ
  - Category 2 TACs not reported to EPA's Toxic Release Inventory (TRI)
  - TAC determined not to comply with Reg 5.01 Section 3 (general duty clause)

What is NOT included in EA Demonstration for New/Modified Process/Process Equipment?

- De Minimis emissions
- Category 3 & 4 TACs for which permit approved pursuant to sect. 3.1.2.2
- Group 2 stationary source excludes "exempt stationary source" (see definition of "Group 2 stationary source" in Reg 5.01)

De Minimis – 6 Ways

Regulation 5.01 section 1.6

- MSDS
  - 0.1% carcinogen
  - 1.0% noncarcinogen
- Trivial activity
- Insignificant activity
- BAC-based lb/hr, lb/averaging period
- Surface coating process, new/modified, <5.0 tpy, 18 months
- Motor vehicle fueling/refueling

Category 3 and 4 TACs
Alternative for Demonstrating EA

- Regulation 5.21 section 3.1.2.2
- Demonstrate compliance with Reg. 5.01 Section 3

  ... shall not emit a TAC in a quantity or duration as to be harmful to the health and welfare of humans, animals, and plants

- Requires opportunity for public review and comment

Exempt Stationary Source

Regulation 5.01 section 1.7

- Gasoline dispensing facility (may have cold cleaner)
- Motor vehicle refinishing operations (may have cold cleaner)
- Perchloroethylene dry cleaner
- Cold cleaner is only permitted process
- Not exempted if have other permitted processes or process equipment (except as identified)
- Applies only to Group 2 stationary sources

E. A. Goals for Stationary Sources

	Applicable Source Sector	Applicable Process or Process Equipment [1]	Applicable TACs	EAG_C [2,3] Risk ($\otimes 10^{-6}$) [6]	EAG_{NC} [4, 5] HQ
2.5.1	Point source	Individual stationary source, individual existing P/PE	Individual TAC	1.0	1.0
2.5.2	Point source	Individual stationary source, all P/PE, including new or modified P/PE	Individual TAC		1.0
2.5.3	Point source	Individual stationary source, all P/PE, including new or modified P/PE	Total for all applicable TACs	7.5	

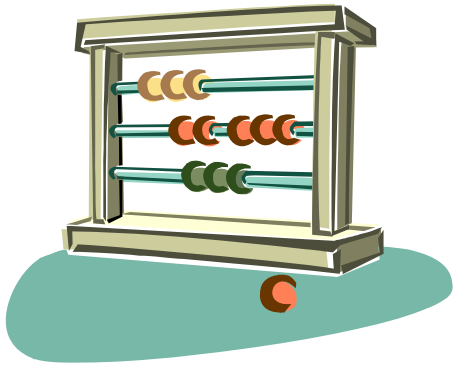
What is included in EA Demonstration for Section 2.5 (Existing & N/M P/PE)?

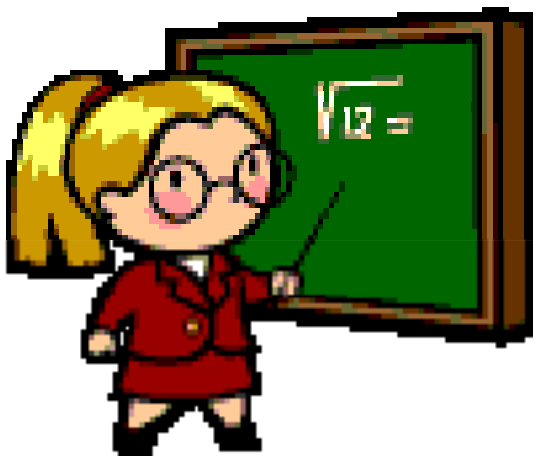
- Existing and N/M P/PE
  - Single carcinogen individual existing P/PE - 1 x 10^{-6} risk
  - All applicable carcinogens – 7.5 x 10^{-6} risk
    - N/M P/PE – Category 1, 2, 3, and 4 TACs
    - Existing P/PE – Category 1 and 2 TACs only
  - Single TAC (noncarcinogen) – 1.0 HQ
    - N/M P/PE – Category 1, 2, 3, and 4 TACs
    - Existing P/PE – Category 1 and 2 TACs only
  - Category 2 TACs not reported to EPA's TRI N/M P/PE only
  - TAC determined not to comply with Reg 5.01 Section 3 (general duty clause)

What is NOT included in EA Demonstration for Section 2.5 (Existing & N/M P/PE)?

