

from the coal storage area likely overstate actual emission rates. Even so, predicted concentrations would be less than  $80 \mu\text{g}/\text{m}^3$  on all but one day per year. Ninety-nine percent (99%) of the time (i.e., 361 of 365 days per year), the maximum predicted contribution to ambient SPM levels due to fugitive coal dust would be less than  $27 \mu\text{g}/\text{m}^3$ . Furthermore, the predicted SPM concentrations due to fugitive dust from coal and ash storage of  $0.5 \mu\text{g}/\text{m}^3$  and  $0.3 \mu\text{g}/\text{m}^3$  respectively are negligible at the nearest residential areas west of the plant, and less than  $0.2 \mu\text{g}/\text{m}^3$  at the nearest residence east of the plant. Therefore, fugitive dust emissions from the Brandon G.S. alone would not be sufficient to account for the high  $\text{PM}_{10}$  (and by extension, SPM) concentrations that have been measured in Brandon.

## **6.5 Trace Contaminants**

### **6.5.1 Mercury**

As part of the Canada-wide Standard (CWS) proposed by the Canadian Council of Ministers of the Environment, Manitoba's mercury stack emissions from existing coal-fired electric power generation (EPG) plants are capped, commencing in the year 2010, at 20 kg/year. At this emission rate, the contribution of mercury emissions from the Brandon G.S. to total mercury deposition in the area surrounding the plant represents approximately 2-4% of the total mercury deposition including all global sources.

### **6.5.2 Other Trace Elements and Compounds**

For the remaining trace contaminants in the exhaust emissions (i.e., VOCs, as well as trace organics and inorganics), only HCl, HF, formaldehyde, arsenic, cadmium, copper, lead, nickel, and zinc have established ambient air quality guidelines in Manitoba. The maximum predicted 24-hour average HF concentration is 1.5% of the guideline level. All other constituents are less than 0.1% of the Manitoba guideline values. Comparisons of maximum predicted concentrations for constituents with available air quality criteria from other jurisdictions indicate that all impacts are less than or equal to 0.6% of criteria levels, with the exception of the 1-hour average HF concentration at 3.7% of the Alberta objective level. The potential health impacts of these emissions are addressed in a separate document.

## **6.6 Greenhouse Gases**

At 100% of capacity, the total potential greenhouse gas (GHG) emissions from Unit #5 is estimated at 1.04 megatonnes/year (Mt/yr). For the year 2000, the total emission of GHGs in Manitoba was estimated at 18.2 Mt/yr of  $\text{CO}_2$ -equivalent (Manitoba Environment 1998). Thus, the maximum potential GHG emissions from the Brandon G.S. are estimated at 5.7% of

Manitoba's total GHG emissions, but on average the station will produce fewer emissions than this. Total GHG emissions in Manitoba represent approximately 3% of Canada's total GHG emissions, and Canada contributes approximately 2% of the world's GHG emissions.

## **6.7 COOLING TOWER EMISSIONS**

From the modelling that was undertaken it was determined that the potential impact from the cooling tower, it was concluded that the water vapour and dissolved salt emissions have a minimal impact on adjacent areas. Fogging or icing were predicted to occur off-site on approximately 1 hour per year and thus there is only minimal impact on the nearby roads. Assuming that the plant operates 100% of the time, a visible plume from the cooling tower of 500 m in length is predicted to occur up to 175 hours per year, while a plume up to 2 km in length may be visible for up to 88 hours per year. The amount of water and salt that may be deposited from the plume is negligible.

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**ATTACHMENT A**

**Sample CALMET Control File**

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**CALMET INPUT FILE FOR BRANDON**

**150 x 150 200 m meteorological grid**

**Met. stations used: 1 surface, 1 precipitation, and prognostic upper air**

----- Run title (3 lines) -----

CALMET MODEL CONTROL FILE  
-----

-----  
INPUT GROUP: 0 -- Input and Output File Names

Subgroup (a)  
-----

Default Name	Type	File Name
GEO.DAT	input	! GEODAT=GEO150.TXT !
SURF.DAT	input	! SRFDAT=SFC.TXT !
CLOUD.DAT	input	* CLDDAT= *
PRECIP.DAT	input	! PRCDAT=PRECIP.TXT !
MM4.DAT	input	! MM4DAT=M3D.DAT !
WT.DAT	input	* WTDAT= *
CALMET.LST	output	! METLST=jan1.LST !
CALMET.DAT	output	! METDAT=jan1.DAT !
PACOUT.DAT	output	* PACDAT= *

All file names will be converted to lower case if LCFILES = T  
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE  
T = lower case ! LCFILES = T !  
F = UPPER CASE

NUMBER OF UPPER AIR & OVERWATER STATIONS:

Number of upper air stations (NUSTA) No default ! NUSTA = 0 !  
Number of overwater met stations  
(NOWSTA) No default ! NOWSTA = 0 !

!END!  
-----

Subgroup (b)  
-----

Upper air files (one per station)  
-----

Default Name	Type	File Name
--------------	------	-----------

-----  
Subgroup (c)  
-----

Overwater station files (one per station)  
-----

Default Name	Type	File Name
--------------	------	-----------



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-----  
Subgroup (d)  
-----

Other file names  
-----

Default Name	Type	File Name	
DIAG.DAT	input	* DIADAT=	*
PROG.DAT	input	* PRGDAT=	*
TEST.PRT	output	* TSTPRT=	*
TEST.OUT	output	* TSTOUT=	*
TEST.KIN	output	* TSTKIN=	*
TEST.FRD	output	* TSTFRD=	*
TEST.SLP	output	* TSTSLP=	*

-----  
NOTES: (1) File/path names can be up to 70 characters in length  
(2) Subgroups (a) and (d) must have ONE 'END' (surround by delimiters) at the end of the group  
(3) Subgroups (b) and (c) must have an 'END' (surround by delimiters) at the end of EACH LINE

!END!

-----  
INPUT GROUP: 1 -- General run control parameters  
-----

Starting date: Year (IBYR) -- No default !IBYR= 2003 !  
Month (IBMO) -- No default !IBMO= 1 !  
Day (IBDY) -- No default !IBDY= 1 !  
Hour (IBHR) -- No default !IBHR= 1 !

Base time zone (IBTZ) -- No default !IBTZ= 6 !  
PST = 08, MST = 07  
CST = 06, EST = 05

Length of run (hours) (IRLG) -- No default !IRLG= 4344 !

Run type (IRTYPE) -- Default: 1 !IRTYPE= 1 !

0 = Computes wind fields only  
1 = Computes wind fields and micrometeorological variables  
(u\*, w\*, L, zi, etc.)  
(IRTYPE must be 1 to run CALPUFF or CALGRID)

Compute special data fields required  
by CALGRID (i.e., 3-D fields of W wind  
components and temperature)  
in additional to regular Default: T !LCALGRD = T !

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fields ? (LCALGRD)  
(LCALGRD must be T to Run CALGRID)

Flag to stop run after  
SETUP phase (ITEST)      Default: 2      ! ITEST= 2 !  
(Used to allow checking  
of the model inputs, files, etc.)  
ITEST = 1 - STOPS program after SETUP phase  
ITEST = 2 - Continues with execution of  
          COMPUTATIONAL phase after SETUP

!END!

-----  
INPUT GROUP: 2 -- Map Projection and Grid control parameters  
-----

Projection for all (X,Y):  
-----

Map projection  
(PMAP)                    Default: UTM    ! PMAP = UTM !

UTM : Universal Transverse Mercator  
TTM : Tangential Transverse Mercator  
LCC : Lambert Conformal Conic  
PS : Polar Stereographic  
EM : Equatorial Mercator  
LAZA : Lambert Azimuthal Equal Area

False Easting and Northing (km) at the projection origin  
(Used only if PMAP= TTM, LCC, or LAZA)  
(FEAST)                  Default=0.0    ! FEAST = 0.000 !  
(FNORTH)                Default=0.0    ! FNORTH = 0.000 !

UTM zone (1 to 60)  
(Used only if PMAP=UTM)  
(IUTMZN)                No Default    ! IUTMZN = 14 !

Hemisphere for UTM projection?  
(Used only if PMAP=UTM)  
(UTMHEM)                Default: N    ! UTMHEM = N !  
N : Northern hemisphere projection  
S : Southern hemisphere projection

Latitude and Longitude (decimal degrees) of projection origin  
(Used only if PMAP= TTM, LCC, PS, EM, or LAZA)  
(RLAT0)                 No Default    ! RLAT0 = 51.4N !  
(RLON0)                 No Default    ! RLON0 = 115W !

TTM : RLON0 identifies central (true N/S) meridian of projection  
      RLAT0 selected for convenience  
LCC : RLON0 identifies central (true N/S) meridian of projection

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RLAT0 selected for convenience  
PS : ROLON0 identifies central (grid N/S) meridian of projection  
RLAT0 selected for convenience  
EM : ROLON0 identifies central meridian of projection  
RLAT0 is REPLACED by 0.0N (Equator)  
LAZA: ROLON0 identifies longitude of tangent-point of mapping plane  
RLAT0 identifies latitude of tangent-point of mapping plane

Matching parallel(s) of latitude (decimal degrees) for projection

(Used only if PMAP= LCC or PS)

(XLAT1)            No Default    ! XLAT1 = 30N !  
(XLAT2)            No Default    ! XLAT2 = 60N !

LCC : Projection cone slices through Earth's surface at XLAT1 and XLAT2  
PS : Projection plane slices through Earth at XLAT1  
(XLAT2 is not used)

-----  
Note: Latitudes and longitudes should be positive, and include a  
letter N,S,E, or W indicating north or south latitude, and  
east or west longitude. For example,  
35.9 N Latitude = 35.9N  
118.7 E Longitude = 118.7E

Datum-region

-----  
The Datum-Region for the coordinates is identified by a character  
string. Many mapping products currently available use the model of the  
Earth known as the World Geodetic System 1984 (WGS-84). Other local  
models may be in use, and their selection in CALMET will make its output  
consistent with local mapping products. The list of Datum-Regions with  
official transformation parameters is provided by the National Imagery and  
Mapping Agency (NIMA).

NIMA Datum - Regions(Examples)

-----  
WGS-84    WGS-84 Reference Ellipsoid and Geoid, Global coverage (WGS84)  
NAS-C    NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)  
NAR-C    NORTH AMERICAN 1983 GRS 80 Spheroid, MEAN FOR CONUS (NAD83)  
NWS-84    NWS 6370KM Radius, Sphere  
ESR-S    ESRI REFERENCE 6371KM Radius, Sphere

Datum-region for output coordinates

(DATUM)            Default: WGS-84    ! DATUM = WGS-G !

Horizontal grid definition:

-----  
Rectangular grid defined for projection PMAP,  
with X the Easting and Y the Northing coordinate



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(IPRINF) in hours            Default: 1    ! IPRINF = 6 !  
(Meteorological fields are printed  
every 6 hours)

Specify which layers of U, V wind component  
to print (IUVOUT(NZ)) -- NOTE: NZ values must be entered  
(0=Do not print, 1=Print)  
(used only if LPRINT=T)    Defaults: NZ\*0  
! IUVOUT = 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 !  
-----

Specify which levels of the W wind component to print  
(NOTE: W defined at TOP cell face -- 12 values)  
(IWOUT(NZ)) -- NOTE: NZ values must be entered  
(0=Do not print, 1=Print)  
(used only if LPRINT=T & LCALGRD=T)  
-----  
                                 Defaults: NZ\*0  
! IWOUT = 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 !

Specify which levels of the 3-D temperature field to print  
(ITOUT(NZ)) -- NOTE: NZ values must be entered  
(0=Do not print, 1=Print)  
(used only if LPRINT=T & LCALGRD=T)  
-----  
                                 Defaults: NZ\*0  
! ITOUT = 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 !

Specify which meteorological fields  
to print  
(used only if LPRINT=T)            Defaults: 0 (all variables)  
-----

Variable	Print ?
	(0 = do not print, 1 = print)

-----

! STABILITY =	1	! - PGT stability class
! USTAR =	1	! - Friction velocity
! MONIN =	1	! - Monin-Obukhov length
! MIXHT =	1	! - Mixing height
! WSTAR =	1	! - Convective velocity scale
! PRECIP =	1	! - Precipitation rate
! SENSHEAT =	0	! - Sensible heat flux
! CONVZI =	0	! - Convective mixing ht.

Testing and debug print options for micrometeorological module

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Print input meteorological data and  
internal variables (LDB)      Default: F    ! LDB = T !  
(F = Do not print, T = print)  
(NOTE: this option produces large amounts of output)

First time step for which debug data  
are printed (NN1)            Default: 1    ! NN1 = 1 !

Last time step for which debug data  
are printed (NN2)            Default: 1    ! NN2 = 1 !

Testing and debug print options for wind field module  
(all of the following print options control output to  
wind field module's output files: TEST.PRT, TEST.OUT,  
TEST.KIN, TEST.FRD, and TEST.SLP)

Control variable for writing the test/debug  
wind fields to disk files (IOUTD)  
(0=Do not write, 1=write)    Default: 0    ! IOUTD = 0 !

Number of levels, starting at the surface,  
to print (NZPRN2)            Default: 1    ! NZPRN2 = 0 !

Print the INTERPOLATED wind components ?  
(IPR0) (0=no, 1=yes)        Default: 0    ! IPR0 = 0 !

Print the TERRAIN ADJUSTED surface wind  
components ?  
(IPR1) (0=no, 1=yes)        Default: 0    ! IPR1 = 0 !

Print the SMOOTHED wind components and  
the INITIAL DIVERGENCE fields ?  
(IPR2) (0=no, 1=yes)        Default: 0    ! IPR2 = 0 !

Print the FINAL wind speed and direction  
fields ?  
(IPR3) (0=no, 1=yes)        Default: 0    ! IPR3 = 0 !

Print the FINAL DIVERGENCE fields ?  
(IPR4) (0=no, 1=yes)        Default: 0    ! IPR4 = 0 !

Print the winds after KINEMATIC effects  
are added ?  
(IPR5) (0=no, 1=yes)        Default: 0    ! IPR5 = 0 !

Print the winds after the FROUDE NUMBER  
adjustment is made ?  
(IPR6) (0=no, 1=yes)        Default: 0    ! IPR6 = 0 !

Print the winds after SLOPE FLOWS  
are added ?  
(IPR7) (0=no, 1=yes)        Default: 0    ! IPR7 = 0 !

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Print the FINAL wind field components ?  
(IPR8) (0=no, 1=yes)      Default: 0      ! IPR8 = 0 !

!END!

-----  
INPUT GROUP: 4 -- Meteorological data options  
-----

NO OBSERVATION MODE      (NOOBS) Default: 0      !NOOBS = 1 !  
0 = Use surface, overwater, and upper air stations  
1 = Use surface and overwater stations (no upper air observations)  
    Use MM5 for upper air data  
2 = No surface, overwater, or upper air observations  
    Use MM5 for surface, overwater, and upper air data

NUMBER OF SURFACE & PRECIP. METEOROLOGICAL STATIONS

Number of surface stations (NSSTA) No default      !NSSTA = 1 !

Number of precipitation stations  
(NPSTA=-1: flag for use of MM5 precip data)  
(NPSTA) No default      !NPSTA = 1 !

CLOUD DATA OPTIONS

Gridded cloud fields:  
(ICLOUD) Default: 0      !ICLOUD = 0 !  
ICLOUD = 0 - Gridded clouds not used  
ICLOUD = 1 - Gridded CLOUD.DAT generated as OUTPUT  
ICLOUD = 2 - Gridded CLOUD.DAT read as INPUT  
ICLOUD = 3 - Gridded cloud cover from Prognostic Rel. Humidity

FILE FORMATS

Surface meteorological data file format  
(IFORMS) Default: 2      !IFORMS = 2 !  
(1 = unformatted (e.g., SMERGE output))  
(2 = formatted (free-formatted user input))

Precipitation data file format  
(IFORMP) Default: 2      !IFORMP = 2 !  
(1 = unformatted (e.g., PMERGE output))  
(2 = formatted (free-formatted user input))

Cloud data file format  
(IFORMC) Default: 2      !IFORMC = 2 !  
(1 = unformatted - CALMET unformatted output)  
(2 = formatted - free-formatted CALMET output or user input)

!END!

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-----  
INPUT GROUP: 5 -- Wind Field Options and Parameters  
-----

WIND FIELD MODEL OPTIONS

Model selection variable (IWFCOD) Default: 1 ! IWFCOD = 1 !  
0 = Objective analysis only  
1 = Diagnostic wind module

Compute Froude number adjustment  
effects ? (IFRADJ) Default: 1 ! IFRADJ = 1 !  
(0 = NO, 1 = YES)

Compute kinematic effects ? (IKINE) Default: 0 ! IKINE = 0 !  
(0 = NO, 1 = YES)

Use O'Brien procedure for adjustment  
of the vertical velocity ? (IOBR) Default: 0 ! IOBR = 0 !  
(0 = NO, 1 = YES)

Compute slope flow effects ? (ISLOPE) Default: 1 ! ISLOPE = 1 !  
(0 = NO, 1 = YES)

Extrapolate surface wind observations  
to upper layers ? (IEXTRP) Default: -4 ! IEXTRP = 4 !  
(1 = no extrapolation is done,  
2 = power law extrapolation used,  
3 = user input multiplicative factors  
for layers 2 - NZ used (see FEXTRP array)  
4 = similarity theory used  
-1, -2, -3, -4 = same as above except layer 1 data  
at upper air stations are ignored

Extrapolate surface winds even  
if calm? (ICALM) Default: 0 ! ICALM = 0 !  
(0 = NO, 1 = YES)

Layer-dependent biases modifying the weights of  
surface and upper air stations (BIAS(NZ))  
-1<=BIAS<=1  
Negative BIAS reduces the weight of upper air stations  
(e.g. BIAS=-0.1 reduces the weight of upper air stations  
by 10%; BIAS= -1, reduces their weight by 100 %)  
Positive BIAS reduces the weight of surface stations  
(e.g. BIAS= 0.2 reduces the weight of surface stations  
by 20%; BIAS=1 reduces their weight by 100%)  
Zero BIAS leaves weights unchanged (1/R\*\*2 interpolation)  
Default: NZ\*0  
! BIAS = -1 , -0.5 , -0.2 , 0 , 0 , 1 , 1 , 1 , 1 , 1 , 1 , 1 !

Minimum distance from nearest upper air station  
to surface station for which extrapolation



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of surface winds at surface station will be allowed  
(RMIN2: Set to -1 for IEXTRP = 4 or other situations  
where all surface stations should be extrapolated)  
Default: 4. ! RMIN2 = -1.0 !

Use gridded prognostic wind field model  
output fields as input to the diagnostic  
wind field model (IPROG) Default: 0 ! IPROG = 14 !  
(0 = No, [IWFCOD = 0 or 1]  
1 = Yes, use CSUMM prog. winds as Step 1 field, [IWFCOD = 0]  
2 = Yes, use CSUMM prog. winds as initial guess field [IWFCOD = 1]  
3 = Yes, use winds from MM4.DAT file as Step 1 field [IWFCOD = 0]  
4 = Yes, use winds from MM4.DAT file as initial guess field [IWFCOD = 1]  
5 = Yes, use winds from MM4.DAT file as observations [IWFCOD = 1]  
13 = Yes, use winds from MM5.DAT file as Step 1 field [IWFCOD = 0]  
14 = Yes, use winds from MM5.DAT file as initial guess field [IWFCOD = 1]  
15 = Yes, use winds from MM5.DAT file as observations [IWFCOD = 1]

Timestep (hours) of the prognostic  
model input data (ISTEPPG) Default: 1 ! ISTEPPG = 6 !

#### RADIUS OF INFLUENCE PARAMETERS

Use varying radius of influence Default: F ! LVARY = T!  
(if no stations are found within RMAX1,RMAX2,  
or RMAX3, then the closest station will be used)

Maximum radius of influence over land  
in the surface layer (RMAX1) No default ! RMAX1 = 10. !  
Units: km

Maximum radius of influence over land  
aloft (RMAX2) No default ! RMAX2 = 50. !  
Units: km

Maximum radius of influence over water  
(RMAX3) No default ! RMAX3 = 500. !  
Units: km

#### OTHER WIND FIELD INPUT PARAMETERS

Minimum radius of influence used in  
the wind field interpolation (RMIN) Default: 0.1 ! RMIN = 0.1 !  
Units: km

Radius of influence of terrain  
features (TERRAD) No default ! TERRAD = 10. !  
Units: km

Relative weighting of the first  
guess field and observations in the  
SURFACE layer (R1) No default ! R1 = 8. !  
(R1 is the distance from an  
Units: km  
observational station at which the  
observation and first guess field are  
equally weighted)

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Relative weighting of the first  
guess field and observations in the  
layers ALOFT (R2)           No default   ! R2 = 15. !  
(R2 is applied in the upper layers   Units: km  
in the same manner as R1 is used in  
the surface layer).

Relative weighting parameter of the  
prognostic wind field data (RPROG)   No default   ! RPROG = 54. !  
(Used only if IPROG = 1)           Units: km  
-----

Maximum acceptable divergence in the  
divergence minimization procedure  
(DIVLIM)           Default: 5.E-6  
! DIVLIM= 5.0E-06 !

Maximum number of iterations in the  
divergence min. procedure (NITER)   Default: 50  
! NITER = 50 !

Number of passes in the smoothing  
procedure (NSMTH(NZ))  
NOTE: NZ values must be entered  
Default: 2,(mxnz-1)\*4  
! NSMTH = 2 , 4 , 4 , 4 , 4 , 4 , 4 , 4 , 4 , 4 , 4 , 4 !

Maximum number of stations used in  
each layer for the interpolation of  
data to a grid point (NINTR2(NZ))  
NOTE: NZ values must be entered   Default: 99.  
! NINTR2 = 99,99,99,99,99,99,99,99,99,99,99,99 !

Critical Froude number (CRITFN)   Default: 1.0   ! CRITFN = 1. !

Empirical factor controlling the  
influence of kinematic effects  
(ALPHA)           Default: 0.1   ! ALPHA = 0.1 !

Multiplicative scaling factor for  
extrapolation of surface observations  
to upper layers (FEXTR2(NZ))   Default: NZ\*0.0  
! FEXTR2 = 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0. !  
(Used only if IEXTRP = 3 or -3)

**BARRIER INFORMATION**

Number of barriers to interpolation  
of the wind fields (NBAR)       Default: 0   ! NBAR = 0 !

THE FOLLOWING 4 VARIABLES ARE INCLUDED  
ONLY IF NBAR > 0

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NOTE: NBAR values must be entered    No defaults  
for each variable                      Units: km

X coordinate of BEGINNING  
of each barrier (XBBAR(NBAR))    ! XBBAR = 0. !  
Y coordinate of BEGINNING  
of each barrier (YBBAR(NBAR))    ! YBBAR = 0. !  
  
