

# Blue Ridge Environmental Defense League

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## **Comments of Louis A. Zeller, Science Director Environmental Management Commission Public Hearing October 28, 2008**

We at the Blue Ridge Environmental Defense League believe that the proposed change in North Carolina's Toxic Air Pollutant Program is an ill-considered and ill-advised attempt to fix a problem which the Commission itself created. It is the wrong answer for a question that should never have been asked. In addition to grandfathering all permits issued before March 2009, the proposed amendments of the NC Air Toxics Rules 15A NCAC 2Q .0700 would make the exemption permanent because it would no longer be dependent on a federal rule; in other words, the exemption remains even if EPA enacts federal standards.

### The Original Exemption Was Wrong

In 1998 the NC Environmental Management Commission created a combustion source exemption in the state air toxics control program. The exemption included all coal-fired electric power plants and every other type of industrial boiler and process heaters which burned unadulterated fossil fuel: coal, oil or natural gas. The rationale for the exemption when it was enacted was that a federal rule was pending; so, to avoid duplicate rules, North Carolina approved a temporary exemption. But the Environmental Protection Agency has never promulgated its rule.

In 1997 the Air Toxics Working Group<sup>1</sup> recommended a series of changes in the state's air toxics program. Their report stated:

The purpose of the Air Toxics Working Group recommendation on making boilers invisible until the federal MACT is promulgated is to accelerate the schedule for bringing facilities under air toxics review and thereby increase the effectiveness and efficiency of the program by avoiding an influx of almost all toxics applications at one following its promulgation.<sup>2</sup>

The recommendation meant that for a short period combustion sources burning unadulterated fossil fuel would neither trigger an air toxics review nor be included in an air toxics evaluation. The rule incorporating this recommendation is 15A NCAC 2Q .0702 (a)(18).

However, the Air Toxics Working Group recommendation was not to permanently exempt boilers. The ultimate end point of the group's plan included no combustion

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<sup>1</sup> The Environmental Review Commission established the Air Toxics Working Group in response to the passage of House Bill 898 in 1996.

<sup>2</sup> *Report of Proceedings of Public Hearing on Proposed Amendments to Rules 15A NCAC 2D, 2H and 2Q, Air Toxics Rules*, Raleigh, November 18, 1997

source exemption, the specification of pollution control equipment and compliance deadlines for the reduction of toxic air pollutant emissions.<sup>3</sup>

A member of the Air Toxics Working Group who testified at the EMC public hearing before the exemption was approved said:

[T]he Working Group never discussed a proposal to completely exempt boilers plus other combustion sources from air toxics compliance and that the Group certainly would not have reached consensus on any proposal to exempt such sources from review altogether. [He] stated that the exemption for boilers stated in 2Q .0702(a)(18) should be deleted...<sup>4</sup>

Contrary to the original intent of the legislative committee which made the original recommendation, the rule now being proposed by the North Carolina Environmental Management Commission would make the exemption permanent. The NC Environmental Management Commission's proposed changes to 2Q .0700 Toxic Air Pollutant Procedures would create a permanent exemption in the state's health-based toxic air pollution limits.

We opposed the exemption for combustion sources ten years ago and we oppose it now. We believe that the EMC has an obligation to protect the health of our people from all sources of toxic air pollution, regardless of whether the source is unadulterated fuel or not. We request that the EMC strike paragraph 18 from 2Q .0702 and eliminate the combustion source exemption.

#### The Proposed Rule is Based on a Flawed Study

The NC Division of Air Quality did a study of the proposed exemption using the US Environmental Protection Agency's Human Exposure Model. But the DAQ's study did not account for important factors such as persistent bioaccumulative toxins and multiple pollution pathways.