- De Minimis emissions
- Category 3 & 4 TACs for which permit approved pursuant to sect. 3.1.2.2
- Group 2 stationary source excludes “exempt stationary source” (see definition of “Group 2 stationary source” in Reg 5.01 section 1.9)
- Category 2 TACs not reported to TRI for existing P/PE – See Reg 5.21 section 1.3.1:
  - Group 1 – 2006 TRI report
  - Group 2 – 2007 TRI report

Explaining the Equations





Risk for Single Carcinogen, Single P/PE

$$R_C = \frac{Maximum\ \ concentration_{i\ j}}{BAC_{C_i}}$$

i = TAC j = P/PE

Cumulative Risk for Carcinogens

$$R_C = \sum_{i=1}^{n} \sum_{j=1}^{m} \frac{Maximum\ \ concentration_{i\ j}}{BAC_{C_i}}$$

i = TAC j = P/PE

n = Total TACs m = Total P/PE

Cumulative HQ for Single TAC

$$R_{NC} = HQ_i = \sum_{j=1}^{m} \frac{Maximum\ concentration_{i\,j}}{BAC_{NC_i}}$$

i = TAC j = P/PE

m = Total P/PE

Agenda

- Tier 3 Modeling – Billy DeWitt
- Information needed for Tier 4 modeling – Billy Dewitt
- Demonstrating environmental acceptability – Jon Trout
- Determining cumulative risk
  - **Dwain Kincaid, Kentuckiana Engineering Co.**
  - Todd Royer, URS Corp.

Agenda

- Tier 3 Modeling – Billy DeWitt
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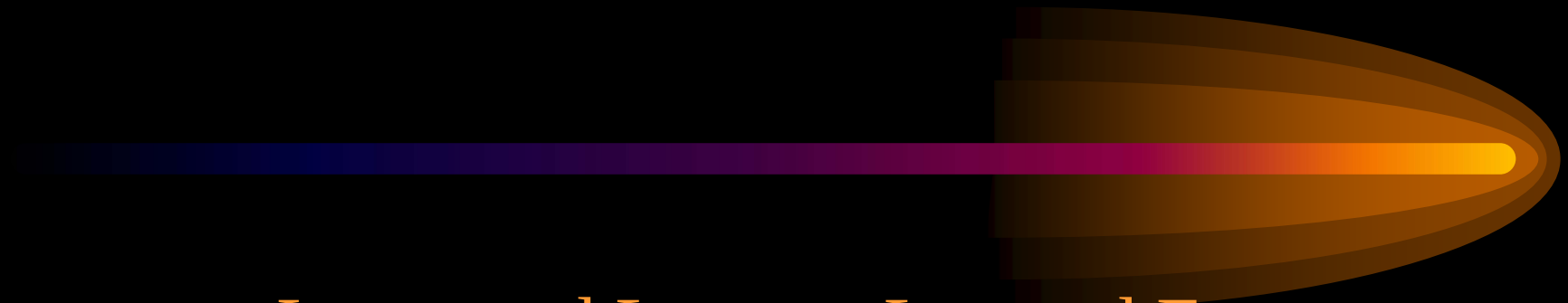
  - **Todd Royer, URS Corp.**

Agenda (Continued)

- SAM 82 – Issues and lessons learned – Bo Fawbush
- SAM 81 – Actual emissions – Bo Fawbush
- Excess emissions reporting – Jess Goldsmith
- Questions
- Suggested topics for STAR Workshop 103

Stack and Fugitive Release Parameter Information



Issues and Lessons Learned From
Form SAM 82 Submittal

Bo Fawbush

General Information

1. 41 Title V companies submitted reports on time, although some are incomplete.
2. 2 Title V companies have not reported.
3. Overall, submitted information was good.
4. Plot plans were generally clear.
5. Reported information and plot plans corresponded closely.

Reporting Positives

1. 12 companies reported Category 2 TAC emissions in addition to the required Category 1 information.
2. 2 Title V companies also filed SAM 81 information, as did 2 FEDOOPs.
3. Non-vertical emission point diagrams were excellent.