X coordinate of ENDING  
of each barrier (XEBAR(NBAR))    ! XEBAR = 0. !  
Y coordinate of ENDING  
of each barrier (YEBAR(NBAR))    ! YEBAR = 0. !

DIAGNOSTIC MODULE DATA INPUT OPTIONS

Surface temperature (IDIOPT1)    Default: 0    ! IDIOPT1 = 0 !  
0 = Compute internally from  
    hourly surface observations  
1 = Read preprocessed values from  
    a data file (DIAG.DAT)

Surface met. station to use for  
the surface temperature (ISURFT) No default    ! ISURFT = 1 !  
(Must be a value from 1 to NSSTA)  
(Used only if IDIOPT1 = 0)  
-----

Domain-averaged temperature lapse  
rate (IDIOPT2)                      Default: 0    ! IDIOPT2 = 0 !  
0 = Compute internally from  
    twice-daily upper air observations  
1 = Read hourly preprocessed values  
    from a data file (DIAG.DAT)

Upper air station to use for  
the domain-scale lapse rate (IUPT) No default    ! IUPT = 0 !  
(Must be a value from 1 to NUSTA)  
(Used only if IDIOPT2 = 0)  
-----

Depth through which the domain-scale  
lapse rate is computed (ZUPT)    Default: 200. ! ZUPT = 200. !  
(Used only if IDIOPT2 = 0)        Units: meters  
-----

Domain-averaged wind components  
(IDIOPT3)                            Default: 0    ! IDIOPT3 = 0 !  
0 = Compute internally from  
    twice-daily upper air observations  
1 = Read hourly preprocessed values  
    a data file (DIAG.DAT)

Upper air station to use for

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the domain-scale winds (IUPWND) Default: -1 ! IUPWND = -1 !  
(Must be a value from -1 to NUSTA)  
(Used only if IDIOPT3 = 0)  
-----

Bottom and top of layer through  
which the domain-scale winds  
are computed  
(ZUPWND(1), ZUPWND(2)) Defaults: 1., 1000.  
! ZUPWND= 1., 1000. !  
(Used only if IDIOPT3 = 0) Units: meters  
-----

Observed surface wind components  
for wind field module (IDIOPT4) Default: 0 ! IDIOPT4 = 0 !  
0 = Read WS, WD from a surface  
data file (SURF.DAT)  
1 = Read hourly preprocessed U, V from  
a data file (DIAG.DAT)

Observed upper air wind components  
for wind field module (IDIOPT5) Default: 0 ! IDIOPT5 = 0 !  
0 = Read WS, WD from an upper  
air data file (UP1.DAT, UP2.DAT, etc.)  
1 = Read hourly preprocessed U, V from  
a data file (DIAG.DAT)

#### LAKE BREEZE INFORMATION

Use Lake Breeze Module (LLBREZE)  
Default: F ! LLBREZE = F !

Number of lake breeze regions (NBOX) ! NBOX = 0 !

X Grid line 1 defining the region of interest  
! XG1 = 0. !

X Grid line 2 defining the region of interest  
! XG2 = 0. !

Y Grid line 1 defining the region of interest  
! YG1 = 0. !

Y Grid line 2 defining the region of interest  
! YG2 = 0. !

X Point defining the coastline (Straight line)  
(XBCST) (KM) Default: none ! XBCST = 0. !

Y Point defining the coastline (Straight line)  
(YBCST) (KM) Default: none ! YBCST = 0. !

X Point defining the coastline (Straight line)  
(XECST) (KM) Default: none ! XECST = 0. !

Y Point defining the coastline (Straight line)  
(YECST) (KM) Default: none ! YECST = 0. !

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Number of stations in the region Default: none ! NLB = 0 !  
(Surface stations + upper air stations)

Station ID's in the region (METBXID(NLB))  
(Surface stations first, then upper air stations)  
! METBXID = 0 !

!END!

-----  
INPUT GROUP: 6 -- Mixing Height, Temperature and Precipitation Parameters  
-----

EMPIRICAL MIXING HEIGHT CONSTANTS

Neutral, mechanical equation  
(CONSTB) Default: 1.41 ! CONSTB = 1.41 !  
Convective mixing ht. equation  
(CONSTE) Default: 0.15 ! CONSTE = 0.15 !  
Stable mixing ht. equation  
(CONSTN) Default: 2400. ! CONSTN = 2400. !  
Overwater mixing ht. equation  
(CONSTW) Default: 0.16 ! CONSTW = 0.16 !  
Absolute value of Coriolis  
parameter (FCORIOL) Default: 1.E-4 ! FCORIOL = 1.0E-04!  
Units: (1/s)

SPATIAL AVERAGING OF MIXING HEIGHTS

Conduct spatial averaging  
(IAVEZI) (0=no, 1=yes) Default: 1 ! IAVEZI = 1 !  
  
Max. search radius in averaging  
process (MNMDAV) Default: 1 ! MNMDAV = 3 !  
Units: Grid  
cells  
Half-angle of upwind looking cone  
for averaging (HAFANG) Default: 30. ! HAFANG = 30. !  
Units: deg.  
Layer of winds used in upwind  
averaging (ILEVZI) Default: 1 ! ILEVZI = 1 !  
(must be between 1 and NZ)

OTHER MIXING HEIGHT VARIABLES

Minimum potential temperature lapse  
rate in the stable layer above the  
current convective mixing ht. Default: 0.001 ! DPTMIN = 0.001 !  
(DPTMIN) Units: deg. K/m  
Depth of layer above current conv.

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mixing height through which lapse rate is computed (DZZI)      Default: 200. ! DZZI = 200. !  
Units: meters

Minimum overland mixing height (ZIMIN)      Default: 50. ! ZIMIN = 50. !  
Units: meters

Maximum overland mixing height (ZIMAX)      Default: 3000. ! ZIMAX = 3000. !  
Units: meters

Minimum overwater mixing height (ZIMINW) -- (Not used if observed overwater mixing hts. are used)      Default: 50. ! ZIMINW = 50. !  
Units: meters

Maximum overwater mixing height (ZIMAXW) -- (Not used if observed overwater mixing hts. are used)      Default: 3000. ! ZIMAXW = 3000. !  
Units: meters

#### TEMPERATURE PARAMETERS

3D temperature from observations or from prognostic data? (ITPROG)      Default:0      !ITPROG = 1 !

0 = Use Surface and upper air stations  
(only if NOOBS = 0)

1 = Use Surface stations (no upper air observations)  
Use MM5 for upper air data  
(only if NOOBS = 0,1)

2 = No surface or upper air observations  
Use MM5 for surface and upper air data  
(only if NOOBS = 0,1,2)

Interpolation type  
(1 = 1/R ; 2 = 1/R\*\*2)      Default:1      !IRAD = 1 !

Radius of influence for temperature interpolation (TRADKM)      Default: 500. ! TRADKM = 5. !  
Units: km

Maximum Number of stations to include in temperature interpolation (NUMTS)      Default: 5      ! NUMTS = 1 !

Conduct spatial averaging of temperatures (IAVET) (0=no, 1=yes)      Default: 1      !IAVET = 1 !  
(will use mixing ht MNMDAV,HAFANG so make sure they are correct)

Default temperature gradient below the mixing height over water (K/m) (TGDEFB)      Default: -.0098 ! TGDEFB = -0.0098 !

Default temperature gradient above the mixing height over water (K/m) (TGDEFA)      Default: -.0045 ! TGDEFA = -0.0035 !

Beginning (JWAT1) and ending (JWAT2) land use categories for temperature      ! JWAT1 = 55 !

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interpolation over water -- Make                   ! JWAT2 = 55 !  
bigger than largest land use to disable

PRECIP INTERPOLATION PARAMETERS

Method of interpolation (NFLAGP)   Default = 2   ! NFLAGP = 2 !  
(1=1/R,2=1/R\*\*2,3=EXP/R\*\*2)  
Radius of Influence (km) (SIGMAP)   Default = 100.0 ! SIGMAP = 100. !  
(0.0 => use half dist. btwn  
nearest stns w & w/out  
precip when NFLAGP = 3)  
Minimum Precip. Rate Cutoff (mm/hr)   Default = 0.01 ! CUTP = 0.01 !  
(values < CUTP = 0.0 mm/hr)

!END!

-----  
INPUT GROUP: 7 -- Surface meteorological station parameters  
-----

SURFACE STATION VARIABLES

(One record per station -- 1 records in all)

1	2					
Name	ID	X coord.	Y coord.	Time	Anem.	
		(km)	(km)	zone	Ht.(m)	

! SS1 ='BRAN' 123412   431.800   5529.835   6   10 !

-----  
1  
Four character string for station name  
(MUST START IN COLUMN 9)

2  
Five digit integer for station ID

!END!

-----  
INPUT GROUP: 8 -- Upper air meteorological station parameters  
-----

UPPER AIR STATION VARIABLES

(One record per station -- 0 records in all)

1	2				
Name	ID	X coord.	Y coord.	Time	zone
		(km)	(km)		

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1  
Four character string for station name  
(MUST START IN COLUMN 9)

2  
Five digit integer for station ID

!END!

-----  
INPUT GROUP: 9 -- Precipitation station parameters  
-----

PRECIPITATION STATION VARIABLES  
(One record per station -- 1 records in all)  
(NOT INCLUDED IF NPSTA = 0)

1	2		
Name	Station	X coord.	Y coord.
Code		(km)	(km)

-----

! PS1 = 'BRAN' 123412 431.800 5529.835 !

-----  
1  
Four character string for station name  
(MUST START IN COLUMN 9)

2  
Six digit station code composed of state  
code (first 2 digits) and station ID (last  
4 digits)

!END!



**ATTACHMENT B**

**Sample CALPUFF Control File**

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**CALPUFF INPUT FILE FOR BRANDON – NON-REACTIVE GAS**

**Brandon G.S., Unit 5**

**Annual Simulation using CALMET met. data**

**Gridded receptors on 150 x 150 200m grid, and 857 discrete receptors**

----- Run title (3 lines) -----

CALPUFF MODEL CONTROL FILE

-----  
INPUT GROUP: 0 -- Input and Output File Names

-----  
Default Name    Type        File Name  
-----  
CALMET.DAT    input    \* METDAT =CALMET.DAT    \*  
          or  
ISCMET.DAT    input    \* ISCDAT =                \*  
          or  
PLMMET.DAT    input    \* PLMDAT =                \*  
          or  
PROFILE.DAT    input    \* PRFDAT =                \*  
SURFACE.DAT    input    \* SFCDAT =                \*  
RESTARTB.DAT    input    \* RSTARTB=                \*

-----  
CALPUFF.LST    output    ! PUFLST =CALPUFF.LST !  
CONC.DAT        output    ! CONDAT = gas.CON        !  
DFLX.DAT        output    ! DFDAT = gas.DRY        !  
WFLX.DAT        output    ! WFDAT = gas.WET        !

VISB.DAT        output    \* VISDAT =                \*  
RESTARTE.DAT    output    \* RSTARTE=                \*

-----  
Emission Files

-----  
PTEMARB.DAT    input    \* PTDAT =                \*  
VOLEMARB.DAT    input    \* VOLDAT =                \*  
BAEMARB.DAT    input    \* ARDAT =                \*  
LNEMARB.DAT    input    \* LNDAT =                \*

-----  
Other Files

-----  
OZONE.DAT        input    \* OZDAT =                \*  
VD.DAT            input    \* VDDAT =                \*  
CHEM.DAT        input    \* CHEMDAT=                \*  
H2O2.DAT        input    \* H2O2DAT=                \*  
HILL.DAT         input    \* HILDAT=                \*  
HILLRCT.DAT     input    \* RCTDAT=                \*  
COASTLN.DAT     input    \* CSTDAT=                \*  
FLUXBDY.DAT     input    \* BDYDAT=                \*  
BCON.DAT         input    \* BCNDAT=                \*  
DEBUG.DAT        output    \* DEBUG =                \*  
MASSFLX.DAT     output    \* FLXDAT=                \*

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MASSBAL.DAT output \* BALDAT= \*  
FOG.DAT output \* FOGDAT= \*

-----  
All file names will be converted to lower case if LCFILES = T  
Otherwise, if LCFILES = F, file names will be converted to UPPER CASE  
T = lower case ! LCFILES = T !  
F = UPPER CASE

NOTE: (1) file/path names can be up to 70 characters in length

Provision for multiple input files

-----  
Number of CALMET.DAT files for run (NMETDAT)  
Default: 1 ! NMETDAT = 2 !

Number of PTEMARB.DAT files for run (NPTDAT)  
Default: 0 ! NPTDAT = 0 !

Number of BAEMARB.DAT files for run (NARDAT)  
Default: 0 ! NARDAT = 0 !

Number of VOLEMARB.DAT files for run (NVOLDAT)  
Default: 0 ! NVOLDAT = 0 !

!END!

-----  
Subgroup (0a)  
-----

The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name	Type	File Name
none	input	! METDAT= jan1.dat ! !END!
none	input	! METDAT= jul1.dat ! !END!

-----  
INPUT GROUP: 1 -- General run control parameters  
-----

Option to run all periods found  
in the met. file (METRUN) Default: 0 ! METRUN = 0 !

METRUN = 0 - Run period explicitly defined below  
METRUN = 1 - Run all periods in met. file

Starting date: Year (IBYR) -- No default ! IBYR = 2003 !  
(used only if Month (IBMO) -- No default ! IBMO = 01 !  
METRUN = 0) Day (IBDY) -- No default ! IBDY = 1 !  
Hour (IBHR) -- No default ! IBHR = 1 !

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Base time zone (XBTZ) -- No default ! XBTZ = 6.0 !  
PST = 8., MST = 7.  
CST = 6., EST = 5.

Length of run (hours) (IRLG) -- No default ! IRLG = 8760 !

Number of chemical species (NSPEC)  
Default: 5 ! NSPEC = 1 !

Number of chemical species  
to be emitted (NSE) Default: 3 ! NSE = 1 !

Flag to stop run after  
SETUP phase (ITEST) Default: 2 ! ITEST = 2 !  
(Used to allow checking  
of the model inputs, files, etc.)  
ITEST = 1 - STOPS program after SETUP phase  
ITEST = 2 - Continues with execution of program  
after SETUP

Restart Configuration:

Control flag (MRESTART) Default: 0 ! MRESTART = 0 !

- 0 = Do not read or write a restart file
- 1 = Read a restart file at the beginning of  
the run
- 2 = Write a restart file during run
- 3 = Read a restart file at beginning of run  
and write a restart file during run

Number of periods in Restart  
output cycle (NRESPD) Default: 0 ! NRESPD = 0 !

- 0 = File written only at last period
- >0 = File updated every NRESPD periods

Meteorological Data Format (METFM)  
Default: 1 ! METFM = 1 !

- METFM = 1 - CALMET binary file (CALMET.MET)
- METFM = 2 - ISC ASCII file (ISCMET.MET)
- METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
- METFM = 4 - CTDM plus tower file (PROFILE.DAT) and  
surface parameters file (SURFACE.DAT)

PG sigma-y is adjusted by the factor (AVET/PGTIME)\*\*0.2

Averaging Time (minutes) (AVET)  
Default: 60.0 ! AVET = 60. !

PG Averaging Time (minutes) (PGTIME)  
Default: 60.0 ! PGTIME = 60. !

!END!

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-----  
INPUT GROUP: 2 -- Technical options  
-----

Vertical distribution used in the  
near field (MGAUSS)           Default: 1   ! MGAUSS = 1 !  
  0 = uniform  
  1 = Gaussian

Terrain adjustment method  
(MCTADJ)                    Default: 3   ! MCTADJ = 3 !  
  0 = no adjustment  
  1 = ISC-type of terrain adjustment  
  2 = simple, CALPUFF-type of terrain  
    adjustment  
  3 = partial plume path adjustment

Subgrid-scale complex terrain  
flag (MCTSG)                Default: 0   ! MCTSG = 0 !  
  0 = not modeled  
  1 = modeled

Near-field puffs modeled as  
elongated 0 (MSLUG)         Default: 0   ! MSLUG = 0 !  
  0 = no  
  1 = yes (slug model used)

Transitional plume rise modeled ?  
(MTRANS)                    Default: 1   ! MTRANS = 1 !  
  0 = no (i.e., final rise only)  
  1 = yes (i.e., transitional rise computed)

Stack tip downwash? (MTIP)     Default: 1   ! MTIP = 1 !  
  0 = no (i.e., no stack tip downwash)  
  1 = yes (i.e., use stack tip downwash)

Method used to simulate building  
downwash? (MBDW)            Default: 1   ! MBDW = 2 !  
  1 = ISC method  
  2 = PRIME method

Vertical wind shear modeled above  
stack top? (MSHEAR)         Default: 0   ! MSHEAR = 1 !  
  0 = no (i.e., vertical wind shear not modeled)  
  1 = yes (i.e., vertical wind shear modeled)

Puff splitting allowed? (MSPLIT)   Default: 0   ! MSPLIT = 0 !  
  0 = no (i.e., puffs not split)  
  1 = yes (i.e., puffs are split)

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Chemical mechanism flag (MCHEM)     Default: 1     !MCHEM = 0 !

- 0 = chemical transformation not modeled
- 1 = transformation rates computed internally (MESOPUFF II scheme)
- 2 = user-specified transformation rates used
- 3 = transformation rates computed internally (RIVAD/ARM3 scheme)
- 4 = secondary organic aerosol formation computed (MESOPUFF II scheme for OH)

Aqueous phase transformation flag (MAQCHEM)

(Used only if MCHEM = 1, or 3)     Default: 0     !MAQCHEM = 0 !

- 0 = aqueous phase transformation not modeled
- 1 = transformation rates adjusted for aqueous phase reactions

Wet removal modeled ? (MWET)     Default: 1     !MWET = 1 !

- 0 = no
- 1 = yes

Dry deposition modeled ? (MDRY)     Default: 1     !MDRY = 1 !

- 0 = no
- 1 = yes  
(dry deposition method specified for each species in Input Group 3)

Method used to compute dispersion

coefficients (MDISP)     Default: 3     !MDISP = 2 !

- 1 = dispersion coefficients computed from measured values of turbulence, sigma v, sigma w
- 2 = dispersion coefficients from internally calculated sigma v, sigma w using micrometeorological variables (u\*, w\*, L, etc.)
- 3 = PG dispersion coefficients for RURAL areas (computed using the ISCST multi-segment approximation) and MP coefficients in urban areas
- 4 = same as 3 except PG coefficients computed using the MESOPUFF II eqns.
- 5 = CTDM sigmas used for stable and neutral conditions. For unstable conditions, sigmas are computed as in MDISP = 3, described above. MDISP = 5 assumes that measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)

(Used only if MDISP = 1 or 5)     Default: 3     !MTURBVW = 3 !

- 1 = use sigma-v or sigma-theta measurements from PROFILE.DAT to compute sigma-y (valid for METFM = 1, 2, 3, 4)
- 2 = use sigma-w measurements from PROFILE.DAT to compute sigma-z

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(valid for METFM = 1, 2, 3, 4)

3 = use both sigma-(v/theta) and sigma-w  
from PROFILE.DAT to compute sigma-y and sigma-z

(valid for METFM = 1, 2, 3, 4)

4 = use sigma-theta measurements  
from PLMMET.DAT to compute sigma-y  
(valid only if METFM = 3)

Back-up method used to compute dispersion

when measured turbulence data are

missing (MDISP2)                      Default: 3    !MDISP2 = 3 !

(used only if MDISP = 1 or 5)

2 = dispersion coefficients from internally calculated  
sigma v, sigma w using micrometeorological variables  
(u\*, w\*, L, etc.)

3 = PG dispersion coefficients for RURAL areas (computed using  
the ISCST multi-segment approximation) and MP coefficients in  
urban areas

4 = same as 3 except PG coefficients computed using  
the MESOPUFF II eqns.

PG sigma-y,z adj. for roughness?    Default: 0    !MROUGH = 0 !  
(MROUGH)

0 = no

1 = yes

Partial plume penetration of        Default: 1    !MPARTL = 1 !  
elevated inversion?

(MPARTL)

0 = no

1 = yes

Strength of temperature inversion    Default: 0    !MTINV = 0 !  
provided in PROFILE.DAT extended records?

(MTINV)

0 = no (computed from measured/default gradients)

1 = yes

PDF used for dispersion under convective conditions?

Default: 0    !MPDF = 0 !

(MPDF)

0 = no

1 = yes

Sub-Grid TIBL module used for shore line?

Default: 0    !MSGTIBL = 0 !

(MSGTIBL)

0 = no

1 = yes

Boundary conditions (concentration) modeled?

Default: 0    !MBCON = 0 !

(MBCON)

0 = no

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- 1 = yes, using formatted BCON.DAT file
- 2 = yes, using unformatted CONC.DAT file

Note: MBCON > 0 requires that the last species modeled be 'BCON'. Mass is placed in species BCON when generating boundary condition puffs so that clean air entering the modeling domain can be simulated in the same way as polluted air. Specify zero emission of species BCON for all regular sources.

Analyses of fogging and icing impacts due to emissions from arrays of mechanically-forced cooling towers can be performed using CALPUFF in conjunction with a cooling tower emissions processor (CTEMISS) and its associated postprocessors. Hourly emissions of water vapor and temperature from each cooling tower cell are computed for the current cell configuration and ambient conditions by CTEMISS. CALPUFF models the dispersion of these emissions and provides cloud information in a specialized format for further analysis. Output to FOG.DAT is provided in either 'plume mode' or 'receptor mode' format.

Configure for FOG Model output?

Default: 0 !MFOG = 0 !

(MFOG)

- 0 = no
- 1 = yes - report results in PLUME Mode format
- 2 = yes - report results in RECEPTOR Mode format

Test options specified to see if they conform to regulatory values? (MREG)

Default: 1 !MREG = 0 !

0 = NO checks are made

1 = Technical options must conform to USEPA

Long Range Transport (LRT) guidance

- METFM 1 or 2
- AVET 60. (min)
- PGTIME 60. (min)
- MGAUSS 1
- MCTADJ 3
- MTRANS 1
- MTIP 1
- MCHEM 1 or 3 (if modeling SO<sub>x</sub>, NO<sub>x</sub>)
- MWET 1
- MDRY 1
- MDISP 2 or 3
- MPDF 0 if MDISP=3  
1 if MDISP=2
- MROUGH 0
- MPARTL 1
- SYTDEP 550. (m)
- MHFTSZ 0



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---

!END!

-----  
INPUT GROUP: 3a, 3b -- Species list  
-----

-----  
Subgroup (3a)  
-----

The following species are modeled:

! CSPEC = Hg ! !END!