Human exposure to air pollutants occurs via multiple pathways: water, soil and ingestion as well as inhalation. Toxic compounds deposited on soil, plants and water may be metabolized by microorganisms and ingested by fish, other animals and humans. Fat-soluble bio-accumulative substances concentrate in dairy products. The US EPA states:

Toxic air pollutants, like mercury or polychlorinated biphenyls, deposited onto soil or into lakes and streams persist and bioaccumulate in the environment. They can affect living systems and food chains, and eventually affect people when they eat contaminated food... Some of the PBTs that move through the air are deposited into water bodies and are concentrate up through the food chain, harming fish-eating animals and people. Small fish may consume plants that live in water contaminated by PBTs, which are absorbed into plant tissues. Big fish eat smaller fish and as the PBTs

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<sup>3</sup> *Id.*

<sup>4</sup> *Id.*, Testimony of Donnell Van Noppen, Esq., Southern Environmental Law Center

pass up the food chain, their levels go up. So a large fish consumed by people may have a much higher concentration of PBTs in its tissues than the simple plant first absorbing the PBTs. PBTs can concentrate in big fish to levels thousands of times the levels found in the contaminated water. Over 2000 U.S. water bodies are covered by fish consumption advisories, warning people not to eat the fish because of contamination with chemicals, usually PBTs. Those compounds have been linked to illnesses such as cancer, birth defects, and nervous system disorders.<sup>5</sup>

At the November 2007 meeting of the Air Quality Committee, the Toxics Protection Branch of the NC Division of Air Quality presented information on the Boiler Combustion Source Exemption Study. In his presentation, Mr. Steve Schliesser discussed the agency's application of the EPA's Human Exposure Model to assess the health risks of air toxics from industrial boilers. However, the Human Exposure Model estimates risk only from inhalation. There are other models do take into account additional human exposure media. For example, the EPA's Indirect Exposure Model (IEM) was developed for dioxin exposure assessment and later adapted to mercury studies. The Total Risk Integrated Methodology computer modeling system was developed by EPA and uses a mass balance approach to assess multiple pathway pollution exposure. But the DAQ's study ignores these risks

There is a better way. It has long been the responsibility of the NC Science Advisory Board to account for multiple risk factors from toxic air pollutants and recommend state standards to protect public health. SAB investigations of toxic chemicals are deliberate and sound; the panel studies the relevant literature and makes recommendations to the EMC. And, unlike the DAQ's HEM-based study, potential exposure from the deposition of airborne compounds onto soil or water is considered by the SAB when data indicate it leads to significant human health impacts.

The Division of Air Quality's limiting of toxic air pollutant risk to inhalation exposure is problematic. In fact, in a report to the EMC, the study's authors reported that "EPA's threshold levels for exposure and the State's Acceptable Ambient Levels (AAL) may differ such that the [human exposure] model cannot predict risk relevant to state criteria."<sup>6</sup> Plainly, the HEM model has been misapplied by the DAQ in its justification of the proposed rule. Moreover, the DAQ's incomplete study gives the mistaken impression that North Carolina's industrial boilers pose little threat from air toxics.

#### The Exemption Allows Industrial Plants to Exceed Toxic Pollution Limits

"Combustion sources" exempted from toxic air pollution limits are defined as: boilers, space heaters, process heaters, internal combustion engines, and combustion turbines, which burn only unadulterated wood or unadulterated fossil fuel.<sup>7</sup>

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<sup>5</sup> The Plain English Guide to the Clean Air Act, Reducing Toxic Air Pollutants, Persistent Bioaccumulative Toxics, available at <http://www.epa.gov/air/caa/peg/toxics.html>

<sup>6</sup> NC EMC Air Quality Committee Meeting Minutes, Agenda Item 2, September 13, 2006

<sup>7</sup> 15 A NCAC 2Q .0703(6)

The second largest smokestack pollution source from an asphalt plant is the cement heater. Large tanks each holding from 10,000 to 35,000 gallons of liquid asphalt cement heated to about 300 degrees-F are located on the plant site near the asphalt drum mixer. These tanks supply asphalt cement which is mixed with gravel in the drum mixer to make road paving asphalt. The tank heaters typically operate 24 hours/day and often 365 days /year because the asphalt cement becomes solid when it cools. These tanks emit toxic air pollutants, similar to the main stack of the drum mixer.