Room for Improvement

1. Some plot plans were small and stack/emission points were not clearly marked.
2. 3 companies did not return SAM 82 form, only plot plan.
3. Communication: 3 companies reporting no TACs or de minimis did not send a plot plan because of Reg. 1.06, section 3.7. District will request plot plans w/ buildings (see FAQ).
4. Some companies did not report UTM coordinates with plot information.

Agenda (Continued)

- SAM 82 – Issues and lessons learned – Bo Fawbush
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Form SAM 81 Submittal

General Information

Preliminary Issues

1. Assuming there are no Category 1 TACs, sources must still fill out and sign the certification page and return to the District.
2. Submit TAC information for *each individual process*, (including no TACs or de minimis values) to insure compliance.

Agenda (Continued)

- SAM 82 – Issues and lessons learned – Bo Fawbush
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Excess Emissions Reporting

Regulation 1.07, Section 1 provides authority to require reports of excess emissions during startups, shutdowns and upset conditions

Excess Emissions, Section 2

- Companies have a general duty to ensure compliance with all emission standards, including times of startup, shutdown and upset conditions.
- Excess emissions shall be deemed in violation of the applicable emission standard.

Considerations

To determine appropriate enforcement action, information must be gathered for consideration via reporting required by Regulation 1.07. This includes:

- Duration and frequency
- Planning and design
- Recurring pattern
- Proper operation
- Timeliness in mitigation of excess emissions

Startups or Shutdowns
Section 3

Startups and shutdowns may be planned, unplanned or resulting from an upset condition.

Planned Startups or Shutdowns

If excess emissions are expected due to a planned startup or shutdown,

Written notification is required no later than 3 days prior to the event.

Unplanned Startups or Shutdowns

If an unplanned startup or shutdown with expected excess emissions is necessitated by unforeseeable events other than an upset condition ...

Unplanned Startups or Shutdowns

- Notice is required via telephone, facsimile or electronic mail within 1 hour of decision, and
- Written notice is required as promptly as possible, but no later than 24 hours of decision.

Unplanned Startups or Shutdowns

If the unplanned action is necessitated by an upset condition, it shall be treated as part of the upset condition pursuant to Section 4.

Required Reports

- Initial Notification – Section 3.5, no signature is required
- No Excess Emissions Report – Section 3.7, RO signature required
- Final Report - Section 3.8, RO signature required

Upset Conditions, Section 4

- If excess emissions occur or are likely to occur, notice is required as promptly as possible, but no later than 1 hour after the start of the upset.
- If a call to 911 was made, notice is required no later than 2 hours after the start of the upset.

Required Reports

- Initial Notification Form 311A
- End of Incident Notification Form 311B
- No Excess Emissions Form 311C
- Final Report

Initial Notification

- Form 311A Preferred
- Company may include attachments
- All required information must be included
- Responsible Official signature not required

End of Incident Notification

- Form 311B Preferred
- Company may include attachments
- All required information must be included
- Responsible Official signature not required

No Excess Emissions Notification

- Form 311C Preferred
- Company may include attachments
- All required information must be included
- Responsible Official signature is required

Final Notification

- Company may choose report format
- Report must clearly link to previous reports
- All required information must be included
- Responsible Official signature is required

Final Notification

A time extension up to 45 days may be granted by the District per Section 4.8, upon written request by the company

Extended Upset Conditions

- Expected operation of process or process equipment with upset conditions for greater than 30 days requires a Board Order.
- Board Order shall include time schedule and required actions to regain compliance.

General Duty Requirements

During times when excess emissions occur or are likely to occur, reasonable emissions reduction measures shall be employed. These may include …

General Duty Requirements

- Appropriate equipment or process design
- Appropriate operating procedures
- Pollution prevention measures
- Immediate cessation of operation
- Reducing level of operation
- Use off-shift labor and overtime

General Duty Requirements

- Owner or operator shall minimize frequency and duration of upset conditions,
- Continue to operate control equipment unless necessary to prevent loss of life, personal injury, or severe property damage, and
- Operate all emission and parametric monitoring systems unless technically infeasible.

Agenda (Continued)

- SAM 82 – Issues and lessons learned – Bo Fawbush
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