SPECIES NAME (Limit: 12 Characters in length)	MODELED (0=NO, 1=YES)	Dry		NUMBER (0=NONE, 1=1st CGRUP, 2=2nd CGRUP, 3= etc.)
		EMITTED (0=NO, 1=YES) 1=COMPUTED-GAS 2=COMPUTED-PARTICLE 3=USER-SPECIFIED)	DEPOSITED (0=NO, 1=1st CGRUP, 2=2nd CGRUP, 3= etc.)	

! Hg = 1, 1, 1, 0 !

!END!

Note: The last species in (3a) must be 'BCON' when using the boundary condition option (MBCON > 0). Species BCON should typically be modeled as inert (no chem transformation or removal).

-----  
Subgroup (3b)  
-----

The following names are used for Species-Groups in which results for certain species are combined (added) prior to output. The CGRUP name will be used as the species name in output files. Use this feature to model specific particle-size distributions by treating each size-range as a separate species. Order must be consistent with 3(a) above.

\*CGRUP = TSP \* \*END\*

-----  
INPUT GROUP: 4 -- Map Projection and Grid control parameters  
-----

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Projection for all (X,Y):

-----

Map projection

(PMAP)                    Default: UTM   ! PMAP = UTM !

UTM : Universal Transverse Mercator  
TTM : Tangential Transverse Mercator  
LCC : Lambert Conformal Conic  
PS : Polar Stereographic  
EM : Equatorial Mercator  
LAZA : Lambert Azimuthal Equal Area

False Easting and Northing (km) at the projection origin

(Used only if PMAP= TTM, LCC, or LAZA)

(FEAST)                    Default=0.0   ! FEAST = 0.000 !

(FNORTH)                  Default=0.0   ! FNORTH = 0.000 !

UTM zone (1 to 60)

(Used only if PMAP=UTM)

(IUTMZN)                  No Default   ! IUTMZN = 14 !

Hemisphere for UTM projection?

(Used only if PMAP=UTM)

(UTMHEM)                  Default: N   ! UTMHEM = N !

N : Northern hemisphere projection

S : Southern hemisphere projection

Latitude and Longitude (decimal degrees) of projection origin

(Used only if PMAP= TTM, LCC, PS, EM, or LAZA)

(RLAT0)                    No Default   ! RLAT0 = 51.4N !

(RLON0)                    No Default   ! RLON0 = 115.0W !

TTM : RLON0 identifies central (true N/S) meridian of projection

RLAT0 selected for convenience

LCC : RLON0 identifies central (true N/S) meridian of projection

RLAT0 selected for convenience

PS : RLON0 identifies central (grid N/S) meridian of projection

RLAT0 selected for convenience

EM : RLON0 identifies central meridian of projection

RLAT0 is REPLACED by 0.0N (Equator)

LAZA: RLON0 identifies longitude of tangent-point of mapping plane

RLAT0 identifies latitude of tangent-point of mapping plane

Matching parallel(s) of latitude (decimal degrees) for projection

(Used only if PMAP= LCC or PS)

(XLAT1)                    No Default   ! XLAT1 = 30N !

(XLAT2)                    No Default   ! XLAT2 = 60N !

LCC : Projection cone slices through Earth's surface at XLAT1 and XLAT2

PS : Projection plane slices through Earth at XLAT1

(XLAT2 is not used)

-----

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Note: Latitudes and longitudes should be positive, and include a letter N,S,E, or W indicating north or south latitude, and east or west longitude. For example,  
35.9 N Latitude = 35.9N  
118.7 E Longitude = 118.7E

Datum-region  
-----

The Datum-Region for the coordinates is identified by a character string. Many mapping products currently available use the model of the Earth known as the World Geodetic System 1984 (WGS-G ). Other local models may be in use, and their selection in CALMET will make its output consistent with local mapping products. The list of Datum-Regions with official transformation parameters is provided by the National Imagery and Mapping Agency (NIMA).

NIMA Datum - Regions(Examples)  
-----

WGS-G WGS-84 GRS 80 Spheroid, Global coverage (WGS84)  
NAS-C NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)  
NWS-27 NWS 6370KM Radius, Sphere  
NWS-84 NWS 6370KM Radius, Sphere  
ESR-S ESRI REFERENCE 6371KM Radius, Sphere

Datum-region for output coordinates  
(DATUM) Default: WGS-G ! DATUM = WGS-G !

METEOROLOGICAL Grid:

Rectangular grid defined for projection PMAP,  
with X the Easting and Y the Northing coordinate

No. X grid cells (NX) No default ! NX = 150 !  
No. Y grid cells (NY) No default ! NY = 150 !  
No. vertical layers (NZ) No default ! NZ = 12 !

Grid spacing (DGRIDKM) No default ! DGRIDKM = 0.2 !  
Units: km

Cell face heights  
(ZFACE(nz+1)) No defaults  
Units: m

! ZFACE = 0.,20.,50.,100.,200.,300.,400.,500.,800.,1000.,1500.,2000.,3300. !

Reference Coordinates  
of SOUTHWEST corner of  
grid cell(1, 1):

X coordinate (XORIGKM) No default ! XORIGKM = 421.000 !  
Y coordinate (YORIGKM) No default ! YORIGKM = 5507.000 !  
Units: km

COMPUTATIONAL Grid:

The computational grid is identical to or a subset of the MET. grid.  
The lower left (LL) corner of the computational grid is at grid point (IBCOMP, JBCOMP) of the MET. grid. The upper right (UR) corner of the computational grid is at grid point (IECOMP, JECOMP) of the MET. grid. The grid spacing of the computational grid is the same as the MET. grid.

X index of LL corner (IBCOMP)    No default    ! IBCOMP = 1 !  
(1 <= IBCOMP <= NX)

Y index of LL corner (JBCOMP)    No default    ! JBCOMP = 1 !  
(1 <= JBCOMP <= NY)

X index of UR corner (IECOMP)    No default    ! IECOMP = 150 !  
(1 <= IECOMP <= NX)

Y index of UR corner (JECOMP)    No default    ! JECOMP = 150 !  
(1 <= JECOMP <= NY)

SAMPLING Grid (GRIDDED RECEPTORS):

The lower left (LL) corner of the sampling grid is at grid point (IBSAMP, JBSAMP) of the MET. grid. The upper right (UR) corner of the sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid. The sampling grid must be identical to or a subset of the computational grid. It may be a nested grid inside the computational grid. The grid spacing of the sampling grid is DGRIDKM/MESH DN.

Logical flag indicating if gridded  
receptors are used (LSAMP)    Default: T    ! LSAMP = T !  
(T=yes, F=no)

X index of LL corner (IBSAMP)    No default    ! IBSAMP = 1 !  
(IBCOMP <= IBSAMP <= IECOMP)

Y index of LL corner (JBSAMP)    No default    ! JBSAMP = 1 !  
(JBCOMP <= JBSAMP <= JECOMP)

X index of UR corner (IESAMP)    No default    ! IESAMP = 150 !  
(IBCOMP <= IESAMP <= IECOMP)

Y index of UR corner (JESAMP)    No default    ! JESAMP = 150 !  
(JBCOMP <= JESAMP <= JECOMP)

Nesting factor of the sampling  
grid (MESH DN)    Default: 1    ! MESH DN = 1 !

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(MESH DN is an integer >= 1)

!END!

-----  
INPUT GROUP: 5 -- Output Options  
-----

FILE	* DEFAULT VALUE	* VALUE THIS RUN
Concentrations (ICON)	1	! ICON = 1 !
Dry Fluxes (IDRY)	1	! IDRY = 1 !
Wet Fluxes (IWET)	1	! IWET = 1 !
Relative Humidity (IVIS) (relative humidity file is required for visibility analysis)	1	! IVIS = 0 !
Use data compression option in output file? (LCOMPRS)	Default: T	! LCOMPRS = T !

\*

0 = Do not create file, 1 = create file

DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

Mass flux across specified boundaries  
for selected species reported hourly?  
(IMFLX)           Default: 0    ! IMFLX = 0 !  
0 = no  
1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames  
are specified in Input Group 0)

Mass balance for each species  
reported hourly?  
(IMBAL)           Default: 0    ! IMBAL = 0 !  
0 = no  
1 = yes (MASSBAL.DAT filename is  
specified in Input Group 0)

LINE PRINTER OUTPUT OPTIONS:

Print concentrations (ICPRT)   Default: 0    ! ICPRT = 0 !  
Print dry fluxes (IDPRT)    Default: 0    ! IDPRT = 0 !  
Print wet fluxes (IWPRT)    Default: 0    ! IWPRT = 0 !  
(0 = Do not print, 1 = Print)

Concentration print interval  
(ICFRQ) in hours           Default: 1    ! ICFRQ = 24 !

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Dry flux print interval  
(IDFRQ) in hours            Default: 1        ! IDFRQ = 24 !  
Wet flux print interval  
(IWFRQ) in hours            Default: 1        ! IWFRQ = 24 !

Units for Line Printer Output  
(IPRTU)                      Default: 1        ! IPRTU = 3 !  
    for            for  
    Concentration    Deposition  
1 =    g/m\*\*3        g/m\*\*2/s  
2 =    mg/m\*\*3      mg/m\*\*2/s  
3 =    ug/m\*\*3      ug/m\*\*2/s  
4 =    ng/m\*\*3      ng/m\*\*2/s  
5 =    Odour Units

Messages tracking progress of run  
written to the screen ?  
(IMESG)                      Default: 2        ! IMESG = 2 !  
0 = no  
1 = yes (advection step, puff ID)  
2 = yes (YYYYJJHH, # old puffs, # emitted puffs)

SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

---- CONCENTRATIONS ----    ----- DRY FLUXES -----    ----- WET FLUXES -----    -- MASS FLUX

--  
SPECIES  
/GROUP    PRINTED? SAVED ON DISK?    PRINTED? SAVED ON DISK?    PRINTED? SAVED ON  
DISK? SAVED ON DISK?  
-----  
! Hg =    1,        1,        0,        1,        0,        1,        0 !

Note: Species BCON (for MBCON > 0) does not need to be saved on disk.

OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

Logical for debug output  
(LDEBUG)                      Default: F        ! LDEBUG = F !  
  
First puff to track  
(IPFDEB)                      Default: 1        ! IPFDEB = 1 !  
  
Number of puffs to track  
(NPFDEB)                      Default: 1        ! NPFDEB = 1 !  
  
Met. period to start output  
(NN1)                          Default: 1        ! NN1 = 1 !  
  
Met. period to end output  
(NN2)                          Default: 10       ! NN2 = 10 !

!END!

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-----  
INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs  
-----

-----  
Subgroup (6a)  
-----

Number of terrain features (NHILL)    Default: 0    !NHILL = 0 !

Number of special complex terrain  
receptors (NCTREC)                    Default: 0    !NCTREC = 0 !

Terrain and CTSG Receptor data for  
CTSG hills input in CTDM format ?  
(MHILL)                                No Default    !MHILL = 2 !

- 1 = Hill and Receptor data created  
by CTDM processors & read from  
HILL.DAT and HILLRCT.DAT files
- 2 = Hill data created by OPTHILL &  
input below in Subgroup (6b);  
Receptor data in Subgroup (6c)

Factor to convert horizontal dimensions    Default: 1.0    !XHILL2M = 0. !  
to meters (MHILL=1)

Factor to convert vertical dimensions    Default: 1.0    !ZHILL2M = 0. !  
to meters (MHILL=1)

X-origin of CTDM system relative to    No Default    !XCTDMKM = 0.0E00 !  
CALPUFF coordinate system, in Kilometers (MHILL=1)

Y-origin of CTDM system relative to    No Default    !YCTDMKM = 0.0E00 !  
CALPUFF coordinate system, in Kilometers (MHILL=1)

! END !

-----  
Subgroup (6b)  
-----

1 \*\*

HILL information

HILL	XC	YC	THETAH	ZGRID	RELIEF	EXPO 1	EXPO 2	SCALE 1	SCALE 2	AMAX1
AMAX2										
NO.	(km)	(km)	(deg.)	(m)	(m)	(m)	(m)	(m)	(m)	(m)

-----

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Subgroup (6c)  
-----

COMPLEX TERRAIN RECEPTOR INFORMATION

XRCT	YRCT	ZRCT	XHH
(km)	(km)	(m)	
-----	-----	-----	-----

-----  
1

Description of Complex Terrain Variables:

- XC, YC = Coordinates of center of hill
- THETAH = Orientation of major axis of hill (clockwise from North)
- ZGRID = Height of the 0 of the grid above mean sea level
- RELIEF = Height of the crest of the hill above the grid elevation
- EXPO 1 = Hill-shape exponent for the major axis
- EXPO 2 = Hill-shape exponent for the major axis
- SCALE 1 = Horizontal length scale along the major axis
- SCALE 2 = Horizontal length scale along the minor axis
- AMAX = Maximum allowed axis length for the major axis
- BMAX = Maximum allowed axis length for the major axis

- XRCT, YRCT = Coordinates of the complex terrain receptors
- ZRCT = Height of the ground (MSL) at the complex terrain Receptor
- XHH = Hill number associated with each complex terrain receptor  
(NOTE: MUST BE ENTERED AS A REAL NUMBER)

\*\*

NOTE: DATA for each hill and CTSG receptor are treated as a separate input subgroup and therefore must end with an input group terminator.

-----  
INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases  
-----

SPECIES LAW COEFFICIENT	DIFFUSIVITY (cm**2/s)	ALPHA STAR	REACTIVITY (s/cm)	MESOPHYLL RESISTANCE (dimensionless)	HENRY'S
NAME					
! Hg =	0.1509,	1000.,	8.,	0.,	0.04 !
!END!					

-----  
INPUT GROUP: 8 -- Size parameters for dry deposition of particles  
-----



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For SINGLE SPECIES, the mean and standard deviation are used to compute a deposition velocity for NINT (see group 9) size-ranges, and these are then averaged to obtain a mean deposition velocity.

For GROUPED SPECIES, the size distribution should be explicitly specified (by the 'species' in the group), and the standard deviation for each should be entered as 0. The model will then use the deposition velocity for the stated mean diameter.

SPECIES NAME	GEOMETRIC MASS MEAN DIAMETER (microns)	GEOMETRIC STANDARD DEVIATION (microns)
-----	-----	-----

!END!

-----

INPUT GROUP: 9 -- Miscellaneous dry deposition parameters

-----

Reference cuticle resistance (s/cm)  
(RCUTR)                   Default: 30 ! RCUTR = 30.0 !  
Reference ground resistance (s/cm)  
(RGR)                     Default: 10 ! RGR = 10.0 !  
Reference pollutant reactivity  
(REACTR)                 Default: 8 ! REACTR = 8.0 !

Number of particle-size intervals used to  
evaluate effective particle deposition velocity  
(NINT)                    Default: 9 ! NINT = 9 !

Vegetation state in unirrigated areas  
(IVEG)                    Default: 1 ! IVEG = 1 !  
IVEG=1 for active and unstressed vegetation  
IVEG=2 for active and stressed vegetation  
IVEG=3 for inactive vegetation

!END!

-----

INPUT GROUP: 10 -- Wet Deposition Parameters

-----

Scavenging Coefficient -- Units: (sec)\*\*(-1)

Pollutant	Liquid Precip.	Frozen Precip.
-----	-----	-----
! Hg =	2.5E-04,	5.0E-05 !

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!END!

-----

INPUT GROUP: 11 -- Chemistry Parameters

-----

Ozone data input option (MOZ) Default: 1 ! MOZ = 0 !  
(Used only if MCHEM = 1, 3, or 4)  
0 = use a monthly background ozone value  
1 = read hourly ozone concentrations from  
the OZONE.DAT data file

Monthly ozone concentrations  
(Used only if MCHEM = 1, 3, or 4 and  
MOZ = 0 or MOZ = 1 and all hourly O3 data missing)  
(BCKO3) in ppb Default: 12\*80.  
! BCKO3 = 30.00, 30.00, 30.00, 30.00, 30.00, 30.00, 30.00, 30.00, 30.00, 30.00, 30.00, 30.00 !

Monthly ammonia concentrations  
(Used only if MCHEM = 1, or 3)  
(BCKNH3) in ppb Default: 12\*10.  
! BCKNH3 = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !

Nighttime SO2 loss rate (RNITE1)  
in percent/hour Default: 0.2 ! RNITE1 = .2 !

Nighttime NOx loss rate (RNITE2)  
in percent/hour Default: 2.0 ! RNITE2 = 2.0 !

Nighttime HNO3 formation rate (RNITE3)  
in percent/hour Default: 2.0 ! RNITE3 = 2.0 !

H2O2 data input option (MH2O2) Default: 1 ! MH2O2 = 1 !  
(Used only if MAQCHEM = 1)  
0 = use a monthly background H2O2 value  
1 = read hourly H2O2 concentrations from  
the H2O2.DAT data file

Monthly H2O2 concentrations  
(Used only if MQACHEM = 1 and  
MH2O2 = 0 or MH2O2 = 1 and all hourly H2O2 data missing)  
(BCKH2O2) in ppb Default: 12\*1.  
! BCKH2O2 = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !

--- Data for SECONDARY ORGANIC AEROSOL (SOA) Option  
(used only if MCHEM = 4)

The SOA module uses monthly values of:  
Fine particulate concentration in ug/m<sup>3</sup> (BCKPMF)  
Organic fraction of fine particulate (OFRAC)  
VOC / NOX ratio (after reaction) (VCNX)

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to characterize the air mass when computing  
the formation of SOA from VOC emissions.  
Typical values for several distinct air mass types are:

Month	1	2	3	4	5	6	7	8	9	10	11	12
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Clean Continental

BCKPMF	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
OFRAC	.15	.15	.20	.20	.20	.20	.20	.20	.20	.20	.20	.15
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.

Clean Marine (surface)

BCKPMF	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
OFRAC	.25	.25	.30	.30	.30	.30	.30	.30	.30	.30	.30	.25
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.

Urban - low biogenic (controls present)

BCKPMF	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
OFRAC	.20	.20	.25	.25	.25	.25	.25	.25	.20	.20	.20	.20
VCNX	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.

Urban - high biogenic (controls present)

BCKPMF	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.
OFRAC	.25	.25	.30	.30	.30	.55	.55	.55	.35	.35	.35	.25
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.

Regional Plume

BCKPMF	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.
OFRAC	.20	.20	.25	.35	.25	.40	.40	.40	.30	.30	.30	.20
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.

Urban - no controls present

BCKPMF	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.
OFRAC	.30	.30	.35	.35	.35	.55	.55	.55	.35	.35	.35	.30
VCNX	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

Default: Clean Continental

! BCKPMF = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !  
 ! OFRAC = 0.15, 0.15, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.15 !  
 ! VCNX = 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00 !

!END!

-----  
 INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters  
 -----

Horizontal size of puff (m) beyond which  
time-dependent dispersion equations (Heffter)

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are used to determine sigma-y and  
sigma-z (SYTDEP)                      Default: 550. ! SYTDEP = 5.5E02 !

Switch for using Heffter equation for sigma z  
as above (0 = Not use Heffter; 1 = use Heffter  
(MHFTSZ)                      Default: 0 ! MHFTSZ = 0 !

Stability class used to determine plume  
growth rates for puffs above the boundary  
layer (JSUP)                      Default: 5 ! JSUP = 5 !

Vertical dispersion constant for stable  
conditions (k1 in Eqn. 2.7-3) (CONK1)    Default: 0.01 ! CONK1 = .01 !

Vertical dispersion constant for neutral/  
unstable conditions (k2 in Eqn. 2.7-4)  
(CONK2)                      Default: 0.1 ! CONK2 = .1 !

Factor for determining Transition-point from  
Schulman-Scire to Huber-Snyder Building Downwash  
scheme (SS used for  $H_s < H_b + TBD * HL$ )  
(TBD)                      Default: 0.5 ! TBD = .5 !  
TBD < 0 ==> always use Huber-Snyder  
TBD = 1.5 ==> always use Schulman-Scire  
TBD = 0.5 ==> ISC Transition-point

Range of land use categories for which  
urban dispersion is assumed  
(IURB1, IURB2)                      Default: 10 ! IURB1 = 10 !  
19 ! IURB2 = 19 !

Site characterization parameters for single-point Met data files -----  
(needed for METFM = 2,3,4)

Land use category for modeling domain  
(ILANDUIN)                      Default: 20 ! ILANDUIN = 20 !

Roughness length (m) for modeling domain  
(Z0IN)                      Default: 0.25 ! Z0IN = .25 !

Leaf area index for modeling domain  
(XLAIIN)                      Default: 3.0 ! XLAIIN = 3.0 !

Elevation above sea level (m)  
(ELEVIN)                      Default: 0.0 ! ELEVIN = .0 !

Latitude (degrees) for met location  
(XLATIN)                      Default: -999. ! XLATIN = -999.0 !

Longitude (degrees) for met location  
(XLONIN)                      Default: -999. ! XLONIN = -999.0 !

Specialized information for interpreting single-point Met data files -----

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Anemometer height (m) (Used only if METFM = 2,3)  
(ANEMHT) Default: 10. ! ANEMHT = 10.0 !

Form of lateral turbulence data in PROFILE.DAT file  
(Used only if METFM = 4 or MTURBVW = 1 or 3)  
(ISIGMAV) Default: 1 ! ISIGMAV = 1 !  
0 = read sigma-theta  
1 = read sigma-v

Choice of mixing heights (Used only if METFM = 4)  
(IMIXCTDM) Default: 0 ! IMIXCTDM = 0 !  
0 = read PREDICTED mixing heights  
1 = read OBSERVED mixing heights

Maximum length of a slug (met. grid units)  
(XMXLEN) Default: 1.0 ! XMXLEN = 1.0 !

Maximum travel distance of a puff/slug (in  
grid units) during one sampling step  
(XSAMLEN) Default: 1.0 ! XSAMLEN = 1.0 !

Maximum Number of slugs/puffs release from  
one source during one time step  
(MXNEW) Default: 99 ! MXNEW = 99 !

Maximum Number of sampling steps for  
one puff/slug during one time step  
(MXSAM) Default: 99 ! MXSAM = 5 !

Number of iterations used when computing  
the transport wind for a sampling step  
that includes gradual rise (for CALMET  
and PROFILE winds)  
(NCOUNT) Default: 2 ! NCOUNT = 2 !

Minimum sigma y for a new puff/slug (m)  
(SYMIN) Default: 1.0 ! SYMIN = 1.0 !

Minimum sigma z for a new puff/slug (m)  
(SZMIN) Default: 1.0 ! SZMIN = 1.0 !