North Carolina air pollution permits for asphalt plants list “Activities Exempted from Permitting” including the fuel-oil fired asphalt tank heater. Permits state that the asphalt tank heater is a source of both toxic air pollutants and criteria pollutants. A typical Division of Air Quality permit allows an asphalt plant to emit the following air pollutants annually:<sup>8</sup>

<b>Chronic toxicants</b>	<b>pounds</b>
carbon disulfide	682
methyl ethyl ketone	13,650
Toluene	17,150
Xylene	9,975
<b>Acute system toxicant</b>	
Formaldehyde	617
Styrene	3,780
<b>Carcinogens</b>	
Benzene	64
trichloroethylene (TCE)	4,000
Perchloroethylene (PCE)	13,000

In addition to these pollutants, an important pollution source is exempted by 2Q .0702 (a)(18): the Asphalt Tank Heater burning No. 2 fuel oil at 1.6 million BTU heat input for a 10,000 gallon liquid asphalt storage tank. These units are known sources of toxic air pollution but are exempted by state statute; that is, they are listed in the permit but not included in the air pollution limits. Higher pollution levels are the result of this exemption.

#### Coal-fired Power Plants Are Exempt

Despite the EMC hearing report statement that “The exemption does not apply to Utility boilers,”<sup>9</sup> coal-fired electric generating units were exempted by the final rule which went into effect in July 1998. A 42-page listing of combustion sources<sup>10</sup> published by the

<sup>8</sup> Permit No. 09808R00, Young & McQueen Grading Co. Inc.—Spruce Pine Plant. Annual totals are based on production rate of 160 tons per hour for 1,406 hours per year or 175 days at 8 hours per day to produce 225,000 tons of asphalt.

<sup>9</sup> *Ibid*, Conclusion, page I-154

<sup>10</sup> *Fuel Combustion Exemption*, Possible Exempt Combustion Sources, December 4, 1997

DAQ in 1997 states that 1,249 sources could be exempted. The list includes the Weatherspoon, Sutton, Lee, Allen, Buck, Cliffside, Marshall and Riverbend plants; all are major coal-fired electric generating units.

The Cliffside Steam Station contains five coal-fired boilers, four of which are slated for closure and replacement by Unit 6. Duke Power claims that Unit 6 will be below major source thresholds that trigger case-by-case MACT determinations under the federal Clean Air Act.<sup>11</sup> No permit has been issued, but the air permit application submitted to DAQ includes a toxics analysis which lists just two compounds: ammonia and sulfuric acid, products of the pollution control devices.<sup>12</sup> These two compounds were modeled by Duke Power in the permit application. However, many other air toxics are emitted.

Cliffside Would Exceed Toxic Air Pollutant Limits

To determine whether coal-fired utility boilers would meet North Carolina toxic air pollutant limits, the Blue Ridge Environmental Defense League performed an independent analysis based on a permit application submitted to the Division of Air Quality. We selected the proposed Cliffside coal-fired electric plant to see if it would comply with the state's Acceptable Ambient Limits (AAL). The computer modeling data is included in the attachment to these remarks. We found that the emissions from the stack of Cliffside Unit 6 exceeded NC AALs by significant amounts for two toxic compounds regulated by North Carolina: chromium and arsenic.

Pollutant	Emission rate Pounds/hour	Generic modeled concentration µ g/m3/lb/hr	Conversion factor	Actual concentration µ g/m3	AAL µ g/m3
Chromium	0.11	0.1085	.08	0.0009548	0.000083
Arsenic	0.17	0.1085	.08	0.0014756	0.00023

Arsenic is listed as a presumed carcinogenic substance based on the increased prevalence of lung and skin cancer observed in human populations with multiple exposures.<sup>13</sup> Chromium III and VI are released into the environment by burning coal. Chromium VI causes respiratory problems, weakened immune systems, kidney and liver damage, alteration of genetic material and lung cancer.<sup>14</sup> Arsenic and Chromium emissions a kilometer from the Cliffside plant would be approximately 6 and 11 times higher than the respective AALs. Our study is continuing and we plan to submit additional analyses before the end of the comment period. But these data are for a single stack at the Cliffside plant. The older plants are no doubt contributing many times this level. For this

<sup>11</sup> Letter from Duke Power President and CEO James L. Turner to DAQ Director Keith Overcash, October 14, 2008

<sup>12</sup> PSD Permit Application for the Cliffside Steam Station Units 6&7-Volume 1, Duke Power, December 16, 2005, Section 10.5 North Carolina Toxic Pollutants Analysis, page 10-19

<sup>13</sup> Arsenic Toxicity, E-Medicine, Marcus, August 2006

<sup>14</sup> ATSDR Public Health Statement, 2000

reason alone, we recommend that the toxic air pollution program be implemented at all utility boilers and other unadulterated fossil fuel combustion units and not exempted.