Default minimum turbulence velocities  
sigma-v and sigma-w for each  
stability class (m/s)  
(SVMIN(6) and SWMIN(6)) Default SVMIN : .50, .50, .50, .50, .50, .50  
Default SWMIN : .20, .12, .08, .06, .03, .016

Stability Class : A B C D E F  
--- --- --- --- --- ---  
! SVMIN = 0.500, 0.500, 0.500, 0.500, 0.500, 0.500!  
! SWMIN = 0.200, 0.120, 0.080, 0.060, 0.030, 0.016!

Divergence criterion for dw/dz across puff  
used to initiate adjustment for horizontal

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convergence (1/s)  
Partial adjustment starts at CDIV(1), and  
full adjustment is reached at CDIV(2)  
(CDIV(2))                      Default: 0.0,0.0 ! CDIV = .01, .01 !

Minimum wind speed (m/s) allowed for  
non-calm conditions. Also used as minimum  
speed returned when using power-law  
extrapolation toward surface  
(WSCALM)                      Default: 0.5 ! WSCALM = .5 !

Maximum mixing height (m)  
(XMAXZI)                      Default: 3000. ! XMAXZI = 3000.0 !

Minimum mixing height (m)  
(XMINZI)                      Default: 50. ! XMINZI = 50.0 !

Default wind speed classes --  
5 upper bounds (m/s) are entered;  
the 6th class has no upper limit  
(WSCAT(5))                  Default :  
ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10.8 (10.8+)

Wind Speed Class : 1   2   3   4   5  
                          --- --- --- --- ---  
                          ! WSCAT = 1.54, 3.09, 5.14, 8.23, 10.80 !

Default wind speed profile power-law  
exponents for stabilities 1-6  
(PLX0(6))                    Default : ISC RURAL values  
ISC RURAL : .07, .07, .10, .15, .35, .55  
ISC URBAN : .15, .15, .20, .25, .30, .30

Stability Class : A   B   C   D   E   F  
                          --- --- --- --- --- ---  
                          ! PLX0 = 0.07, 0.07, 0.10, 0.15, 0.35, 0.55 !

Default potential temperature gradient  
for stable classes E, F (degK/m)  
(PTG0(2))                    Default: 0.020, 0.035  
                          ! PTG0 = 0.020, 0.035 !

Default plume path coefficients for  
each stability class (used when option  
for partial plume height terrain adjustment  
is selected -- MCTADJ=3)  
(PPC(6))                    Stability Class : A   B   C   D   E   F  
Default PPC : .50, .50, .50, .50, .35, .35  
                          --- --- --- --- --- ---  
                          ! PPC = 0.50, 0.50, 0.50, 0.50, 0.35, 0.35 !

Slug-to-puff transition criterion factor  
equal to sigma-y/length of slug  
(SL2PF)                      Default: 10.      ! SL2PF = 5.0 !

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Puff-splitting control variables -----

VERTICAL SPLIT

-----

Number of puffs that result every time a puff  
is split - nsplit=2 means that 1 puff splits  
into 2

(NSPLIT)                      Default: 3      ! NSPLIT = 3 !

Time(s) of a day when split puffs are eligible to  
be split once again; this is typically set once  
per day, around sunset before nocturnal shear develops.  
24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)  
0=do not re-split    1=eligible for re-split

(IRESPLIT(24))                      Default: Hour 17 = 1  
! IRESPLIT = 0,0 !

Split is allowed only if last hour's mixing  
height (m) exceeds a minimum value

(ZISPLIT)                      Default: 100.      ! ZISPLIT = 100.0 !

Split is allowed only if ratio of last hour's  
mixing ht to the maximum mixing ht experienced  
by the puff is less than a maximum value (this  
postpones a split until a nocturnal layer develops)

(ROLDMAX)                      Default: 0.25      ! ROLDMAX = 0.25 !

HORIZONTAL SPLIT

-----

Number of puffs that result every time a puff  
is split - nsplith=5 means that 1 puff splits  
into 5

(NSPLITH)                      Default: 5      ! NSPLITH = 5 !

Minimum sigma-y (Grid Cells Units) of puff  
before it may be split

(SYSPLITH)                      Default: 1.0      ! SYSPLITH = 1.0 !

Minimum puff elongation rate (SYSPLITH/hr) due to  
wind shear, before it may be split

(SHSPLITH)                      Default: 2.      ! SHSPLITH = 2.0 !

Minimum concentration (g/m<sup>3</sup>) of each  
species in puff before it may be split  
Enter array of NSPEC values; if a single value is  
entered, it will be used for ALL species

(CNSPLITH)                      Default: 1.0E-07      ! CNSPLITH = 1.0E-07 !

Integration control variables -----

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Fractional convergence criterion for numerical SLUG  
sampling integration  
(EPSSLUG)                      Default: 1.0e-04 ! EPSSLUG = 1.0E-04 !

Fractional convergence criterion for numerical AREA  
source integration  
(EPSAREA)                      Default: 1.0e-06 ! EPSAREA = 1.0E-06 !

Trajectory step-length (m) used for numerical rise  
integration  
(DSRISE)                      Default: 1.0    ! DSRISE = 1.0 !

Boundary Condition (BC) Puff control variables -----

Minimum height (m) to which BC puffs are mixed as they are emitted  
(MBCON=2 ONLY). Actual height is reset to the current mixing height  
at the release point if greater than this minimum.  
(HTMINBC)                      Default: 500.    ! HTMINBC = 500. !

Search radius (km) about a receptor for sampling nearest BC puff.  
BC puffs are typically emitted with a spacing of one grid cell  
length, so the search radius should be greater than DGRIDKM.  
(RSAMPBC)                      Default: 10.    ! RSAMPBC = 10. !

Near-Surface depletion adjustment to concentration profile used when  
sampling BC puffs?  
(MDEPBC)                      Default: 1    ! MDEPBC = 0. !  
0 = Concentration is NOT adjusted for depletion  
1 = Adjust Concentration for depletion

!END!

-----  
INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters  
-----

-----  
Subgroup (13a)  
-----

Number of point sources with  
parameters provided below    (NPT1) No default ! NPT1 = 1 !

Units used for point source  
emissions below                      (IPTU) Default: 1 ! IPTU = 1 !  
1 =    g/s  
2 =    kg/hr  
3 =    lb/hr  
4 =    tons/yr  
5 =    Odour Unit \* m\*\*3/s (vol. flux of odour compound)  
6 =    Odour Unit \* m\*\*3/min



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7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (13d) (NSPT1) Default: 0 ! NSPT1 = 0 !

Number of point sources with variable emission parameters provided in external file (NPT2) No default ! NPT2 = 0 !

(If NPT2 > 0, these point source emissions are read from the file: PTEMARB.DAT)

!END!

-----  
Subgroup (13b)  
-----

a  
POINT SOURCE: CONSTANT DATA  
-----

Source No.	X UTM Coordinate (km)	Y UTM Coordinate (m)	Stack Height (m)	Base Elevation (m)	Stack Diameter (m/s)	Exit Vel. (deg. K)	Exit Temp.	Exit Bldg. Dwash	Emission Rates
------------	-----------------------	----------------------	------------------	--------------------	----------------------	--------------------	------------	------------------	----------------

-----  
1 ! SRCNAM = STACK5 !  
1 ! X = 436.058, 5521.802, 106.7, 358.8, 3.6, 21.0, 454.0, 1., 1.0 !  
1 ! FMFAC = 1.0 !  
!END!

-----  
a  
Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

SRCNAM is a 12-character name for a source (No default)  
X is an array holding the source data listed by the column headings (No default)  
SIGYZI is an array holding the initial sigma-y and sigma-z (m) (Default: 0.,0.)  
FMFAC is a vertical momentum flux factor (0. or 1.0) used to represent the effect of rain-caps or other physical configurations that reduce momentum rise associated with the actual exit velocity. (Default: 1.0 -- full momentum used)

b  
0. = No building downwash modeled, 1. = downwash modeled  
NOTE: must be entered as a REAL number (i.e., with decimal point)

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c

An emission rate must be entered for every pollutant modeled.  
Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IPTU (e.g. 1 for g/s).

-----  
Subgroup (13c)  
-----

BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH

-----  
Source a  
No. Effective building height, width, length and X/Y offset (in meters) every 10 degrees. LENGTH, XBADJ, and YBADJ are only needed for MBDW=2 (PRIME downwash option)  
-----

```
1 ! SRCNAM = stack5 !
1 ! HEIGHT = 51.0, 51.0, 51.0, 51.0, 51.0, 51.0,
    51.0, 51.0, 51.0, 51.0, 51.0, 51.0,
    51.0, 51.0, 51.0, 51.0, 51.0, 51.0,
    51.0, 51.0, 51.0, 51.0, 51.0, 51.0,
    51.0, 51.0, 51.0, 51.0, 51.0, 51.0 !
! WIDTH = 34.70, 37.34, 38.85, 39.17, 38.31, 36.28,
    33.16, 29.02, 24.00, 29.02, 33.16, 36.28,
    38.31, 39.17, 38.85, 37.34, 34.70, 31.00,
    34.70, 37.34, 38.85, 39.17, 38.31, 36.28,
    33.16, 29.02, 24.00, 29.02, 33.16, 36.28,
    38.31, 39.17, 38.85, 37.34, 34.70, 31.00 !
! LENGTH = 29.02, 33.16, 36.28, 38.31, 39.17, 38.85,
    37.34, 34.70, 31.00, 34.70, 37.34, 38.85,
    39.17, 38.31, 36.28, 33.16, 29.02, 24.00,
    29.02, 33.16, 36.28, 38.31, 39.17, 38.85,
    37.34, 34.70, 31.00, 34.70, 37.34, 38.85,
    39.17, 38.31, 36.28, 33.16, 29.02, 24.00 !
! XBADJ = -22.24, -28.80, -34.49, -39.13, -42.58, -44.74,
    -45.54, -44.95, -43.00, -43.91, -43.48, -41.74,
    -38.72, -34.53, -29.29, -23.16, -16.33, -9.00,
    -6.78, -4.35, -1.79, 0.82, 3.41, 5.89,
    8.20, 10.25, 12.00, 9.21, 6.15, 2.89,
    -0.45, -3.78, -6.99, -9.99, -12.69, -15.00 !
! YBADJ = 26.56, 24.82, 22.32, 19.14, 15.38, 11.15,
    6.59, 1.82, -3.00, -7.73, -12.22, -16.35,
    -19.97, -22.99, -25.32, -26.87, -27.60, -27.50,
    -26.56, -24.82, -22.32, -19.14, -15.38, -11.15,
    -6.59, -1.82, 3.00, 7.73, 12.22, 16.35,
    19.97, 22.99, 25.32, 26.87, 27.60, 27.50 !
! END !
```

-----

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a

Building height, width, length, and X/Y offset from the source are treated as a separate input subgroup for each source and therefore must end with an input group terminator.

-----  
Subgroup (13d)  
-----

a

POINT SOURCE: VARIABLE EMISSIONS DATA  
-----

Use this subgroup to describe temporal variations in the emission rates given in 13b. Factors entered multiply the rates in 13b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

IVARY determines the type of variation, and is source-specific:

(IVARY)

Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of:  
0, 5, 10, 15, 20, 25, 30, 35, 40,  
45, 50, 50+)

-----  
a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

-----  
INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters  
-----

-----  
Subgroup (14a)  
-----

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---

Number of polygon area sources with parameters specified below (NAR1)    No default ! NAR1 = 0 !

Units used for area source emissions below    (IARU)    Default: 1 ! IARU = 1 !

- 1 = g/m\*\*2/s
- 2 = kg/m\*\*2/hr
- 3 = lb/m\*\*2/hr
- 4 = tons/m\*\*2/yr
- 5 = Odour Unit \* m/s (vol. flux/m\*\*2 of odour compound)
- 6 = Odour Unit \* m/min
- 7 = metric tons/m\*\*2/yr

Number of source-species combinations with variable emissions scaling factors provided below in (14d)    (NSAR1) Default: 0 ! NSAR1 = 0 !

Number of buoyant polygon area sources with variable location and emission parameters (NAR2)    No default ! NAR2 = 0 !  
(If NAR2 > 0, ALL parameter data for these sources are read from the file: BAEMARB.DAT)

!END!

-----  
Subgroup (14b)  
-----

a  
AREA SOURCE: CONSTANT DATA  
-----

b

Source No.	Effect. Height (m)	Base Elevation (m)	Initial Sigma z (m)	Emission Rates
-----	-----	-----	-----	-----

-----  
a  
Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b  
An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IARU (e.g. 1 for g/m\*\*2/s).

-----  
Subgroup (14c)  
-----



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-----  
Subgroup (15a)  
-----

Number of buoyant line sources  
with variable location and emission  
parameters (NLN2)                      No default ! NLN2 = 0 !

(If NLN2 > 0, ALL parameter data for  
these sources are read from the file: LNEMARB.DAT)

Number of buoyant line sources (NLINES)      No default ! NLINES = 0 !

Units used for line source  
emissions below                      (ILNU)      Default: 1 ! ILNU = 1 !  
1 =    g/s  
2 =    kg/hr  
3 =    lb/hr  
4 =    tons/yr  
5 =    Odour Unit \* m\*\*3/s (vol. flux of odour compound)  
6 =    Odour Unit \* m\*\*3/min  
7 =    metric tons/yr

Number of source-species  
combinations with variable  
emissions scaling factors  
provided below in (15c)      (NSLN1) Default: 0 ! NSLN1 = 0 !

Maximum number of segments used to model  
each line (MXNSEG)                      Default: 7 ! MXNSEG = 7 !

The following variables are required only if NLINES > 0. They are  
used in the buoyant line source plume rise calculations.

Number of distances at which                      Default: 6 ! NLRISE = 6 !  
transitional rise is computed

Average building length (XL)                      No default ! XL = .0 !  
(in meters)

Average building height (HBL)                      No default ! HBL = .0 !  
(in meters)

Average building width (WBL)                      No default ! WBL = .0 !  
(in meters)

Average line source width (WML)                      No default ! WML = .0 !  
(in meters)

Average separation between buildings (DXL) No default ! DXL = .0 !  
(in meters)

Average buoyancy parameter (FPRIMEL)                      No default ! FPRIMEL = .0 !  
(in m\*\*4/s\*\*3)

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!END!

-----  
Subgroup (15b)  
-----

BUOYANT LINE SOURCE: CONSTANT DATA  
-----

Source No.	Beg. X Coordinate (km)	Beg. Y Coordinate (km)	End. X Coordinate (km)	End. Y Coordinate (m)	a		Emission Rates
					Release Height (m)	Base Elevation	

-----

a  
Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b  
An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by ILNTU (e.g. 1 for g/s).

-----  
Subgroup (15c)  
-----

a  
BUOYANT LINE SOURCE: VARIABLE EMISSIONS DATA  
-----

Use this subgroup to describe temporal variations in the emission rates given in 15b. Factors entered multiply the rates in 15b. Skip sources here that have constant emissions.

IVARY determines the type of variation, and is source-specific:

- (IVARY)                      Default: 0
- 0 = Constant
  - 1 = Diurnal cycle (24 scaling factors: hours 1-24)
  - 2 = Monthly cycle (12 scaling factors: months 1-12)
  - 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
  - 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
  - 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

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-----  
a  
Data for each species are treated as a separate input subgroup  
and therefore must end with an input group terminator.

-----  
INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters  
-----

-----  
Subgroup (16a)  
-----

Number of volume sources with  
parameters provided in 16b,c (NVL1) No default ! NVL1 = 0 !

Units used for volume source  
emissions below in 16b (IVLU) Default: 1 ! IVLU = 1 !

- 1 = g/s
- 2 = kg/hr
- 3 = lb/hr
- 4 = tons/yr
- 5 = Odour Unit \* m\*\*3/s (vol. flux of odour compound)
- 6 = Odour Unit \* m\*\*3/min
- 7 = metric tons/yr

Number of source-species  
combinations with variable  
emissions scaling factors  
provided below in (16c) (NSVL1) Default: 0 ! NSVL1 = 0 !

Number of volume sources with  
variable location and emission  
parameters (NVL2) No default ! NVL2 = 0 !

(If NVL2 > 0, ALL parameter data for  
these sources are read from the VOLEMARB.DAT file(s) )

!END!

-----  
Subgroup (16b)  
-----

a  
VOLUME SOURCE: CONSTANT DATA  
-----

b

X UTM	Y UTM	Effect.	Base	Initial	Initial	Emission
Coordinate	Coordinate	Height	Elevation	Sigma y	Sigma z	Rates



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(km) (km) (m) (m) (m) (m)

-----  
a

Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b

An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IVLU (e.g. 1 for g/s).

-----  
Subgroup (16c)  
-----

a

VOLUME SOURCE: VARIABLE EMISSIONS DATA  
-----

Use this subgroup to describe temporal variations in the emission rates given in 16b. Factors entered multiply the rates in 16b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use VOLEMARB.DAT and NVL2 > 0.

IVARY determines the type of variation, and is source-specific:  
(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

-----  
a

Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

-----  
INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information

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-----  
-----  
Subgroup (17a)  
-----

Number of non-gridded receptors (NREC) No default ! NREC = 852 !

!END!

-----  
Subgroup (17b)  
-----

a  
NON-GRIDDED (DISCRETE) RECEPTOR DATA  
-----

Receptor No.	X UTM Coordinate (km)	Y UTM Coordinate (km)	Ground Elevation (m)	Height Above Ground (m)
1 ! X =	422.0000,	5508.0000,	414.675,	1.5 ! !END!
2 ! X =	423.0000,	5508.0000,	413.000,	1.5 ! !END!
3 ! X =	424.0000,	5508.0000,	412.000,	1.5 ! !END!
4 ! X =	425.0000,	5508.0000,	409.949,	1.5 ! !END!
5 ! X =	426.0000,	5508.0000,	407.450,	1.5 ! !END!
6 ! X =	427.0000,	5508.0000,	406.604,	1.5 ! !END!
7 ! X =	428.0000,	5508.0000,	408.928,	1.5 ! !END!
8 ! X =	429.0000,	5508.0000,	425.503,	1.5 ! !END!
9 ! X =	430.0000,	5508.0000,	433.901,	1.5 ! !END!
10 ! X =	431.0000,	5508.0000,	432.707,	1.5 ! !END!
11 ! X =	432.0000,	5508.0000,	448.201,	1.5 ! !END!
12 ! X =	433.0000,	5508.0000,	457.345,	1.5 ! !END!
13 ! X =	434.0000,	5508.0000,	454.815,	1.5 ! !END!
14 ! X =	435.0000,	5508.0000,	444.306,	1.5 ! !END!
15 ! X =	436.0000,	5508.0000,	450.436,	1.5 ! !END!
16 ! X =	437.0000,	5508.0000,	445.074,	1.5 ! !END!
17 ! X =	438.0000,	5508.0000,	415.771,	1.5 ! !END!
18 ! X =	439.0000,	5508.0000,	394.019,	1.5 ! !END!
19 ! X =	440.0000,	5508.0000,	378.861,	1.5 ! !END!
20 ! X =	441.0000,	5508.0000,	373.604,	1.5 ! !END!
21 ! X =	442.0000,	5508.0000,	370.007,	1.5 ! !END!
22 ! X =	443.0000,	5508.0000,	368.907,	1.5 ! !END!
23 ! X =	444.0000,	5508.0000,	367.879,	1.5 ! !END!
24 ! X =	445.0000,	5508.0000,	365.300,	1.5 ! !END!
25 ! X =	446.0000,	5508.0000,	360.849,	1.5 ! !END!
26 ! X =	447.0000,	5508.0000,	357.150,	1.5 ! !END!
27 ! X =	448.0000,	5508.0000,	354.799,	1.5 ! !END!
28 ! X =	449.0000,	5508.0000,	353.122,	1.5 ! !END!
29 ! X =	450.0000,	5508.0000,	344.851,	1.5 ! !END!
30 ! X =	422.0000,	5509.0000,	413.551,	1.5 ! !END!
31 ! X =	423.0000,	5509.0000,	413.000,	1.5 ! !END!
32 ! X =	424.0000,	5509.0000,	414.000,	1.5 ! !END!
33 ! X =	425.0000,	5509.0000,	412.948,	1.5 ! !END!

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34 ! X = 426.0000, 5509.0000, 409.772, 1.5 ! !END!  
35 ! X = 427.0000, 5509.0000, 405.574, 1.5 ! !END!  
36 ! X = 428.0000, 5509.0000, 403.528, 1.5 ! !END!  
37 ! X = 429.0000, 5509.0000, 399.535, 1.5 ! !END!  
38 ! X = 430.0000, 5509.0000, 408.347, 1.5 ! !END!  
39 ! X = 431.0000, 5509.0000, 422.634, 1.5 ! !END!  
40 ! X = 432.0000, 5509.0000, 421.061, 1.5 ! !END!  
41 ! X = 433.0000, 5509.0000, 426.462, 1.5 ! !END!  
42 ! X = 434.0000, 5509.0000, 414.814, 1.5 ! !END!  
43 ! X = 435.0000, 5509.0000, 407.026, 1.5 ! !END!  
44 ! X = 436.0000, 5509.0000, 399.639, 1.5 ! !END!  
45 ! X = 437.0000, 5509.0000, 391.278, 1.5 ! !END!  
46 ! X = 438.0000, 5509.0000, 374.263, 1.5 ! !END!  
47 ! X = 439.0000, 5509.0000, 374.311, 1.5 ! !END!  
48 ! X = 440.0000, 5509.0000, 370.451, 1.5 ! !END!  
49 ! X = 441.0000, 5509.0000, 368.000, 1.5 ! !END!  
50 ! X = 442.0000, 5509.0000, 366.250, 1.5 ! !END!  
51 ! X = 443.0000, 5509.0000, 364.750, 1.5 ! !END!  
52 ! X = 444.0000, 5509.0000, 364.127, 1.5 ! !END!  
53 ! X = 445.0000, 5509.0000, 364.799, 1.5 ! !END!  
54 ! X = 446.0000, 5509.0000, 362.699, 1.5 ! !END!  
55 ! X = 447.0000, 5509.0000, 357.924, 1.5 ! !END!  
56 ! X = 448.0000, 5509.0000, 358.199, 1.5 ! !END!  
57 ! X = 449.0000, 5509.0000, 354.152, 1.5 ! !END!  
58 ! X = 450.0000, 5509.0000, 343.202, 1.5 ! !END!  
59 ! X = 422.0000, 5510.0000, 412.226, 1.5 ! !END!  
60 ! X = 423.0000, 5510.0000, 412.000, 1.5 ! !END!  
61 ! X = 424.0000, 5510.0000, 414.025, 1.5 ! !END!  
62 ! X = 425.0000, 5510.0000, 413.775, 1.5 ! !END!  
63 ! X = 426.0000, 5510.0000, 412.251, 1.5 ! !END!  
64 ! X = 427.0000, 5510.0000, 407.673, 1.5 ! !END!  
65 ! X = 428.0000, 5510.0000, 401.822, 1.5 ! !END!  
66 ! X = 429.0000, 5510.0000, 397.750, 1.5 ! !END!  
67 ! X = 430.0000, 5510.0000, 396.000, 1.5 ! !END!  
68 ! X = 431.0000, 5510.0000, 405.409, 1.5 ! !END!  
69 ! X = 432.0000, 5510.0000, 403.136, 1.5 ! !END!  
70 ! X = 433.0000, 5510.0000, 411.257, 1.5 ! !END!  
71 ! X = 434.0000, 5510.0000, 395.376, 1.5 ! !END!  
72 ! X = 435.0000, 5510.0000, 395.526, 1.5 ! !END!  
73 ! X = 436.0000, 5510.0000, 379.151, 1.5 ! !END!  
74 ! X = 437.0000, 5510.0000, 376.024, 1.5 ! !END!  
75 ! X = 438.0000, 5510.0000, 374.522, 1.5 ! !END!  
76 ! X = 439.0000, 5510.0000, 373.372, 1.5 ! !END!  
77 ! X = 440.0000, 5510.0000, 371.997, 1.5 ! !END!  
78 ! X = 441.0000, 5510.0000, 370.298, 1.5 ! !END!  
79 ! X = 442.0000, 5510.0000, 367.525, 1.5 ! !END!  
80 ! X = 443.0000, 5510.0000, 366.000, 1.5 ! !END!  
81 ! X = 444.0000, 5510.0000, 363.726, 1.5 ! !END!  
82 ! X = 445.0000, 5510.0000, 366.174, 1.5 ! !END!  
83 ! X = 446.0000, 5510.0000, 362.202, 1.5 ! !END!  
84 ! X = 447.0000, 5510.0000, 361.024, 1.5 ! !END!  
85 ! X = 448.0000, 5510.0000, 359.176, 1.5 ! !END!  
86 ! X = 449.0000, 5510.0000, 347.380, 1.5 ! !END!  
87 ! X = 450.0000, 5510.0000, 341.200, 1.5 ! !END!