### Specific Comments on Proposed Changes to 15A NCAC 2Q .0700

#### .0701 Applicability

The new rule states “The Division shall assess risks from combustion sources using the latest risk assessment methodologies and information every five years starting March 1, 2014.”

Apparently, the “latest risk assessment methodologies” would include the methodology which is being used to justify the permanent exemption now under discussion. The HEM model itself is not the problem; rather, the model was misapplied by the DAQ’s in its recently completed study. The apparent elevation of DAQ’s flawed methodology—that is, utilization of the HEM Model to assess health risk—into state regulations will undercut the Science Advisory Board which has developed superior procedures and practices during the last two decades.

Further, eliminated by the new rule is language which attaches North Carolina’s combustion source assessment to federal regulations. The proposed rule change strikes the following text from existing law:

Within one year after promulgation of MACT standards...the Division shall assess such MACT standards to determine whether additional measures are necessary with respect to toxic air pollutant emissions from combustion sources.

This change in the law, combined with changes in the following section .0702, would remove the requirement to assess the impact of the federal requirement with respect to the state’s toxic air pollutant rules.

#### .0702 Exemptions

The new rule would make permanent the current exemption for thousands of combustion sources<sup>15</sup> now in operation plus all new and modified sources permitted before March 1, 2009. The definition of exempt combustion sources now applies to all permitted sources until federal regulations are promulgated. The proposed rule states:

A permit to emit toxic air pollutants shall not be required under this section for:  
(18) combustion sources as defined in 15A NCAC 02Q .0703 except new or

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<sup>15</sup> Combustion sources in North Carolina are defined by 15 A NCAC 2Q .0703(6) as follows: "Combustion sources" means boilers, space heaters, process heaters, internal combustion engines, and combustion turbines, which burn only unadulterated wood or unadulterated fossil fuel. It does not include incinerators, waste combustors, kilns, dryers, or direct heat exchange industrial processes.

modified combustion sources permitted on or after March 1, 2009; ~~until 18 months after promulgation of the MACT or GACT....~~ (Underlined text is to be added, struck text is to be eliminated by the proposed rule)

If the rule change is approved by the Commission, toxic air pollution permits will never be required for existing combustion sources: boilers, space heaters, process heaters, internal combustion engines, and combustion turbines. Further, the stricken text puts North Carolina combustion sources outside of the reach of federal standards; i.e., MACT and GACT. According to the DAQ's Fiscal Note, for sources permitted before March 1, 2009, "[T]he exemption remains without regard to promulgation of the MACT or GACT standard for combustion sources."<sup>16</sup> So, even if the US EPA were to enact a standard stricter than North Carolina's, it would not apply to combustion sources permitted before March 2009. This language is contrary to federal law because it would be an impermissible setting of a state standard below the MACT floor.

The "MACT floor" is the average level of toxic air pollution control achieved by the top 12% of currently operating sources of the same type. It is a minimum national standard for all industrial sources of air pollution. Further, the 1990 Clean Air Act Amendments allow the US EPA to establish stricter standards if necessary to protect the environment and public health. North Carolina is an agreement state; it cannot eliminate a federal standard with a wave of the rulemaking wand.

The new rule eliminates the Environmental Management Commission's prerogative to remove the exemption upon finalization of the EPA's MACT. The proposed rule change strikes the following phrase from the combustion source exemption: "[T]he Commission shall decide whether to keep or remove the combustion source exemption."<sup>17</sup> Although this text follows the also stricken 18-month-after-MACT-promulgation text, it nevertheless reduces the Commission's ability to act; specifically, it would prevent the EMC from rectifying any sub-MACT combustion source standards permitted by the NC DAQ.

#### .0706 Modifications

The proposed change to this section and elsewhere effectively eliminate the combustion source exemption for sources constructed or modified<sup>18</sup> after March 1, 2009.

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<sup>16</sup> "Economic Analysis: Address Combustion Source Exemption in North Carolina Air Toxics Rules," DAQ File No. 472, September 4, 2008

<sup>17</sup> 15 A NCAC 2Q .0702 (18)

<sup>18</sup> Modifications in North Carolina are defined in 15A NCAC 2Q .0703 Definitions as follows: (14) "Modification" means any physical changes or changes in the methods of operation that result in a net increase in emissions or ambient concentration of any pollutant listed in Rule .0711 of this Section or that result in the emission of any pollutant listed in Rule .0711 of this Section not previously emitted.