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88 ! X = 422.0000, 5511.0000, 410.453, 1.5 ! !END!  
89 ! X = 423.0000, 5511.0000, 410.251, 1.5 ! !END!  
90 ! X = 424.0000, 5511.0000, 411.403, 1.5 ! !END!  
91 ! X = 425.0000, 5511.0000, 412.503, 1.5 ! !END!  
92 ! X = 426.0000, 5511.0000, 411.550, 1.5 ! !END!  
93 ! X = 427.0000, 5511.0000, 409.276, 1.5 ! !END!  
94 ! X = 428.0000, 5511.0000, 406.173, 1.5 ! !END!  
95 ! X = 429.0000, 5511.0000, 400.972, 1.5 ! !END!  
96 ! X = 430.0000, 5511.0000, 396.475, 1.5 ! !END!  
97 ! X = 431.0000, 5511.0000, 395.028, 1.5 ! !END!  
98 ! X = 432.0000, 5511.0000, 396.026, 1.5 ! !END!  
99 ! X = 433.0000, 5511.0000, 395.627, 1.5 ! !END!  
100 ! X = 434.0000, 5511.0000, 393.713, 1.5 ! !END!  
101 ! X = 435.0000, 5511.0000, 384.577, 1.5 ! !END!  
102 ! X = 436.0000, 5511.0000, 382.570, 1.5 ! !END!  
103 ! X = 437.0000, 5511.0000, 380.945, 1.5 ! !END!  
104 ! X = 438.0000, 5511.0000, 379.649, 1.5 ! !END!  
105 ! X = 439.0000, 5511.0000, 376.024, 1.5 ! !END!  
106 ! X = 440.0000, 5511.0000, 374.997, 1.5 ! !END!  
107 ! X = 441.0000, 5511.0000, 371.399, 1.5 ! !END!  
108 ! X = 442.0000, 5511.0000, 365.378, 1.5 ! !END!  
109 ! X = 443.0000, 5511.0000, 366.275, 1.5 ! !END!  
110 ! X = 444.0000, 5511.0000, 366.328, 1.5 ! !END!  
111 ! X = 445.0000, 5511.0000, 361.110, 1.5 ! !END!  
112 ! X = 446.0000, 5511.0000, 357.003, 1.5 ! !END!  
113 ! X = 447.0000, 5511.0000, 360.277, 1.5 ! !END!  
114 ! X = 448.0000, 5511.0000, 356.228, 1.5 ! !END!  
115 ! X = 449.0000, 5511.0000, 343.074, 1.5 ! !END!  
116 ! X = 450.0000, 5511.0000, 347.841, 1.5 ! !END!  
117 ! X = 422.0000, 5512.0000, 407.702, 1.5 ! !END!  
118 ! X = 423.0000, 5512.0000, 407.202, 1.5 ! !END!  
119 ! X = 424.0000, 5512.0000, 406.630, 1.5 ! !END!  
120 ! X = 425.0000, 5512.0000, 406.006, 1.5 ! !END!  
121 ! X = 426.0000, 5512.0000, 407.878, 1.5 ! !END!  
122 ! X = 427.0000, 5512.0000, 408.675, 1.5 ! !END!  
123 ! X = 428.0000, 5512.0000, 407.049, 1.5 ! !END!  
124 ! X = 429.0000, 5512.0000, 402.748, 1.5 ! !END!  
125 ! X = 430.0000, 5512.0000, 398.124, 1.5 ! !END!  
126 ! X = 431.0000, 5512.0000, 397.649, 1.5 ! !END!  
127 ! X = 432.0000, 5512.0000, 390.677, 1.5 ! !END!  
128 ! X = 433.0000, 5512.0000, 387.600, 1.5 ! !END!  
129 ! X = 434.0000, 5512.0000, 387.721, 1.5 ! !END!  
130 ! X = 435.0000, 5512.0000, 389.494, 1.5 ! !END!  
131 ! X = 436.0000, 5512.0000, 393.020, 1.5 ! !END!  
132 ! X = 437.0000, 5512.0000, 388.739, 1.5 ! !END!  
133 ! X = 438.0000, 5512.0000, 383.323, 1.5 ! !END!  
134 ! X = 439.0000, 5512.0000, 378.000, 1.5 ! !END!  
135 ! X = 440.0000, 5512.0000, 377.001, 1.5 ! !END!  
136 ! X = 441.0000, 5512.0000, 368.826, 1.5 ! !END!  
137 ! X = 442.0000, 5512.0000, 364.298, 1.5 ! !END!  
138 ! X = 443.0000, 5512.0000, 366.000, 1.5 ! !END!  
139 ! X = 444.0000, 5512.0000, 366.224, 1.5 ! !END!  
140 ! X = 445.0000, 5512.0000, 355.949, 1.5 ! !END!  
141 ! X = 446.0000, 5512.0000, 351.427, 1.5 ! !END!

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142 ! X = 447.0000, 5512.0000, 352.157, 1.5 ! !END!  
143 ! X = 448.0000, 5512.0000, 350.053, 1.5 ! !END!  
144 ! X = 449.0000, 5512.0000, 346.518, 1.5 ! !END!  
145 ! X = 450.0000, 5512.0000, 361.517, 1.5 ! !END!  
146 ! X = 422.0000, 5513.0000, 404.377, 1.5 ! !END!  
147 ! X = 423.0000, 5513.0000, 403.527, 1.5 ! !END!  
148 ! X = 424.0000, 5513.0000, 401.226, 1.5 ! !END!  
149 ! X = 425.0000, 5513.0000, 399.376, 1.5 ! !END!  
150 ! X = 426.0000, 5513.0000, 401.329, 1.5 ! !END!  
151 ! X = 427.0000, 5513.0000, 406.003, 1.5 ! !END!  
152 ! X = 428.0000, 5513.0000, 406.577, 1.5 ! !END!  
153 ! X = 429.0000, 5513.0000, 401.203, 1.5 ! !END!  
154 ! X = 430.0000, 5513.0000, 396.277, 1.5 ! !END!  
155 ! X = 431.0000, 5513.0000, 395.853, 1.5 ! !END!  
156 ! X = 432.0000, 5513.0000, 395.975, 1.5 ! !END!  
157 ! X = 433.0000, 5513.0000, 395.648, 1.5 ! !END!  
158 ! X = 434.0000, 5513.0000, 395.398, 1.5 ! !END!  
159 ! X = 435.0000, 5513.0000, 395.925, 1.5 ! !END!  
160 ! X = 436.0000, 5513.0000, 394.758, 1.5 ! !END!  
161 ! X = 437.0000, 5513.0000, 393.062, 1.5 ! !END!  
162 ! X = 438.0000, 5513.0000, 379.427, 1.5 ! !END!  
163 ! X = 439.0000, 5513.0000, 375.428, 1.5 ! !END!  
164 ! X = 440.0000, 5513.0000, 371.354, 1.5 ! !END!  
165 ! X = 441.0000, 5513.0000, 366.126, 1.5 ! !END!  
166 ! X = 442.0000, 5513.0000, 365.000, 1.5 ! !END!  
167 ! X = 443.0000, 5513.0000, 365.750, 1.5 ! !END!  
168 ! X = 444.0000, 5513.0000, 364.652, 1.5 ! !END!  
169 ! X = 445.0000, 5513.0000, 356.426, 1.5 ! !END!  
170 ! X = 446.0000, 5513.0000, 350.901, 1.5 ! !END!  
171 ! X = 447.0000, 5513.0000, 348.946, 1.5 ! !END!  
172 ! X = 448.0000, 5513.0000, 349.701, 1.5 ! !END!  
173 ! X = 449.0000, 5513.0000, 361.494, 1.5 ! !END!  
174 ! X = 450.0000, 5513.0000, 367.749, 1.5 ! !END!  
175 ! X = 422.0000, 5514.0000, 403.000, 1.5 ! !END!  
176 ! X = 423.0000, 5514.0000, 402.000, 1.5 ! !END!  
177 ! X = 424.0000, 5514.0000, 400.675, 1.5 ! !END!  
178 ! X = 425.0000, 5514.0000, 399.000, 1.5 ! !END!  
179 ! X = 426.0000, 5514.0000, 398.301, 1.5 ! !END!  
180 ! X = 427.0000, 5514.0000, 400.078, 1.5 ! !END!  
181 ! X = 428.0000, 5514.0000, 401.803, 1.5 ! !END!  
182 ! X = 429.0000, 5514.0000, 396.526, 1.5 ! !END!  
183 ! X = 430.0000, 5514.0000, 396.448, 1.5 ! !END!  
184 ! X = 431.0000, 5514.0000, 396.497, 1.5 ! !END!  
185 ! X = 432.0000, 5514.0000, 396.000, 1.5 ! !END!  
186 ! X = 433.0000, 5514.0000, 396.000, 1.5 ! !END!  
187 ! X = 434.0000, 5514.0000, 392.401, 1.5 ! !END!  
188 ! X = 435.0000, 5514.0000, 396.000, 1.5 ! !END!  
189 ! X = 436.0000, 5514.0000, 392.902, 1.5 ! !END!  
190 ! X = 437.0000, 5514.0000, 377.008, 1.5 ! !END!  
191 ! X = 438.0000, 5514.0000, 371.206, 1.5 ! !END!  
192 ! X = 439.0000, 5514.0000, 369.478, 1.5 ! !END!  
193 ! X = 440.0000, 5514.0000, 366.576, 1.5 ! !END!  
194 ! X = 441.0000, 5514.0000, 364.401, 1.5 ! !END!  
195 ! X = 442.0000, 5514.0000, 365.000, 1.5 ! !END!

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196 ! X = 443.0000, 5514.0000, 364.901, 1.5 ! !END!  
197 ! X = 444.0000, 5514.0000, 359.753, 1.5 ! !END!  
198 ! X = 445.0000, 5514.0000, 353.128, 1.5 ! !END!  
199 ! X = 446.0000, 5514.0000, 350.322, 1.5 ! !END!  
200 ! X = 447.0000, 5514.0000, 358.641, 1.5 ! !END!  
201 ! X = 448.0000, 5514.0000, 346.000, 1.5 ! !END!  
202 ! X = 449.0000, 5514.0000, 371.814, 1.5 ! !END!  
203 ! X = 450.0000, 5514.0000, 368.000, 1.5 ! !END!  
204 ! X = 422.0000, 5515.0000, 402.000, 1.5 ! !END!  
205 ! X = 423.0000, 5515.0000, 401.950, 1.5 ! !END!  
206 ! X = 424.0000, 5515.0000, 400.000, 1.5 ! !END!  
207 ! X = 425.0000, 5515.0000, 399.000, 1.5 ! !END!  
208 ! X = 426.0000, 5515.0000, 398.000, 1.5 ! !END!  
209 ! X = 427.0000, 5515.0000, 397.000, 1.5 ! !END!  
210 ! X = 428.0000, 5515.0000, 397.477, 1.5 ! !END!  
211 ! X = 429.0000, 5515.0000, 397.000, 1.5 ! !END!  
212 ! X = 430.0000, 5515.0000, 397.925, 1.5 ! !END!  
213 ! X = 431.0000, 5515.0000, 396.651, 1.5 ! !END!  
214 ! X = 432.0000, 5515.0000, 395.474, 1.5 ! !END!  
215 ! X = 433.0000, 5515.0000, 390.189, 1.5 ! !END!  
216 ! X = 434.0000, 5515.0000, 383.981, 1.5 ! !END!  
217 ! X = 435.0000, 5515.0000, 382.508, 1.5 ! !END!  
218 ! X = 436.0000, 5515.0000, 374.555, 1.5 ! !END!  
219 ! X = 437.0000, 5515.0000, 372.249, 1.5 ! !END!  
220 ! X = 438.0000, 5515.0000, 370.774, 1.5 ! !END!  
221 ! X = 439.0000, 5515.0000, 368.000, 1.5 ! !END!  
222 ! X = 440.0000, 5515.0000, 366.150, 1.5 ! !END!  
223 ! X = 441.0000, 5515.0000, 364.648, 1.5 ! !END!  
224 ! X = 442.0000, 5515.0000, 365.899, 1.5 ! !END!  
225 ! X = 443.0000, 5515.0000, 362.027, 1.5 ! !END!  
226 ! X = 444.0000, 5515.0000, 354.952, 1.5 ! !END!  
227 ! X = 445.0000, 5515.0000, 357.067, 1.5 ! !END!  
228 ! X = 446.0000, 5515.0000, 366.323, 1.5 ! !END!  
229 ! X = 447.0000, 5515.0000, 375.274, 1.5 ! !END!  
230 ! X = 448.0000, 5515.0000, 366.176, 1.5 ! !END!  
231 ! X = 449.0000, 5515.0000, 373.804, 1.5 ! !END!  
232 ! X = 450.0000, 5515.0000, 368.824, 1.5 ! !END!  
233 ! X = 422.0000, 5516.0000, 400.376, 1.5 ! !END!  
234 ! X = 423.0000, 5516.0000, 400.503, 1.5 ! !END!  
235 ! X = 424.0000, 5516.0000, 399.201, 1.5 ! !END!  
236 ! X = 425.0000, 5516.0000, 398.452, 1.5 ! !END!  
237 ! X = 426.0000, 5516.0000, 397.000, 1.5 ! !END!  
238 ! X = 427.0000, 5516.0000, 397.000, 1.5 ! !END!  
239 ! X = 428.0000, 5516.0000, 396.175, 1.5 ! !END!  
240 ! X = 429.0000, 5516.0000, 397.174, 1.5 ! !END!  
241 ! X = 430.0000, 5516.0000, 398.326, 1.5 ! !END!  
242 ! X = 431.0000, 5516.0000, 391.862, 1.5 ! !END!  
243 ! X = 432.0000, 5516.0000, 385.168, 1.5 ! !END!  
244 ! X = 433.0000, 5516.0000, 382.469, 1.5 ! !END!  
245 ! X = 434.0000, 5516.0000, 393.641, 1.5 ! !END!  
246 ! X = 435.0000, 5516.0000, 392.564, 1.5 ! !END!  
247 ! X = 436.0000, 5516.0000, 374.925, 1.5 ! !END!  
248 ! X = 437.0000, 5516.0000, 372.201, 1.5 ! !END!  
249 ! X = 438.0000, 5516.0000, 370.950, 1.5 ! !END!

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250 ! X = 439.0000, 5516.0000, 368.975, 1.5 ! !END!  
251 ! X = 440.0000, 5516.0000, 367.000, 1.5 ! !END!  
252 ! X = 441.0000, 5516.0000, 365.824, 1.5 ! !END!  
253 ! X = 442.0000, 5516.0000, 363.904, 1.5 ! !END!  
254 ! X = 443.0000, 5516.0000, 357.852, 1.5 ! !END!  
255 ! X = 444.0000, 5516.0000, 353.594, 1.5 ! !END!  
256 ! X = 445.0000, 5516.0000, 366.475, 1.5 ! !END!  
257 ! X = 446.0000, 5516.0000, 370.124, 1.5 ! !END!  
258 ! X = 447.0000, 5516.0000, 372.826, 1.5 ! !END!  
259 ! X = 448.0000, 5516.0000, 367.848, 1.5 ! !END!  
260 ! X = 449.0000, 5516.0000, 370.375, 1.5 ! !END!  
261 ! X = 450.0000, 5516.0000, 370.000, 1.5 ! !END!  
262 ! X = 422.0000, 5517.0000, 398.251, 1.5 ! !END!  
263 ! X = 423.0000, 5517.0000, 398.503, 1.5 ! !END!  
264 ! X = 424.0000, 5517.0000, 397.851, 1.5 ! !END!  
265 ! X = 425.0000, 5517.0000, 397.276, 1.5 ! !END!  
266 ! X = 426.0000, 5517.0000, 396.101, 1.5 ! !END!  
267 ! X = 427.0000, 5517.0000, 396.000, 1.5 ! !END!  
268 ! X = 428.0000, 5517.0000, 396.053, 1.5 ! !END!  
269 ! X = 429.0000, 5517.0000, 396.406, 1.5 ! !END!  
270 ! X = 430.0000, 5517.0000, 387.938, 1.5 ! !END!  
271 ! X = 431.0000, 5517.0000, 391.569, 1.5 ! !END!  
272 ! X = 432.0000, 5517.0000, 398.347, 1.5 ! !END!  
273 ! X = 433.0000, 5517.0000, 393.598, 1.5 ! !END!  
274 ! X = 434.0000, 5517.0000, 384.836, 1.5 ! !END!  
275 ! X = 435.0000, 5517.0000, 376.400, 1.5 ! !END!  
276 ! X = 436.0000, 5517.0000, 374.076, 1.5 ! !END!  
277 ! X = 437.0000, 5517.0000, 369.876, 1.5 ! !END!  
278 ! X = 438.0000, 5517.0000, 369.101, 1.5 ! !END!  
279 ! X = 439.0000, 5517.0000, 368.075, 1.5 ! !END!  
280 ! X = 440.0000, 5517.0000, 366.075, 1.5 ! !END!  
281 ! X = 441.0000, 5517.0000, 365.450, 1.5 ! !END!  
282 ! X = 442.0000, 5517.0000, 359.427, 1.5 ! !END!  
283 ! X = 443.0000, 5517.0000, 353.053, 1.5 ! !END!  
284 ! X = 444.0000, 5517.0000, 362.945, 1.5 ! !END!  
285 ! X = 445.0000, 5517.0000, 365.626, 1.5 ! !END!  
286 ! X = 446.0000, 5517.0000, 369.850, 1.5 ! !END!  
287 ! X = 447.0000, 5517.0000, 371.750, 1.5 ! !END!  
288 ! X = 448.0000, 5517.0000, 369.774, 1.5 ! !END!  
289 ! X = 449.0000, 5517.0000, 372.000, 1.5 ! !END!  
290 ! X = 450.0000, 5517.0000, 372.000, 1.5 ! !END!  
291 ! X = 422.0000, 5518.0000, 396.000, 1.5 ! !END!  
292 ! X = 423.0000, 5518.0000, 396.000, 1.5 ! !END!  
293 ! X = 424.0000, 5518.0000, 396.000, 1.5 ! !END!  
294 ! X = 425.0000, 5518.0000, 396.151, 1.5 ! !END!  
295 ! X = 426.0000, 5518.0000, 395.527, 1.5 ! !END!  
296 ! X = 427.0000, 5518.0000, 394.127, 1.5 ! !END!  
297 ! X = 428.0000, 5518.0000, 393.921, 1.5 ! !END!  
298 ! X = 429.0000, 5518.0000, 394.645, 1.5 ! !END!  
299 ! X = 430.0000, 5518.0000, 395.995, 1.5 ! !END!  
300 ! X = 431.0000, 5518.0000, 396.749, 1.5 ! !END!  
301 ! X = 432.0000, 5518.0000, 397.801, 1.5 ! !END!  
302 ! X = 433.0000, 5518.0000, 391.081, 1.5 ! !END!  
303 ! X = 434.0000, 5518.0000, 381.750, 1.5 ! !END!

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304 ! X = 435.0000, 5518.0000, 376.475, 1.5 ! !END!  
305 ! X = 436.0000, 5518.0000, 372.300, 1.5 ! !END!  
306 ! X = 437.0000, 5518.0000, 368.426, 1.5 ! !END!  
307 ! X = 438.0000, 5518.0000, 367.702, 1.5 ! !END!  
308 ! X = 439.0000, 5518.0000, 366.502, 1.5 ! !END!  
309 ! X = 440.0000, 5518.0000, 365.899, 1.5 ! !END!  
310 ! X = 441.0000, 5518.0000, 365.901, 1.5 ! !END!  
311 ! X = 442.0000, 5518.0000, 356.381, 1.5 ! !END!  
312 ! X = 443.0000, 5518.0000, 360.797, 1.5 ! !END!  
313 ! X = 444.0000, 5518.0000, 366.950, 1.5 ! !END!  
314 ! X = 445.0000, 5518.0000, 366.999, 1.5 ! !END!  
315 ! X = 446.0000, 5518.0000, 369.700, 1.5 ! !END!  
316 ! X = 447.0000, 5518.0000, 371.775, 1.5 ! !END!  
317 ! X = 448.0000, 5518.0000, 371.075, 1.5 ! !END!  
318 ! X = 449.0000, 5518.0000, 373.648, 1.5 ! !END!  
319 ! X = 450.0000, 5518.0000, 373.497, 1.5 ! !END!  
320 ! X = 422.0000, 5519.0000, 395.000, 1.5 ! !END!  
321 ! X = 423.0000, 5519.0000, 394.825, 1.5 ! !END!  
322 ! X = 424.0000, 5519.0000, 395.226, 1.5 ! !END!  
323 ! X = 425.0000, 5519.0000, 395.500, 1.5 ! !END!  
324 ! X = 426.0000, 5519.0000, 394.923, 1.5 ! !END!  
325 ! X = 427.0000, 5519.0000, 396.000, 1.5 ! !END!  
326 ! X = 428.0000, 5519.0000, 396.925, 1.5 ! !END!  
327 ! X = 429.0000, 5519.0000, 396.876, 1.5 ! !END!  
328 ! X = 430.0000, 5519.0000, 399.700, 1.5 ! !END!  
329 ! X = 431.0000, 5519.0000, 399.200, 1.5 ! !END!  
330 ! X = 432.0000, 5519.0000, 392.222, 1.5 ! !END!  
331 ! X = 433.0000, 5519.0000, 384.778, 1.5 ! !END!  
332 ! X = 434.0000, 5519.0000, 380.126, 1.5 ! !END!  
333 ! X = 435.0000, 5519.0000, 374.276, 1.5 ! !END!  
334 ! X = 436.0000, 5519.0000, 370.976, 1.5 ! !END!  
335 ! X = 437.0000, 5519.0000, 366.976, 1.5 ! !END!  
336 ! X = 438.0000, 5519.0000, 366.101, 1.5 ! !END!  
337 ! X = 439.0000, 5519.0000, 365.325, 1.5 ! !END!  
338 ! X = 440.0000, 5519.0000, 365.102, 1.5 ! !END!  
339 ! X = 441.0000, 5519.0000, 360.826, 1.5 ! !END!  
340 ! X = 442.0000, 5519.0000, 354.474, 1.5 ! !END!  
341 ! X = 443.0000, 5519.0000, 364.649, 1.5 ! !END!  
342 ! X = 444.0000, 5519.0000, 368.899, 1.5 ! !END!  
343 ! X = 445.0000, 5519.0000, 368.698, 1.5 ! !END!  
344 ! X = 446.0000, 5519.0000, 370.825, 1.5 ! !END!  
345 ! X = 447.0000, 5519.0000, 372.774, 1.5 ! !END!  
346 ! X = 448.0000, 5519.0000, 372.824, 1.5 ! !END!  
347 ! X = 449.0000, 5519.0000, 375.000, 1.5 ! !END!  
348 ! X = 450.0000, 5519.0000, 375.000, 1.5 ! !END!  
349 ! X = 422.0000, 5520.0000, 396.497, 1.5 ! !END!  
350 ! X = 423.0000, 5520.0000, 395.050, 1.5 ! !END!  
351 ! X = 424.0000, 5520.0000, 395.274, 1.5 ! !END!  
352 ! X = 425.0000, 5520.0000, 395.175, 1.5 ! !END!  
353 ! X = 426.0000, 5520.0000, 396.000, 1.5 ! !END!  
354 ! X = 427.0000, 5520.0000, 395.751, 1.5 ! !END!  
355 ! X = 428.0000, 5520.0000, 395.355, 1.5 ! !END!  
356 ! X = 429.0000, 5520.0000, 395.552, 1.5 ! !END!  
357 ! X = 430.0000, 5520.0000, 392.740, 1.5 ! !END!



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358 ! X = 431.0000, 5520.0000, 394.929, 1.5 ! !END!  
359 ! X = 432.0000, 5520.0000, 392.955, 1.5 ! !END!  
360 ! X = 433.0000, 5520.0000, 380.127, 1.5 ! !END!  
361 ! X = 434.0000, 5520.0000, 375.853, 1.5 ! !END!  
362 ! X = 435.0000, 5520.0000, 370.752, 1.5 ! !END!  
363 ! X = 436.0000, 5520.0000, 368.077, 1.5 ! !END!  
364 ! X = 437.0000, 5520.0000, 366.175, 1.5 ! !END!  
365 ! X = 438.0000, 5520.0000, 364.825, 1.5 ! !END!  
366 ! X = 439.0000, 5520.0000, 365.425, 1.5 ! !END!  
367 ! X = 440.0000, 5520.0000, 363.503, 1.5 ! !END!  
368 ! X = 441.0000, 5520.0000, 354.898, 1.5 ! !END!  
369 ! X = 442.0000, 5520.0000, 360.772, 1.5 ! !END!  
370 ! X = 443.0000, 5520.0000, 365.949, 1.5 ! !END!  
371 ! X = 444.0000, 5520.0000, 370.000, 1.5 ! !END!  
372 ! X = 445.0000, 5520.0000, 370.998, 1.5 ! !END!  
373 ! X = 446.0000, 5520.0000, 371.749, 1.5 ! !END!  
374 ! X = 447.0000, 5520.0000, 374.149, 1.5 ! !END!  
375 ! X = 448.0000, 5520.0000, 374.824, 1.5 ! !END!  
376 ! X = 449.0000, 5520.0000, 376.648, 1.5 ! !END!  
377 ! X = 450.0000, 5520.0000, 376.749, 1.5 ! !END!  
378 ! X = 422.0000, 5521.0000, 402.872, 1.5 ! !END!  
379 ! X = 423.0000, 5521.0000, 395.178, 1.5 ! !END!  
380 ! X = 424.0000, 5521.0000, 388.741, 1.5 ! !END!  
381 ! X = 425.0000, 5521.0000, 396.653, 1.5 ! !END!  
382 ! X = 426.0000, 5521.0000, 395.573, 1.5 ! !END!  
383 ! X = 427.0000, 5521.0000, 396.474, 1.5 ! !END!  
384 ! X = 428.0000, 5521.0000, 389.764, 1.5 ! !END!  
385 ! X = 429.0000, 5521.0000, 395.950, 1.5 ! !END!  
386 ! X = 430.0000, 5521.0000, 388.628, 1.5 ! !END!  
387 ! X = 431.0000, 5521.0000, 381.558, 1.5 ! !END!  
388 ! X = 432.0000, 5521.0000, 380.956, 1.5 ! !END!  
389 ! X = 433.0000, 5521.0000, 375.354, 1.5 ! !END!  
390 ! X = 434.0000, 5521.0000, 369.503, 1.5 ! !END!  
391 ! X = 435.0000, 5521.0000, 367.301, 1.5 ! !END!  
392 ! X = 436.0000, 5521.0000, 365.576, 1.5 ! !END!  
393 ! X = 437.0000, 5521.0000, 365.175, 1.5 ! !END!  
394 ! X = 438.0000, 5521.0000, 363.651, 1.5 ! !END!  
395 ! X = 439.0000, 5521.0000, 362.205, 1.5 ! !END!  
396 ! X = 440.0000, 5521.0000, 355.575, 1.5 ! !END!  
397 ! X = 441.0000, 5521.0000, 359.822, 1.5 ! !END!  
398 ! X = 442.0000, 5521.0000, 364.099, 1.5 ! !END!  
399 ! X = 443.0000, 5521.0000, 367.773, 1.5 ! !END!  
400 ! X = 444.0000, 5521.0000, 370.474, 1.5 ! !END!  
401 ! X = 445.0000, 5521.0000, 375.272, 1.5 ! !END!  
402 ! X = 446.0000, 5521.0000, 373.373, 1.5 ! !END!  
403 ! X = 447.0000, 5521.0000, 375.274, 1.5 ! !END!  
404 ! X = 448.0000, 5521.0000, 376.624, 1.5 ! !END!  
405 ! X = 449.0000, 5521.0000, 378.000, 1.5 ! !END!  
406 ! X = 450.0000, 5521.0000, 378.497, 1.5 ! !END!  
407 ! X = 422.0000, 5522.0000, 406.453, 1.5 ! !END!  
408 ! X = 423.0000, 5522.0000, 399.626, 1.5 ! !END!  
409 ! X = 424.0000, 5522.0000, 371.332, 1.5 ! !END!  
410 ! X = 425.0000, 5522.0000, 373.737, 1.5 ! !END!  
411 ! X = 426.0000, 5522.0000, 374.647, 1.5 ! !END!

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412 ! X = 427.0000, 5522.0000, 376.399, 1.5 ! !END!  
413 ! X = 428.0000, 5522.0000, 379.323, 1.5 ! !END!  
414 ! X = 429.0000, 5522.0000, 379.465, 1.5 ! !END!  
415 ! X = 430.0000, 5522.0000, 375.433, 1.5 ! !END!  
416 ! X = 431.0000, 5522.0000, 369.831, 1.5 ! !END!  
417 ! X = 432.0000, 5522.0000, 369.157, 1.5 ! !END!  
418 ! X = 433.0000, 5522.0000, 366.430, 1.5 ! !END!  
419 ! X = 434.0000, 5522.0000, 364.430, 1.5 ! !END!  
420 ! X = 435.0000, 5522.0000, 361.269, 1.5 ! !END!  
421 ! X = 436.0000, 5522.0000, 360.570, 1.5 ! !END!  
422 ! X = 437.0000, 5522.0000, 359.876, 1.5 ! !END!  
423 ! X = 438.0000, 5522.0000, 357.176, 1.5 ! !END!  
424 ! X = 439.0000, 5522.0000, 360.948, 1.5 ! !END!  
425 ! X = 440.0000, 5522.0000, 361.822, 1.5 ! !END!  
426 ! X = 441.0000, 5522.0000, 364.374, 1.5 ! !END!  
427 ! X = 442.0000, 5522.0000, 366.249, 1.5 ! !END!  
428 ! X = 443.0000, 5522.0000, 369.924, 1.5 ! !END!  
429 ! X = 444.0000, 5522.0000, 372.298, 1.5 ! !END!  
430 ! X = 445.0000, 5522.0000, 377.174, 1.5 ! !END!  
431 ! X = 446.0000, 5522.0000, 375.523, 1.5 ! !END!  
432 ! X = 447.0000, 5522.0000, 376.424, 1.5 ! !END!  
433 ! X = 448.0000, 5522.0000, 378.224, 1.5 ! !END!  
434 ! X = 449.0000, 5522.0000, 379.774, 1.5 ! !END!  
435 ! X = 450.0000, 5522.0000, 380.000, 1.5 ! !END!  
436 ! X = 422.0000, 5523.0000, 375.453, 1.5 ! !END!  
437 ! X = 423.0000, 5523.0000, 351.431, 1.5 ! !END!  
438 ! X = 424.0000, 5523.0000, 353.874, 1.5 ! !END!  
439 ! X = 425.0000, 5523.0000, 354.849, 1.5 ! !END!  
440 ! X = 426.0000, 5523.0000, 355.246, 1.5 ! !END!  
441 ! X = 427.0000, 5523.0000, 355.300, 1.5 ! !END!  
442 ! X = 428.0000, 5523.0000, 355.458, 1.5 ! !END!  
443 ! X = 429.0000, 5523.0000, 365.375, 1.5 ! !END!  
444 ! X = 430.0000, 5523.0000, 360.000, 1.5 ! !END!  
445 ! X = 431.0000, 5523.0000, 363.027, 1.5 ! !END!  
446 ! X = 432.0000, 5523.0000, 363.401, 1.5 ! !END!  
447 ! X = 433.0000, 5523.0000, 363.376, 1.5 ! !END!  
448 ! X = 434.0000, 5523.0000, 360.425, 1.5 ! !END!  
449 ! X = 435.0000, 5523.0000, 362.052, 1.5 ! !END!  
450 ! X = 436.0000, 5523.0000, 363.474, 1.5 ! !END!  
451 ! X = 437.0000, 5523.0000, 365.249, 1.5 ! !END!  
452 ! X = 438.0000, 5523.0000, 364.123, 1.5 ! !END!  
453 ! X = 439.0000, 5523.0000, 363.873, 1.5 ! !END!  
454 ! X = 440.0000, 5523.0000, 363.752, 1.5 ! !END!  
455 ! X = 441.0000, 5523.0000, 366.000, 1.5 ! !END!  
456 ! X = 442.0000, 5523.0000, 369.201, 1.5 ! !END!  
457 ! X = 443.0000, 5523.0000, 373.927, 1.5 ! !END!  
458 ! X = 444.0000, 5523.0000, 377.572, 1.5 ! !END!  
459 ! X = 445.0000, 5523.0000, 378.723, 1.5 ! !END!  
460 ! X = 446.0000, 5523.0000, 377.624, 1.5 ! !END!  
461 ! X = 447.0000, 5523.0000, 377.150, 1.5 ! !END!  
462 ! X = 448.0000, 5523.0000, 379.774, 1.5 ! !END!  
463 ! X = 449.0000, 5523.0000, 381.000, 1.5 ! !END!  
464 ! X = 450.0000, 5523.0000, 381.000, 1.5 ! !END!  
465 ! X = 422.0000, 5524.0000, 353.144, 1.5 ! !END!

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466 ! X = 423.0000, 5524.0000, 359.097, 1.5 ! !END!  
467 ! X = 424.0000, 5524.0000, 378.286, 1.5 ! !END!  
468 ! X = 425.0000, 5524.0000, 375.924, 1.5 ! !END!  
469 ! X = 426.0000, 5524.0000, 368.230, 1.5 ! !END!  
470 ! X = 427.0000, 5524.0000, 372.592, 1.5 ! !END!  
471 ! X = 428.0000, 5524.0000, 356.841, 1.5 ! !END!  
472 ! X = 429.0000, 5524.0000, 360.623, 1.5 ! !END!  
473 ! X = 430.0000, 5524.0000, 355.922, 1.5 ! !END!  
474 ! X = 431.0000, 5524.0000, 360.424, 1.5 ! !END!  
475 ! X = 432.0000, 5524.0000, 364.196, 1.5 ! !END!  
476 ! X = 433.0000, 5524.0000, 364.688, 1.5 ! !END!  
477 ! X = 434.0000, 5524.0000, 373.287, 1.5 ! !END!  
478 ! X = 435.0000, 5524.0000, 377.429, 1.5 ! !END!  
479 ! X = 436.0000, 5524.0000, 373.217, 1.5 ! !END!  
480 ! X = 437.0000, 5524.0000, 369.221, 1.5 ! !END!  
481 ! X = 438.0000, 5524.0000, 366.647, 1.5 ! !END!  
482 ! X = 439.0000, 5524.0000, 371.244, 1.5 ! !END!  
483 ! X = 440.0000, 5524.0000, 369.070, 1.5 ! !END!  
484 ! X = 441.0000, 5524.0000, 366.072, 1.5 ! !END!  
485 ! X = 442.0000, 5524.0000, 365.501, 1.5 ! !END!  
486 ! X = 443.0000, 5524.0000, 368.901, 1.5 ! !END!  
487 ! X = 444.0000, 5524.0000, 375.652, 1.5 ! !END!  
488 ! X = 445.0000, 5524.0000, 382.898, 1.5 ! !END!  
489 ! X = 446.0000, 5524.0000, 380.024, 1.5 ! !END!  
490 ! X = 447.0000, 5524.0000, 379.423, 1.5 ! !END!  
491 ! X = 448.0000, 5524.0000, 380.724, 1.5 ! !END!  
492 ! X = 449.0000, 5524.0000, 381.000, 1.5 ! !END!  
493 ! X = 450.0000, 5524.0000, 381.000, 1.5 ! !END!  
494 ! X = 422.0000, 5525.0000, 378.461, 1.5 ! !END!  
495 ! X = 423.0000, 5525.0000, 408.574, 1.5 ! !END!  
496 ! X = 424.0000, 5525.0000, 402.151, 1.5 ! !END!  
497 ! X = 425.0000, 5525.0000, 396.748, 1.5 ! !END!  
498 ! X = 426.0000, 5525.0000, 401.753, 1.5 ! !END!  
499 ! X = 427.0000, 5525.0000, 397.132, 1.5 ! !END!  
500 ! X = 428.0000, 5525.0000, 404.721, 1.5 ! !END!  
501 ! X = 429.0000, 5525.0000, 396.972, 1.5 ! !END!  
502 ! X = 430.0000, 5525.0000, 399.603, 1.5 ! !END!  
503 ! X = 431.0000, 5525.0000, 389.508, 1.5 ! !END!  
504 ! X = 432.0000, 5525.0000, 398.072, 1.5 ! !END!  
505 ! X = 433.0000, 5525.0000, 398.477, 1.5 ! !END!  
506 ! X = 434.0000, 5525.0000, 400.103, 1.5 ! !END!  
507 ! X = 435.0000, 5525.0000, 398.578, 1.5 ! !END!  
508 ! X = 436.0000, 5525.0000, 388.127, 1.5 ! !END!  
509 ! X = 437.0000, 5525.0000, 374.478, 1.5 ! !END!  
510 ! X = 438.0000, 5525.0000, 375.371, 1.5 ! !END!  
511 ! X = 439.0000, 5525.0000, 378.495, 1.5 ! !END!  
512 ! X = 440.0000, 5525.0000, 375.846, 1.5 ! !END!  
513 ! X = 441.0000, 5525.0000, 372.773, 1.5 ! !END!  
514 ! X = 442.0000, 5525.0000, 369.199, 1.5 ! !END!  
515 ! X = 443.0000, 5525.0000, 369.048, 1.5 ! !END!  
516 ! X = 444.0000, 5525.0000, 373.675, 1.5 ! !END!  
517 ! X = 445.0000, 5525.0000, 383.851, 1.5 ! !END!  
518 ! X = 446.0000, 5525.0000, 383.473, 1.5 ! !END!  
519 ! X = 447.0000, 5525.0000, 382.398, 1.5 ! !END!

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520 ! X = 448.0000, 5525.0000, 381.949, 1.5 ! !END!  
521 ! X = 449.0000, 5525.0000, 382.623, 1.5 ! !END!  
522 ! X = 450.0000, 5525.0000, 380.700, 1.5 ! !END!  
523 ! X = 422.0000, 5526.0000, 404.676, 1.5 ! !END!  
524 ! X = 423.0000, 5526.0000, 403.701, 1.5 ! !END!  
525 ! X = 424.0000, 5526.0000, 401.500, 1.5 ! !END!  
526 ! X = 425.0000, 5526.0000, 399.798, 1.5 ! !END!  
527 ! X = 426.0000, 5526.0000, 399.250, 1.5 ! !END!  
528 ! X = 427.0000, 5526.0000, 400.848, 1.5 ! !END!  
529 ! X = 428.0000, 5526.0000, 407.176, 1.5 ! !END!  
530 ! X = 429.0000, 5526.0000, 398.398, 1.5 ! !END!  
531 ! X = 430.0000, 5526.0000, 398.349, 1.5 ! !END!  
532 ! X = 431.0000, 5526.0000, 400.876, 1.5 ! !END!  
533 ! X = 432.0000, 5526.0000, 396.979, 1.5 ! !END!  
534 ! X = 433.0000, 5526.0000, 395.825, 1.5 ! !END!  
535 ! X = 434.0000, 5526.0000, 395.527, 1.5 ! !END!  
536 ! X = 435.0000, 5526.0000, 389.724, 1.5 ! !END!  
537 ! X = 436.0000, 5526.0000, 382.495, 1.5 ! !END!  
538 ! X = 437.0000, 5526.0000, 384.644, 1.5 ! !END!  
539 ! X = 438.0000, 5526.0000, 385.893, 1.5 ! !END!  
540 ! X = 439.0000, 5526.0000, 385.872, 1.5 ! !END!  
541 ! X = 440.0000, 5526.0000, 383.298, 1.5 ! !END!  
542 ! X = 441.0000, 5526.0000, 380.549, 1.5 ! !END!  
543 ! X = 442.0000, 5526.0000, 375.648, 1.5 ! !END!  
544 ! X = 443.0000, 5526.0000, 371.298, 1.5 ! !END!  
545 ! X = 444.0000, 5526.0000, 375.799, 1.5 ! !END!  
546 ! X = 445.0000, 5526.0000, 384.225, 1.5 ! !END!  
547 ! X = 446.0000, 5526.0000, 389.472, 1.5 ! !END!  
548 ! X = 447.0000, 5526.0000, 387.046, 1.5 ! !END!  
549 ! X = 448.0000, 5526.0000, 383.574, 1.5 ! !END!  
550 ! X = 449.0000, 5526.0000, 385.649, 1.5 ! !END!  
551 ! X = 450.0000, 5526.0000, 380.725, 1.5 ! !END!  
552 ! X = 422.0000, 5527.0000, 399.277, 1.5 ! !END!  
553 ! X = 423.0000, 5527.0000, 402.075, 1.5 ! !END!  
554 ! X = 424.0000, 5527.0000, 403.274, 1.5 ! !END!  
555 ! X = 425.0000, 5527.0000, 402.949, 1.5 ! !END!  
556 ! X = 426.0000, 5527.0000, 402.798, 1.5 ! !END!  
557 ! X = 427.0000, 5527.0000, 405.624, 1.5 ! !END!  
558 ! X = 428.0000, 5527.0000, 407.349, 1.5 ! !END!  
559 ! X = 429.0000, 5527.0000, 403.473, 1.5 ! !END!  
560 ! X = 430.0000, 5527.0000, 401.072, 1.5 ! !END!  
561 ! X = 431.0000, 5527.0000, 400.373, 1.5 ! !END!  
562 ! X = 432.0000, 5527.0000, 398.370, 1.5 ! !END!  
563 ! X = 433.0000, 5527.0000, 396.973, 1.5 ! !END!  
564 ! X = 434.0000, 5527.0000, 395.749, 1.5 ! !END!  
565 ! X = 435.0000, 5527.0000, 395.700, 1.5 ! !END!  
566 ! X = 436.0000, 5527.0000, 393.947, 1.5 ! !END!  
567 ! X = 437.0000, 5527.0000, 395.548, 1.5 ! !END!  
568 ! X = 438.0000, 5527.0000, 396.398, 1.5 ! !END!  
569 ! X = 439.0000, 5527.0000, 391.898, 1.5 ! !END!  
570 ! X = 440.0000, 5527.0000, 385.376, 1.5 ! !END!  
571 ! X = 441.0000, 5527.0000, 380.701, 1.5 ! !END!  
572 ! X = 442.0000, 5527.0000, 375.973, 1.5 ! !END!  
573 ! X = 443.0000, 5527.0000, 373.498, 1.5 ! !END!