.0709 Demonstrations

The proposed rule would extend to roughly 1,400 existing combustion sources eligibility to claim technical or economic reasons for not complying with state toxic air pollution limits. The proposed regulation states:

The owner or operator of any...combustion source...permitted before March 1, 2009, who cannot supply a demonstration described in Paragraph (a) of this Rule shall: (1) demonstrate...that complying with the guidelines...is technically infeasible...; or (2) demonstrate...that complying with the guidelines...would result in serious economic hardship.”<sup>19</sup> (new text underlined)

The demonstration referred to in paragraph (a) is compliance with health-based ambient standards for toxic air pollutants. The present rule restricts the ability to demonstrate technical infeasibility and economic hardship to facilities constructed before May 1990 and dry-cleaning facilities. The proposed rule is a sweeping change because it would allow thousands of facilities to claim technical infeasibility and economic hardship nearly two decades after the toxic air pollutant program was enacted.<sup>20</sup> In fact, the current exemption which the proposed rule is supposed to be replacing was only enacted in 1997.<sup>21</sup> Extending the ability to claim hardship back to 1990 has no basis in law, has no technical rationale and defies comprehension.

Conclusion

The proposed rule, if adopted, would exempt from North Carolina’s Toxic Air Pollutant control program all existing combustion sources permitted before March 1, 2009. In addition to grandfathering an exemption for all permits issued before March 2009, the proposed amendments of the state TAP rules would make the exemption permanent because it would no longer be dependent on a federal rulemaking; in other words, the loophole remains even if EPA enacts federal standards of combustion sources. Finally, the exemption would remain even after modification of the plant if the permittee can demonstrate technical infeasibility or economic hardship.

Thank you for the opportunity to testify at this hearing. I plan to submit further remarks.

Louis A. Zeller  
October 28, 2008

Attachment

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<sup>19</sup> 15A NCAC 2Q .0709(b)

<sup>20</sup> The EMC adopted the current air toxics rules in 1990.

<sup>21</sup> Report of Proceedings of Public Hearing on Proposed Amendments to Rules 15A NCAC 2D, 2H, and 2Q Air Toxic Rules, Nov. 18, 1997

## ATTACHMENT

The Blue Ridge Environmental Defense League ran a SCREEN3 air pollution dispersion model on the proposed Cliffside Unit 6. We elected to use the SCREEN3 Model 95250. SCREEN is based on the Industrial Source Complex (ISC) dispersion model developed by EPA. SCREEN3 has been supplanted in some quarters by AERMOD which is also based on the ISC model's architecture but uses newer algorithms which, among other things, simplify calculation of ambient concentrations in simple and complex terrain—elevations below and above the emission source—and from multiple sources. All are Gaussian dispersion models. SCREEN3, as the name suggests, is a screening tool for the estimation of ambient concentrations of air pollutants and has been the basis for many permit limits in North Carolina. It remains useful for determining aerial dispersion from a single emission source and can provide estimated concentrations for distances less than 100 meters from the source. The map and table below contain data compiled from the application which we used in our analysis.

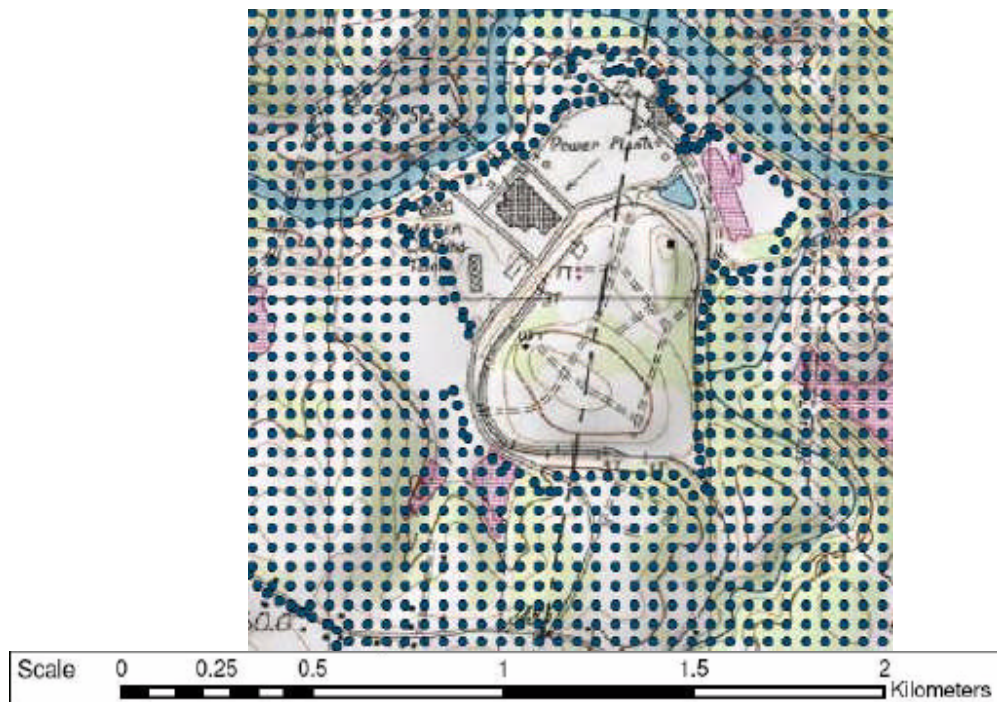


Figure 6-5, Near-Field Receptor Grid for SIL AERMOD Modeling Analysis (Application page 6-18)

Cliffside Steam Station Unit 6 Point Source Inputs<sup>22</sup>

Emission rate	0.126 grams/second
Stack height	175 meters
Stack inside diameter	9.1 meters
Stack gas exit velocity	18.3 meters per second
Stack gas exit temperature	322 degrees Kelvin
Stack base elevation	231 meters amsl
Ambient temperature	degrees Kelvin (default)
Receptor height above ground	2 meters
Urban/rural option	Rural

The 0.126 grams per second input is equal to 1 pound per hour; this emission value simplifies the calculation for many pollutants by generating a generic concentration: to get the actual pollutant concentration, one simply multiplies the generic concentration results from the SCREEN3 by the emissions of a particular pollutant in pounds per hour to get the actual hourly concentration. The model output data is reproduced below.

\*\*\*\*\* SCREEN3 MODEL \*\*\*\*\*  
 \*\*\*\* VERSION DATED 95250 \*\*\*\*

ENTER TITLE FOR THIS RUN (UP TO 79 CHARACTERS):  
 CSS6\_1

ENTER SOURCE TYPE: P FOR POINT  
                   F FOR FLARE  
                   A FOR AREA  
                   V FOR VOLUME

P

ENTER EMISSION RATE (G/S):  
 0.126

ENTER STACK HEIGHT (M):  
 175

ENTER STACK INSIDE DIAMETER (M):  
 9.1

ENTER STACK GAS EXIT VELOCITY OR FLOW RATE:

OPTION 1 : EXIT VELOCITY (M/S):

DEFAULT - ENTER NUMBER ONLY

OPTION 2 : VOLUME FLOW RATE (M\*\*3/S):

EXAMPLE "VM=20.00"

OPTION 3 : VOLUME FLOW RATE (ACFM):

EXAMPLE "VF=1000.00"

18.3

ENTER STACK GAS EXIT TEMPERATURE (K):

<sup>22</sup> Cliffside Unit 6&7 Project, Duke Power, Dispersion Modeling Protocol, ENSR Document No. 02355-134-2230, September 2005

322

ENTER AMBIENT AIR TEMPERATURE (USE 293 FOR DEFAULT) (K):

293

ENTER RECEPTOR HEIGHT ABOVE GROUND (FOR FLAGPOLE RECEPTOR)

(M):

2

ENTER URBAN/RURAL OPTION (U=URBAN, R=RURAL):

R

CONSIDER BUILDING DOWNWASH IN CALCS? ENTER Y OR N:

N

USE COMPLEX TERRAIN SCREEN FOR TERRAIN ABOVE STACK HEIGHT?

ENTER Y OR N:

N

USE SIMPLE TERRAIN SCREEN WITH TERRAIN ABOVE STACK BASE?