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574 ! X = 444.0000, 5527.0000, 377.749, 1.5 ! !END!  
575 ! X = 445.0000, 5527.0000, 385.748, 1.5 ! !END!  
576 ! X = 446.0000, 5527.0000, 392.323, 1.5 ! !END!  
577 ! X = 447.0000, 5527.0000, 392.398, 1.5 ! !END!  
578 ! X = 448.0000, 5527.0000, 387.697, 1.5 ! !END!  
579 ! X = 449.0000, 5527.0000, 387.075, 1.5 ! !END!  
580 ! X = 450.0000, 5527.0000, 381.774, 1.5 ! !END!  
581 ! X = 422.0000, 5528.0000, 400.998, 1.5 ! !END!  
582 ! X = 423.0000, 5528.0000, 402.698, 1.5 ! !END!  
583 ! X = 424.0000, 5528.0000, 405.749, 1.5 ! !END!  
584 ! X = 425.0000, 5528.0000, 405.824, 1.5 ! !END!  
585 ! X = 426.0000, 5528.0000, 406.448, 1.5 ! !END!  
586 ! X = 427.0000, 5528.0000, 409.049, 1.5 ! !END!  
587 ! X = 428.0000, 5528.0000, 408.999, 1.5 ! !END!  
588 ! X = 429.0000, 5528.0000, 406.573, 1.5 ! !END!  
589 ! X = 430.0000, 5528.0000, 405.075, 1.5 ! !END!  
590 ! X = 431.0000, 5528.0000, 402.824, 1.5 ! !END!  
591 ! X = 432.0000, 5528.0000, 401.798, 1.5 ! !END!  
592 ! X = 433.0000, 5528.0000, 401.373, 1.5 ! !END!  
593 ! X = 434.0000, 5528.0000, 400.049, 1.5 ! !END!  
594 ! X = 435.0000, 5528.0000, 397.750, 1.5 ! !END!  
595 ! X = 436.0000, 5528.0000, 395.525, 1.5 ! !END!  
596 ! X = 437.0000, 5528.0000, 395.153, 1.5 ! !END!  
597 ! X = 438.0000, 5528.0000, 396.579, 1.5 ! !END!  
598 ! X = 439.0000, 5528.0000, 388.674, 1.5 ! !END!  
599 ! X = 440.0000, 5528.0000, 383.650, 1.5 ! !END!  
600 ! X = 441.0000, 5528.0000, 379.025, 1.5 ! !END!  
601 ! X = 442.0000, 5528.0000, 385.244, 1.5 ! !END!  
602 ! X = 443.0000, 5528.0000, 385.369, 1.5 ! !END!  
603 ! X = 444.0000, 5528.0000, 384.648, 1.5 ! !END!  
604 ! X = 445.0000, 5528.0000, 387.052, 1.5 ! !END!  
605 ! X = 446.0000, 5528.0000, 393.502, 1.5 ! !END!  
606 ! X = 447.0000, 5528.0000, 394.951, 1.5 ! !END!  
607 ! X = 448.0000, 5528.0000, 393.997, 1.5 ! !END!  
608 ! X = 449.0000, 5528.0000, 388.174, 1.5 ! !END!  
609 ! X = 450.0000, 5528.0000, 384.823, 1.5 ! !END!  
610 ! X = 422.0000, 5529.0000, 405.870, 1.5 ! !END!  
611 ! X = 423.0000, 5529.0000, 408.621, 1.5 ! !END!  
612 ! X = 424.0000, 5529.0000, 409.298, 1.5 ! !END!  
613 ! X = 425.0000, 5529.0000, 408.499, 1.5 ! !END!  
614 ! X = 426.0000, 5529.0000, 409.849, 1.5 ! !END!  
615 ! X = 427.0000, 5529.0000, 411.874, 1.5 ! !END!  
616 ! X = 428.0000, 5529.0000, 411.849, 1.5 ! !END!  
617 ! X = 429.0000, 5529.0000, 409.498, 1.5 ! !END!  
618 ! X = 430.0000, 5529.0000, 407.624, 1.5 ! !END!  
619 ! X = 431.0000, 5529.0000, 406.124, 1.5 ! !END!  
620 ! X = 432.0000, 5529.0000, 404.425, 1.5 ! !END!  
621 ! X = 433.0000, 5529.0000, 402.625, 1.5 ! !END!  
622 ! X = 434.0000, 5529.0000, 400.675, 1.5 ! !END!  
623 ! X = 435.0000, 5529.0000, 398.925, 1.5 ! !END!  
624 ! X = 436.0000, 5529.0000, 396.800, 1.5 ! !END!  
625 ! X = 437.0000, 5529.0000, 396.627, 1.5 ! !END!  
626 ! X = 438.0000, 5529.0000, 396.851, 1.5 ! !END!  
627 ! X = 439.0000, 5529.0000, 392.145, 1.5 ! !END!

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628 ! X = 440.0000, 5529.0000, 389.894, 1.5 ! !END!  
629 ! X = 441.0000, 5529.0000, 386.185, 1.5 ! !END!  
630 ! X = 442.0000, 5529.0000, 394.701, 1.5 ! !END!  
631 ! X = 443.0000, 5529.0000, 395.972, 1.5 ! !END!  
632 ! X = 444.0000, 5529.0000, 388.689, 1.5 ! !END!  
633 ! X = 445.0000, 5529.0000, 390.969, 1.5 ! !END!  
634 ! X = 446.0000, 5529.0000, 390.950, 1.5 ! !END!  
635 ! X = 447.0000, 5529.0000, 395.674, 1.5 ! !END!  
636 ! X = 448.0000, 5529.0000, 391.372, 1.5 ! !END!  
637 ! X = 449.0000, 5529.0000, 390.249, 1.5 ! !END!  
638 ! X = 450.0000, 5529.0000, 386.375, 1.5 ! !END!  
639 ! X = 422.0000, 5530.0000, 414.297, 1.5 ! !END!  
640 ! X = 423.0000, 5530.0000, 416.744, 1.5 ! !END!  
641 ! X = 424.0000, 5530.0000, 414.696, 1.5 ! !END!  
642 ! X = 425.0000, 5530.0000, 411.374, 1.5 ! !END!  
643 ! X = 426.0000, 5530.0000, 413.423, 1.5 ! !END!  
644 ! X = 427.0000, 5530.0000, 414.373, 1.5 ! !END!  
645 ! X = 428.0000, 5530.0000, 414.274, 1.5 ! !END!  
646 ! X = 429.0000, 5530.0000, 411.323, 1.5 ! !END!  
647 ! X = 430.0000, 5530.0000, 409.073, 1.5 ! !END!  
648 ! X = 431.0000, 5530.0000, 409.622, 1.5 ! !END!  
649 ! X = 432.0000, 5530.0000, 407.046, 1.5 ! !END!  
650 ! X = 433.0000, 5530.0000, 405.872, 1.5 ! !END!  
651 ! X = 434.0000, 5530.0000, 404.348, 1.5 ! !END!  
652 ! X = 435.0000, 5530.0000, 400.949, 1.5 ! !END!  
653 ! X = 436.0000, 5530.0000, 399.322, 1.5 ! !END!  
654 ! X = 437.0000, 5530.0000, 396.648, 1.5 ! !END!  
655 ! X = 438.0000, 5530.0000, 396.399, 1.5 ! !END!  
656 ! X = 439.0000, 5530.0000, 398.873, 1.5 ! !END!  
657 ! X = 440.0000, 5530.0000, 399.724, 1.5 ! !END!  
658 ! X = 441.0000, 5530.0000, 398.875, 1.5 ! !END!  
659 ! X = 442.0000, 5530.0000, 398.448, 1.5 ! !END!  
660 ! X = 443.0000, 5530.0000, 400.824, 1.5 ! !END!  
661 ! X = 444.0000, 5530.0000, 395.103, 1.5 ! !END!  
662 ! X = 445.0000, 5530.0000, 396.075, 1.5 ! !END!  
663 ! X = 446.0000, 5530.0000, 395.200, 1.5 ! !END!  
664 ! X = 447.0000, 5530.0000, 395.551, 1.5 ! !END!  
665 ! X = 448.0000, 5530.0000, 396.000, 1.5 ! !END!  
666 ! X = 449.0000, 5530.0000, 391.548, 1.5 ! !END!  
667 ! X = 450.0000, 5530.0000, 389.546, 1.5 ! !END!  
668 ! X = 422.0000, 5531.0000, 422.946, 1.5 ! !END!  
669 ! X = 423.0000, 5531.0000, 425.947, 1.5 ! !END!  
670 ! X = 424.0000, 5531.0000, 422.020, 1.5 ! !END!  
671 ! X = 425.0000, 5531.0000, 414.249, 1.5 ! !END!  
672 ! X = 426.0000, 5531.0000, 416.949, 1.5 ! !END!  
673 ! X = 427.0000, 5531.0000, 417.498, 1.5 ! !END!  
674 ! X = 428.0000, 5531.0000, 417.198, 1.5 ! !END!  
675 ! X = 429.0000, 5531.0000, 417.346, 1.5 ! !END!  
676 ! X = 430.0000, 5531.0000, 416.520, 1.5 ! !END!  
677 ! X = 431.0000, 5531.0000, 416.148, 1.5 ! !END!  
678 ! X = 432.0000, 5531.0000, 412.949, 1.5 ! !END!  
679 ! X = 433.0000, 5531.0000, 412.296, 1.5 ! !END!  
680 ! X = 434.0000, 5531.0000, 409.671, 1.5 ! !END!  
681 ! X = 435.0000, 5531.0000, 407.073, 1.5 ! !END!

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682 ! X = 436.0000, 5531.0000, 406.098, 1.5 ! !END!  
683 ! X = 437.0000, 5531.0000, 402.448, 1.5 ! !END!  
684 ! X = 438.0000, 5531.0000, 400.371, 1.5 ! !END!  
685 ! X = 439.0000, 5531.0000, 404.773, 1.5 ! !END!  
686 ! X = 440.0000, 5531.0000, 404.423, 1.5 ! !END!  
687 ! X = 441.0000, 5531.0000, 401.874, 1.5 ! !END!  
688 ! X = 442.0000, 5531.0000, 404.397, 1.5 ! !END!  
689 ! X = 443.0000, 5531.0000, 398.951, 1.5 ! !END!  
690 ! X = 444.0000, 5531.0000, 394.449, 1.5 ! !END!  
691 ! X = 445.0000, 5531.0000, 395.548, 1.5 ! !END!  
692 ! X = 446.0000, 5531.0000, 395.776, 1.5 ! !END!  
693 ! X = 447.0000, 5531.0000, 397.074, 1.5 ! !END!  
694 ! X = 448.0000, 5531.0000, 395.950, 1.5 ! !END!  
695 ! X = 449.0000, 5531.0000, 392.649, 1.5 ! !END!  
696 ! X = 450.0000, 5531.0000, 395.176, 1.5 ! !END!  
697 ! X = 422.0000, 5532.0000, 426.801, 1.5 ! !END!  
698 ! X = 423.0000, 5532.0000, 427.000, 1.5 ! !END!  
699 ! X = 424.0000, 5532.0000, 419.702, 1.5 ! !END!  
700 ! X = 425.0000, 5532.0000, 417.997, 1.5 ! !END!  
701 ! X = 426.0000, 5532.0000, 420.573, 1.5 ! !END!  
702 ! X = 427.0000, 5532.0000, 421.249, 1.5 ! !END!  
703 ! X = 428.0000, 5532.0000, 421.348, 1.5 ! !END!  
704 ! X = 429.0000, 5532.0000, 424.223, 1.5 ! !END!  
705 ! X = 430.0000, 5532.0000, 424.597, 1.5 ! !END!  
706 ! X = 431.0000, 5532.0000, 417.524, 1.5 ! !END!  
707 ! X = 432.0000, 5532.0000, 418.471, 1.5 ! !END!  
708 ! X = 433.0000, 5532.0000, 418.772, 1.5 ! !END!  
709 ! X = 434.0000, 5532.0000, 415.024, 1.5 ! !END!  
710 ! X = 435.0000, 5532.0000, 412.022, 1.5 ! !END!  
711 ! X = 436.0000, 5532.0000, 411.498, 1.5 ! !END!  
712 ! X = 437.0000, 5532.0000, 407.523, 1.5 ! !END!  
713 ! X = 438.0000, 5532.0000, 407.448, 1.5 ! !END!  
714 ! X = 439.0000, 5532.0000, 410.898, 1.5 ! !END!  
715 ! X = 440.0000, 5532.0000, 410.573, 1.5 ! !END!  
716 ! X = 441.0000, 5532.0000, 405.497, 1.5 ! !END!  
717 ! X = 442.0000, 5532.0000, 410.548, 1.5 ! !END!  
718 ! X = 443.0000, 5532.0000, 399.248, 1.5 ! !END!  
719 ! X = 444.0000, 5532.0000, 399.348, 1.5 ! !END!  
720 ! X = 445.0000, 5532.0000, 397.099, 1.5 ! !END!  
721 ! X = 446.0000, 5532.0000, 397.222, 1.5 ! !END!  
722 ! X = 447.0000, 5532.0000, 400.573, 1.5 ! !END!  
723 ! X = 448.0000, 5532.0000, 396.674, 1.5 ! !END!  
724 ! X = 449.0000, 5532.0000, 398.423, 1.5 ! !END!  
725 ! X = 450.0000, 5532.0000, 397.774, 1.5 ! !END!  
726 ! X = 422.0000, 5533.0000, 426.649, 1.5 ! !END!  
727 ! X = 423.0000, 5533.0000, 421.300, 1.5 ! !END!  
728 ! X = 424.0000, 5533.0000, 420.397, 1.5 ! !END!  
729 ! X = 425.0000, 5533.0000, 424.873, 1.5 ! !END!  
730 ! X = 426.0000, 5533.0000, 424.374, 1.5 ! !END!  
731 ! X = 427.0000, 5533.0000, 424.674, 1.5 ! !END!  
732 ! X = 428.0000, 5533.0000, 425.799, 1.5 ! !END!  
733 ! X = 429.0000, 5533.0000, 427.874, 1.5 ! !END!  
734 ! X = 430.0000, 5533.0000, 425.624, 1.5 ! !END!  
735 ! X = 431.0000, 5533.0000, 423.848, 1.5 ! !END!

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736 ! X = 432.0000, 5533.0000, 425.848, 1.5 ! !END!  
737 ! X = 433.0000, 5533.0000, 424.398, 1.5 ! !END!  
738 ! X = 434.0000, 5533.0000, 419.598, 1.5 ! !END!  
739 ! X = 435.0000, 5533.0000, 416.749, 1.5 ! !END!  
740 ! X = 436.0000, 5533.0000, 416.298, 1.5 ! !END!  
741 ! X = 437.0000, 5533.0000, 409.899, 1.5 ! !END!  
742 ! X = 438.0000, 5533.0000, 413.347, 1.5 ! !END!  
743 ! X = 439.0000, 5533.0000, 416.973, 1.5 ! !END!  
744 ! X = 440.0000, 5533.0000, 412.599, 1.5 ! !END!  
745 ! X = 441.0000, 5533.0000, 412.372, 1.5 ! !END!  
746 ! X = 442.0000, 5533.0000, 413.923, 1.5 ! !END!  
747 ! X = 443.0000, 5533.0000, 402.599, 1.5 ! !END!  
748 ! X = 444.0000, 5533.0000, 405.498, 1.5 ! !END!  
749 ! X = 445.0000, 5533.0000, 402.497, 1.5 ! !END!  
750 ! X = 446.0000, 5533.0000, 402.523, 1.5 ! !END!  
751 ! X = 447.0000, 5533.0000, 402.076, 1.5 ! !END!  
752 ! X = 448.0000, 5533.0000, 400.722, 1.5 ! !END!  
753 ! X = 449.0000, 5533.0000, 402.498, 1.5 ! !END!  
754 ! X = 450.0000, 5533.0000, 397.400, 1.5 ! !END!  
755 ! X = 422.0000, 5534.0000, 429.523, 1.5 ! !END!  
756 ! X = 423.0000, 5534.0000, 424.973, 1.5 ! !END!  
757 ! X = 424.0000, 5534.0000, 427.099, 1.5 ! !END!  
758 ! X = 425.0000, 5534.0000, 428.272, 1.5 ! !END!  
759 ! X = 426.0000, 5534.0000, 426.924, 1.5 ! !END!  
760 ! X = 427.0000, 5534.0000, 429.846, 1.5 ! !END!  
761 ! X = 428.0000, 5534.0000, 431.822, 1.5 ! !END!  
762 ! X = 429.0000, 5534.0000, 428.826, 1.5 ! !END!  
763 ! X = 430.0000, 5534.0000, 428.527, 1.5 ! !END!  
764 ! X = 431.0000, 5534.0000, 428.198, 1.5 ! !END!  
765 ! X = 432.0000, 5534.0000, 431.749, 1.5 ! !END!  
766 ! X = 433.0000, 5534.0000, 428.849, 1.5 ! !END!  
767 ! X = 434.0000, 5534.0000, 424.223, 1.5 ! !END!  
768 ! X = 435.0000, 5534.0000, 420.948, 1.5 ! !END!  
769 ! X = 436.0000, 5534.0000, 417.099, 1.5 ! !END!  
770 ! X = 437.0000, 5534.0000, 417.496, 1.5 ! !END!  
771 ! X = 438.0000, 5534.0000, 419.822, 1.5 ! !END!  
772 ! X = 439.0000, 5534.0000, 423.096, 1.5 ! !END!  
773 ! X = 440.0000, 5534.0000, 416.374, 1.5 ! !END!  
774 ! X = 441.0000, 5534.0000, 418.347, 1.5 ! !END!  
775 ! X = 442.0000, 5534.0000, 418.573, 1.5 ! !END!  
776 ! X = 443.0000, 5534.0000, 409.696, 1.5 ! !END!  
777 ! X = 444.0000, 5534.0000, 410.523, 1.5 ! !END!  
778 ! X = 445.0000, 5534.0000, 406.523, 1.5 ! !END!  
779 ! X = 446.0000, 5534.0000, 406.948, 1.5 ! !END!  
780 ! X = 447.0000, 5534.0000, 405.373, 1.5 ! !END!  
781 ! X = 448.0000, 5534.0000, 404.973, 1.5 ! !END!  
782 ! X = 449.0000, 5534.0000, 406.223, 1.5 ! !END!  
783 ! X = 450.0000, 5534.0000, 397.249, 1.5 ! !END!  
784 ! X = 422.0000, 5535.0000, 434.998, 1.5 ! !END!  
785 ! X = 423.0000, 5535.0000, 432.271, 1.5 ! !END!  
786 ! X = 424.0000, 5535.0000, 436.246, 1.5 ! !END!  
787 ! X = 425.0000, 5535.0000, 437.272, 1.5 ! !END!  
788 ! X = 426.0000, 5535.0000, 434.372, 1.5 ! !END!  
789 ! X = 427.0000, 5535.0000, 438.447, 1.5 ! !END!



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790 ! X = 428.0000, 5535.0000, 436.369, 1.5 ! !END!  
791 ! X = 429.0000, 5535.0000, 432.345, 1.5 ! !END!  
792 ! X = 430.0000, 5535.0000, 429.947, 1.5 ! !END!  
793 ! X = 431.0000, 5535.0000, 436.896, 1.5 ! !END!  
794 ! X = 432.0000, 5535.0000, 434.324, 1.5 ! !END!  
795 ! X = 433.0000, 5535.0000, 432.973, 1.5 ! !END!  
796 ! X = 434.0000, 5535.0000, 428.546, 1.5 ! !END!  
797 ! X = 435.0000, 5535.0000, 425.550, 1.5 ! !END!  
798 ! X = 436.0000, 5535.0000, 426.599, 1.5 ! !END!  
799 ! X = 437.0000, 5535.0000, 425.848, 1.5 ! !END!  
800 ! X = 438.0000, 5535.0000, 426.425, 1.5 ! !END!  
801 ! X = 439.0000, 5535.0000, 427.649, 1.5 ! !END!  
802 ! X = 440.0000, 5535.0000, 420.596, 1.5 ! !END!  
803 ! X = 441.0000, 5535.0000, 423.847, 1.5 ! !END!  
804 ! X = 442.0000, 5535.0000, 424.496, 1.5 ! !END!  
805 ! X = 443.0000, 5535.0000, 415.649, 1.5 ! !END!  
806 ! X = 444.0000, 5535.0000, 415.197, 1.5 ! !END!  
807 ! X = 445.0000, 5535.0000, 410.950, 1.5 ! !END!  
808 ! X = 446.0000, 5535.0000, 410.524, 1.5 ! !END!  
809 ! X = 447.0000, 5535.0000, 409.648, 1.5 ! !END!  
810 ! X = 448.0000, 5535.0000, 410.598, 1.5 ! !END!  
811 ! X = 449.0000, 5535.0000, 409.524, 1.5 ! !END!  
812 ! X = 450.0000, 5535.0000, 402.398, 1.5 ! !END!  
813 ! X = 422.0000, 5536.0000, 441.522, 1.5 ! !END!  
814 ! X = 423.0000, 5536.0000, 440.622, 1.5 ! !END!  
815 ! X = 424.0000, 5536.0000, 444.122, 1.5 ! !END!  
816 ! X = 425.0000, 5536.0000, 444.772, 1.5 ! !END!  
817 ! X = 426.0000, 5536.0000, 441.697, 1.5 ! !END!  
818 ! X = 427.0000, 5536.0000, 444.473, 1.5 ! !END!  
819 ! X = 428.0000, 5536.0000, 445.023, 1.5 ! !END!  
820 ! X = 429.0000, 5536.0000, 441.422, 1.5 ! !END!  
821 ! X = 430.0000, 5536.0000, 437.271, 1.5 ! !END!  
822 ! X = 431.0000, 5536.0000, 445.121, 1.5 ! !END!  
823 ! X = 432.0000, 5536.0000, 440.020, 1.5 ! !END!  
824 ! X = 433.0000, 5536.0000, 439.022, 1.5 ! !END!  
825 ! X = 434.0000, 5536.0000, 436.573, 1.5 ! !END!  
826 ! X = 435.0000, 5536.0000, 429.746, 1.5 ! !END!  
827 ! X = 436.0000, 5536.0000, 432.673, 1.5 ! !END!  
828 ! X = 437.0000, 5536.0000, 429.099, 1.5 ! !END!  
829 ! X = 438.0000, 5536.0000, 431.148, 1.5 ! !END!  
830 ! X = 439.0000, 5536.0000, 428.274, 1.5 ! !END!  
831 ! X = 440.0000, 5536.0000, 426.948, 1.5 ! !END!  
832 ! X = 441.0000, 5536.0000, 429.048, 1.5 ! !END!  
833 ! X = 442.0000, 5536.0000, 427.925, 1.5 ! !END!  
834 ! X = 443.0000, 5536.0000, 421.222, 1.5 ! !END!  
835 ! X = 444.0000, 5536.0000, 418.774, 1.5 ! !END!  
836 ! X = 445.0000, 5536.0000, 415.247, 1.5 ! !END!  
837 ! X = 446.0000, 5536.0000, 414.798, 1.5 ! !END!  
838 ! X = 447.0000, 5536.0000, 413.848, 1.5 ! !END!  
839 ! X = 448.0000, 5536.0000, 415.573, 1.5 ! !END!  
840 ! X = 449.0000, 5536.0000, 411.999, 1.5 ! !END!  
841 ! X = 450.0000, 5536.0000, 405.100, 1.5 ! !END!  
842 ! X = 440.3500, 5519.6000, 365.363, 1.5 ! !END!  
843 ! X = 443.0000, 5522.3000, 370.649, 1.5 ! !END!