ENTER Y OR N:

Y

ENTER CHOICE OF METEOROLOGY;

1 - FULL METEOROLOGY (ALL STABILITIES & WIND SPEEDS)

2 - INPUT SINGLE STABILITY CLASS

3 - INPUT SINGLE STABILITY CLASS AND WIND SPEED

1

USE AUTOMATED DISTANCE ARRAY? ENTER Y OR N:

Y

ENTER TERRAIN HEIGHT ABOVE STACK BASE (M):

21

ENTER MIN AND MAX DISTANCES TO USE (M):

100

3000

	(M)	(UG/M**3)	STAB	(M/S)	(M/S)	(M)	HT (M)	Y (M)	Z (M)	DWASH
100.	.0000	1	1.0	1.2	1191.4	1190.38	62.96	58.63	NO	
200.	.6659E-11	5	1.0	2.7	10000.0	301.76	41.52	40.34	NO	
300.	.1801E-09	5	1.0	2.7	10000.0	301.76	45.47	43.10	NO	
400.	.4445E-07	1	3.0	3.7	960.0	499.46	103.95	85.29	NO	
500.	.9549E-04	1	3.0	3.7	960.0	499.46	125.51	118.01	NO	
600.	.4826E-02	1	3.0	3.7	960.0	499.46	146.46	165.80	NO	
700.	.2436E-01	1	3.0	3.7	960.0	499.46	166.90	223.98	NO	
800.	.4663E-01	1	3.0	3.7	960.0	499.46	186.93	292.67	NO	
900.	.8102E-01	1	2.0	2.4	673.2	672.19	225.45	382.78	NO	
1000.	.1024	1	2.0	2.4	673.2	672.19	245.81	472.07	NO	
1100.	.1084	1	2.0	2.4	673.2	672.19	265.85	572.28	NO	
1200.	.1057	1	2.0	2.4	673.2	672.19	285.59	683.51	NO	
1300.	.1011	1	2.0	2.4	673.2	672.19	301.75	804.57	NO	
1400.	.9629E-01	1	2.0	2.4	673.2	672.19	317.29	936.91	NO	
1500.	.9179E-01	1	2.0	2.4	673.2	672.19	332.89	1080.79	NO	

1600.	.8767E-01	1	2.0	2.4	673.2	672.19	348.53	1236.20	NO
1700.	.8390E-01	1	2.0	2.4	673.2	672.19	364.19	1403.17	NO
1800.	.8072E-01	1	1.5	1.8	845.9	844.92	401.68	1587.11	NO
1900.	.7784E-01	1	1.5	1.8	845.9	844.92	416.53	1776.72	NO
2000.	.7515E-01	1	1.5	1.8	845.9	844.92	431.43	1978.09	NO
2100.	.7264E-01	1	1.5	1.8	845.9	844.92	446.36	2191.25	NO
2200.	.7028E-01	1	1.5	1.8	845.9	844.92	461.31	2416.23	NO
2300.	.6807E-01	1	1.5	1.8	845.9	844.92	476.28	2653.08	NO
2400.	.6600E-01	1	1.5	1.8	845.9	844.92	491.25	2901.85	NO
2500.	.6405E-01	1	1.5	1.8	845.9	844.92	506.23	3162.57	NO
2600.	.6221E-01	1	1.5	1.8	845.9	844.92	521.20	3435.29	NO
2700.	.6047E-01	1	1.5	1.8	845.9	844.92	536.15	3720.05	NO
2800.	.5883E-01	1	1.5	1.8	845.9	844.92	551.10	4016.91	NO
2900.	.5728E-01	1	1.5	1.8	845.9	844.92	566.03	4325.90	NO
3000.	.5581E-01	1	1.5	1.8	845.9	844.92	580.94	4647.07	NO

ITERATING TO FIND MAXIMUM CONCENTRATION . . .

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 100. M:  
 1105. .1085    1    2.0    2.4    673.2    672.19    266.65    576.52    NO

CONTINUE SIMPLE TERRAIN AUTOMATED CALCS WITH NEW TERRAIN HEIGHT?  
 ENTER Y OR N:  
 N  
 USE DISCRETE DISTANCES? ENTER Y OR N:  
 N

DO YOU WISH TO MAKE A FUMIGATION CALCULATION? ENTER Y OR N:  
 N

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
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CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO TERRAIN MAX (M)	HT (M)
SIMPLE TERRAIN	.1085	1105.	21.

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