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844 !X = 433.6220, 5521.7020, 366.572, 1.5 ! !END!  
845 !X = 433.3890, 5520.0260, 377.305, 1.5 ! !END!  
846 !X = 432.8700, 5520.2180, 381.015, 1.5 ! !END!  
847 !X = 432.7030, 5521.2830, 375.354, 1.5 ! !END!  
848 !X = 430.3560, 5520.2580, 389.561, 1.5 ! !END!  
849 !X = 429.5690, 5521.9950, 375.664, 1.5 ! !END!  
850 !X = 431.7790, 5524.1040, 363.883, 1.5 ! !END!  
851 !X = 436.3300, 5507.6340, 469.771, 1.5 ! !END!  
852 !X = 447.017, 5525.774, 385.422, 1.5 ! !END!

**ATTACHMENT C**

**Predicted COPC Concentrations  
And Deposition Rates for OS1 and OS3**

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**Table C.1  
Maximum Predicted 1-hour Average COPC Concentrations (OS1)**

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
<b>Common Air Contaminants</b>												
Total PM	1.46E+00	9.36E-01	1.01E+00	1.21E+00	8.77E-01	8.87E-01	9.85E-01	1.08E+00	8.31E-01	4.49E-01	9.52E-01	6.93E+00
PM <sub>10</sub>	1.35E+00	8.65E-01	9.31E-01	1.11E+00	8.11E-01	8.20E-01	9.11E-01	1.00E+00	7.77E-01	4.19E-01	8.92E-01	6.37E+00
PM <sub>2.5</sub>	8.75E-01	5.61E-01	6.03E-01	7.21E-01	5.26E-01	5.33E-01	5.91E-01	6.50E-01	5.04E-01	2.77E-01	5.79E-01	4.13E+00
NO	2.45E+01	1.57E+01	1.69E+01	2.02E+01	1.47E+01	1.49E+01	1.65E+01	1.82E+01	1.40E+01	7.74E+00	1.61E+01	1.16E+02
NO <sub>2</sub> (directly emitted)	1.40E+01	8.98E+00	9.67E+00	1.16E+01	8.43E+00	8.54E+00	9.46E+00	1.04E+01	8.01E+00	4.44E+00	9.24E+00	6.62E+01
NO <sub>x</sub>	3.85E+01	2.47E+01	2.65E+01	3.17E+01	2.32E+01	2.34E+01	2.60E+01	2.86E+01	2.20E+01	1.22E+01	2.54E+01	1.82E+02
NO <sub>2</sub> (100% conversion)	5.15E+01	3.30E+01	3.55E+01	4.25E+01	3.10E+01	3.14E+01	3.48E+01	3.83E+01	2.94E+01	1.63E+01	3.40E+01	2.43E+02
SO <sub>2</sub>	4.02E+01	2.57E+01	2.77E+01	3.31E+01	2.42E+01	2.45E+01	2.71E+01	2.99E+01	2.30E+01	1.27E+01	2.65E+01	1.90E+02
CO	3.40E+00	2.18E+00	2.35E+00	2.80E+00	2.05E+00	2.07E+00	2.30E+00	2.53E+00	1.94E+00	1.08E+00	2.24E+00	1.61E+01
HCl	4.09E-02	2.62E-02	2.82E-02	3.37E-02	2.46E-02	2.49E-02	2.76E-02	3.04E-02	2.34E-02	1.29E-02	2.69E-02	1.93E-01
HF	3.75E-02	2.40E-02	2.59E-02	3.09E-02	2.26E-02	2.28E-02	2.53E-02	2.79E-02	2.14E-02	1.19E-02	2.47E-02	1.77E-01
<b>Metals</b>												
Aluminum	1.76E-01	1.13E-01	1.21E-01	1.45E-01	1.05E-01	1.07E-01	1.18E-01	1.29E-01	9.99E-02	5.41E-02	1.15E-01	8.33E-01
Antimony	3.07E-05	1.97E-05	2.12E-05	2.53E-05	1.84E-05	1.86E-05	2.07E-05	2.26E-05	1.74E-05	9.44E-06	2.00E-05	1.45E-04
Arsenic	2.73E-04	1.75E-04	1.88E-04	2.25E-04	1.64E-04	1.66E-04	1.84E-04	2.01E-04	1.55E-04	8.39E-05	1.78E-04	1.29E-03
Barium	8.22E-02	5.26E-02	5.67E-02	6.78E-02	4.93E-02	4.99E-02	5.54E-02	6.05E-02	4.67E-02	2.53E-02	5.36E-02	3.89E-01
Beryllium	1.35E-05	8.63E-06	9.29E-06	1.11E-05	8.08E-06	8.18E-06	9.08E-06	9.92E-06	7.66E-06	4.14E-06	8.78E-06	6.38E-05
Boron	7.51E-03	4.81E-03	5.17E-03	6.19E-03	4.50E-03	4.55E-03	5.06E-03	5.52E-03	4.26E-03	2.31E-03	4.89E-03	3.55E-02
Cadmium	2.22E-05	1.42E-05	1.53E-05	1.83E-05	1.33E-05	1.35E-05	1.49E-05	1.63E-05	1.26E-05	6.82E-06	1.44E-05	1.05E-04
Chromium	3.58E-04	2.29E-04	2.47E-04	2.96E-04	2.15E-04	2.17E-04	2.41E-04	2.64E-04	2.04E-04	1.10E-04	2.33E-04	1.70E-03
Cobalt	5.46E-05	3.49E-05	3.76E-05	4.50E-05	3.27E-05	3.31E-05	3.68E-05	4.02E-05	3.10E-05	1.68E-05	3.56E-05	2.59E-04
Copper	8.70E-04	5.57E-04	6.00E-04	7.18E-04	5.22E-04	5.28E-04	5.86E-04	6.40E-04	4.94E-04	2.67E-04	5.67E-04	4.12E-03
Iron	6.48E-02	4.15E-02	4.47E-02	5.35E-02	3.89E-02	3.93E-02	4.37E-02	4.77E-02	3.68E-02	1.99E-02	4.22E-02	3.07E-01
Lithium	1.43E-03	9.17E-04	9.88E-04	1.18E-03	8.59E-04	8.70E-04	9.65E-04	1.05E-03	8.14E-04	4.40E-04	9.33E-04	6.79E-03
Manganese	9.56E-04	6.12E-04	6.59E-04	7.88E-04	5.73E-04	5.80E-04	6.43E-04	7.03E-04	5.43E-04	2.94E-04	6.22E-04	4.52E-03
Mercury (Total)	3.71E-04	2.37E-04	2.56E-04	3.06E-04	2.22E-04	2.25E-04	2.50E-04	2.73E-04	2.11E-04	1.14E-04	2.42E-04	1.76E-03
Elemental Hg	3.30E-04	2.11E-04	2.27E-04	2.72E-04	1.98E-04	2.01E-04	2.22E-04	2.45E-04	1.88E-04	1.04E-04	2.17E-04	1.56E-03

*Brandon Generating Station Licence Review  
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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
Oxidized Hg	4.20E-05	2.69E-05	2.89E-05	3.46E-05	2.52E-05	2.56E-05	2.83E-05	3.12E-05	2.40E-05	1.33E-05	2.77E-05	1.98E-04
Particle-bound Hg	3.95E-07	2.53E-07	2.72E-07	3.25E-07	2.37E-07	2.39E-07	2.66E-07	2.90E-07	2.24E-07	1.21E-07	2.57E-07	1.87E-06
Molybdenum	3.24E-04	2.07E-04	2.23E-04	2.67E-04	1.94E-04	1.97E-04	2.18E-04	2.39E-04	1.84E-04	9.96E-05	2.11E-04	1.54E-03
Nickel	2.39E-04	1.53E-04	1.65E-04	1.97E-04	1.43E-04	1.45E-04	1.61E-04	1.76E-04	1.36E-04	7.34E-05	1.56E-04	1.13E-03
Palladium	2.05E-04	1.31E-04	1.41E-04	1.69E-04	1.23E-04	1.24E-04	1.38E-04	1.51E-04	1.16E-04	6.29E-05	1.33E-04	9.70E-04
Lead	2.39E-04	1.53E-04	1.65E-04	1.97E-04	1.43E-04	1.45E-04	1.61E-04	1.76E-04	1.36E-04	7.34E-05	1.56E-04	1.13E-03
Selenium	2.22E-04	1.42E-04	1.53E-04	1.83E-04	1.33E-04	1.35E-04	1.49E-04	1.63E-04	1.26E-04	6.82E-05	1.44E-04	1.05E-03
Silver	1.45E-05	9.28E-06	1.00E-05	1.20E-05	8.70E-06	8.80E-06	9.77E-06	1.07E-05	8.24E-06	4.46E-06	9.44E-06	6.87E-05
Strontium	1.67E-02	1.07E-02	1.15E-02	1.38E-02	1.00E-02	1.01E-02	1.13E-02	1.23E-02	9.50E-03	5.14E-03	1.09E-02	7.92E-02
Thallium	3.07E-05	1.97E-05	2.12E-05	2.53E-05	1.84E-05	1.86E-05	2.07E-05	2.26E-05	1.74E-05	9.44E-06	2.00E-05	1.45E-04
Thorium	7.51E-05	4.81E-05	5.17E-05	6.19E-05	4.50E-05	4.55E-05	5.06E-05	5.52E-05	4.26E-05	2.31E-05	4.89E-05	3.55E-04
Tin	3.41E-04	2.18E-04	2.35E-04	2.81E-04	2.05E-04	2.07E-04	2.30E-04	2.51E-04	1.94E-04	1.05E-04	2.22E-04	1.62E-03
Uranium	3.41E-05	2.18E-05	2.35E-05	2.81E-05	2.05E-05	2.07E-05	2.30E-05	2.51E-05	1.94E-05	1.05E-05	2.22E-05	1.62E-04
Vanadium	5.29E-04	3.39E-04	3.65E-04	4.36E-04	3.17E-04	3.21E-04	3.56E-04	3.89E-04	3.00E-04	1.63E-04	3.44E-04	2.50E-03
Zinc	2.22E-04	1.42E-04	1.53E-04	1.83E-04	1.33E-04	1.35E-04	1.49E-04	1.63E-04	1.26E-04	6.82E-05	1.44E-04	1.05E-03
<b>Dioxins and Furans</b>												
Tetrachlorodibenzo-p-dioxins	8.43E-12	5.40E-12	5.81E-12	6.95E-12	5.06E-12	5.11E-12	5.68E-12	6.20E-12	4.79E-12	2.59E-12	5.49E-12	3.99E-11
Pentachlorodibenzo-p-dioxins	6.62E-12	4.24E-12	4.57E-12	5.46E-12	3.97E-12	4.02E-12	4.46E-12	4.87E-12	3.76E-12	2.04E-12	4.31E-12	3.14E-11
Hexachlorodibenzo-p-dioxins	3.67E-10	2.35E-10	2.53E-10	3.03E-10	2.20E-10	2.23E-10	2.47E-10	2.70E-10	2.09E-10	1.13E-10	2.39E-10	1.74E-09
Heptachlorodibenzo-p-dioxins	9.82E-10	6.28E-10	6.77E-10	8.10E-10	5.89E-10	5.96E-10	6.61E-10	7.22E-10	5.58E-10	3.02E-10	6.39E-10	4.65E-09
Octachlorodibenzo-p-dioxins	1.38E-09	8.83E-10	9.50E-10	1.14E-09	8.27E-10	8.37E-10	9.29E-10	1.01E-09	7.83E-10	4.24E-10	8.98E-10	6.53E-09
Total Dioxins	2.38E-09	1.52E-09	1.64E-09	1.96E-09	1.43E-09	1.44E-09	1.60E-09	1.75E-09	1.35E-09	7.31E-10	1.55E-09	1.13E-08
Tetrachlorodibenzofurans	1.56E-09	9.98E-10	1.08E-09	1.29E-09	9.35E-10	9.46E-10	1.05E-09	1.15E-09	8.86E-10	4.79E-10	1.02E-09	7.39E-09
Pentachlorodibenzofurans	1.42E-09	9.10E-10	9.80E-10	1.17E-09	8.52E-10	8.62E-10	9.57E-10	1.05E-09	8.07E-10	4.37E-10	9.25E-10	6.73E-09
Hexachlorodibenzofurans	5.24E-10	3.35E-10	3.61E-10	4.32E-10	3.14E-10	3.18E-10	3.53E-10	3.85E-10	2.98E-10	1.61E-10	3.41E-10	2.48E-09
Heptachlorodibenzofurans	2.89E-10	1.85E-10	1.99E-10	2.38E-10	1.73E-10	1.75E-10	1.95E-10	2.13E-10	1.64E-10	8.88E-11	1.88E-10	1.37E-09
Octachlorodibenzofurans	6.20E-09	3.97E-09	4.28E-09	5.12E-09	3.72E-09	3.76E-09	4.18E-09	4.56E-09	3.52E-09	1.91E-09	4.04E-09	2.94E-08
Total Furans	2.11E-10	1.35E-10	1.45E-10	1.74E-10	1.26E-10	1.28E-10	1.42E-10	1.55E-10	1.20E-10	6.48E-11	1.37E-10	9.98E-10
<b>PAHs</b>	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acenaphthene	2.46E-05	1.58E-05	1.70E-05	2.03E-05	1.48E-05	1.50E-05	1.66E-05	1.83E-05	1.41E-05	7.80E-06	1.62E-05	1.16E-04
Acenaphthylene	1.71E-07	1.10E-07	1.18E-07	1.41E-07	1.03E-07	1.04E-07	1.15E-07	1.27E-07	9.78E-08	5.41E-08	1.13E-07	8.08E-07

*Brandon Generating Station Licence Review  
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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Anthracene	1.08E-06	6.91E-07	7.43E-07	8.88E-07	6.48E-07	6.57E-07	7.27E-07	8.01E-07	6.16E-07	3.41E-07	7.10E-07	5.09E-06
Benzo(a)anthracene	1.54E-07	9.87E-08	1.06E-07	1.27E-07	9.26E-08	9.38E-08	1.04E-07	1.14E-07	8.80E-08	4.87E-08	1.01E-07	7.27E-07
Benzo(b)anthracene	2.57E-07	1.64E-07	1.77E-07	2.11E-07	1.54E-07	1.56E-07	1.73E-07	1.91E-07	1.47E-07	8.12E-08	1.69E-07	1.21E-06
Benzo(b)fluoranthene	2.40E-07	1.53E-07	1.65E-07	1.97E-07	1.44E-07	1.46E-07	1.62E-07	1.78E-07	1.37E-07	7.58E-08	1.58E-07	1.13E-06
Benzo(k,j)fluoranthene	2.91E-07	1.86E-07	2.01E-07	2.40E-07	1.75E-07	1.77E-07	1.96E-07	2.16E-07	1.66E-07	9.20E-08	1.92E-07	1.37E-06
Benzo(a)flourene	3.76E-07	2.41E-07	2.60E-07	3.10E-07	2.26E-07	2.29E-07	2.54E-07	2.80E-07	2.15E-07	1.19E-07	2.48E-07	1.78E-06
Benzo(b)flourene	8.56E-08	5.48E-08	5.90E-08	7.05E-08	5.15E-08	5.21E-08	5.77E-08	6.36E-08	4.89E-08	2.71E-08	5.64E-08	4.04E-07
Benzo(g,h,i)perylene	6.84E-07	4.38E-07	4.72E-07	5.64E-07	4.12E-07	4.17E-07	4.62E-07	5.09E-07	3.91E-07	2.17E-07	4.51E-07	3.23E-06
Benzo(a)pyrene	2.22E-07	1.42E-07	1.53E-07	1.83E-07	1.34E-07	1.36E-07	1.50E-07	1.65E-07	1.27E-07	7.04E-08	1.47E-07	1.05E-06
Benzo(e)pyrene	9.93E-07	6.36E-07	6.84E-07	8.18E-07	5.97E-07	6.05E-07	6.70E-07	7.38E-07	5.67E-07	3.14E-07	6.54E-07	4.69E-06
Biphenyl	1.16E-05	7.45E-06	8.02E-06	9.59E-06	7.00E-06	7.09E-06	7.85E-06	8.65E-06	6.65E-06	3.68E-06	7.67E-06	5.49E-05
2-chloronaphthalene	3.59E-08	2.30E-08	2.48E-08	2.96E-08	2.16E-08	2.19E-08	2.42E-08	2.67E-08	2.05E-08	1.14E-08	2.37E-08	1.70E-07
Coronene	4.11E-07	2.63E-07	2.83E-07	3.38E-07	2.47E-07	2.50E-07	2.77E-07	3.05E-07	2.35E-07	1.30E-07	2.71E-07	1.94E-06
Dibenzo(a,c & a,h)anthracene	1.25E-08	8.00E-09	8.61E-09	1.03E-08	7.51E-09	7.61E-09	8.43E-09	9.28E-09	7.14E-09	3.95E-09	8.23E-09	5.90E-08
Dibenzo(a,j)acridine	6.16E-09	3.95E-09	4.25E-09	5.07E-09	3.71E-09	3.75E-09	4.16E-09	4.58E-09	3.52E-09	1.95E-09	4.06E-09	2.91E-08
7H-dibenzo(c,g)carbazole	9.58E-09	6.14E-09	6.61E-09	7.89E-09	5.76E-09	5.84E-09	6.47E-09	7.12E-09	5.47E-09	3.03E-09	6.32E-09	4.52E-08
Dibenzo(a,e)pyrene	1.71E-09	1.10E-09	1.18E-09	1.41E-09	1.03E-09	1.04E-09	1.15E-09	1.27E-09	9.78E-10	5.41E-10	1.13E-09	8.08E-09
Dibenzo(a,i)pyrene	2.22E-09	1.42E-09	1.53E-09	1.83E-09	1.34E-09	1.36E-09	1.50E-09	1.65E-09	1.27E-09	7.04E-10	1.47E-09	1.05E-08
9,10-dimethylanthracene	9.41E-08	6.03E-08	6.49E-08	7.75E-08	5.66E-08	5.73E-08	6.35E-08	6.99E-08	5.38E-08	2.98E-08	6.20E-08	4.44E-07
7,12-dimethylanthracene	2.91E-08	1.86E-08	2.01E-08	2.40E-08	1.75E-08	1.77E-08	1.96E-08	2.16E-08	1.66E-08	9.20E-09	1.92E-08	1.37E-07
1,2-dimethylnaphthalene	1.45E-07	9.32E-08	1.00E-07	1.20E-07	8.75E-08	8.86E-08	9.82E-08	1.08E-07	8.31E-08	4.60E-08	9.59E-08	6.87E-07
2,6 & 2,7-dimethylnaphthalene	5.65E-07	3.62E-07	3.89E-07	4.65E-07	3.40E-07	3.44E-07	3.81E-07	4.20E-07	3.23E-07	1.79E-07	3.72E-07	2.67E-06
Fluoranthene	2.91E-06	1.86E-06	2.01E-06	2.40E-06	1.75E-06	1.77E-06	1.96E-06	2.16E-06	1.66E-06	9.20E-07	1.92E-06	1.37E-05
Fluorene	3.42E-06	2.19E-06	2.36E-06	2.82E-06	2.06E-06	2.08E-06	2.31E-06	2.54E-06	1.96E-06	1.08E-06	2.26E-06	1.62E-05
Indeno(1,2,3-cd)pyrene	1.18E-07	7.56E-08	8.14E-08	9.73E-08	7.10E-08	7.19E-08	7.97E-08	8.78E-08	6.75E-08	3.74E-08	7.78E-08	5.57E-07
2-methylanthracene	1.88E-07	1.21E-07	1.30E-07	1.55E-07	1.13E-07	1.15E-07	1.27E-07	1.40E-07	1.08E-07	5.96E-08	1.24E-07	8.89E-07
3-methylcholanthrene	5.13E-07	3.29E-07	3.54E-07	4.23E-07	3.09E-07	3.13E-07	3.46E-07	3.82E-07	2.93E-07	1.62E-07	3.38E-07	2.42E-06
1-methylnaphthalene	3.42E-06	2.19E-06	2.36E-06	2.82E-06	2.06E-06	2.08E-06	2.31E-06	2.54E-06	1.96E-06	1.08E-06	2.26E-06	1.62E-05
2-methylnaphthalene	5.13E-06	3.29E-06	3.54E-06	4.23E-06	3.09E-06	3.13E-06	3.46E-06	3.82E-06	2.93E-06	1.62E-06	3.38E-06	2.42E-05
1-methylphenanthrene	1.42E-06	9.10E-07	9.79E-07	1.17E-06	8.54E-07	8.65E-07	9.58E-07	1.06E-06	8.11E-07	4.49E-07	9.36E-07	6.71E-06

*Brandon Generating Station Licence Review  
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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
9-methylphenanthrene	1.27E-06	8.11E-07	8.73E-07	1.04E-06	7.62E-07	7.71E-07	8.54E-07	9.41E-07	7.23E-07	4.01E-07	8.35E-07	5.98E-06
Naphthalene	1.03E-05	6.58E-06	7.08E-06	8.46E-06	6.18E-06	6.25E-06	6.93E-06	7.63E-06	5.87E-06	3.25E-06	6.77E-06	4.85E-05
Perylene	7.02E-08	4.49E-08	4.84E-08	5.78E-08	4.22E-08	4.27E-08	4.73E-08	5.21E-08	4.01E-08	2.22E-08	4.62E-08	3.31E-07
Phenanthrene	1.88E-05	1.21E-05	1.30E-05	1.55E-05	1.13E-05	1.15E-05	1.27E-05	1.40E-05	1.08E-05	5.96E-06	1.24E-05	8.89E-05
Picene	1.15E-08	7.34E-09	7.91E-09	9.44E-09	6.90E-09	6.98E-09	7.74E-09	8.52E-09	6.55E-09	3.63E-09	7.56E-09	5.41E-08
Pyrene	1.88E-06	1.21E-06	1.30E-06	1.55E-06	1.13E-06	1.15E-06	1.27E-06	1.40E-06	1.08E-06	5.96E-07	1.24E-06	8.89E-06
Quinoline	1.42E-07	9.10E-08	9.79E-08	1.17E-07	8.54E-08	8.65E-08	9.58E-08	1.06E-07	8.11E-08	4.49E-08	9.36E-08	6.71E-07
m-Terphenyl	4.96E-07	3.18E-07	3.42E-07	4.09E-07	2.99E-07	3.02E-07	3.35E-07	3.69E-07	2.84E-07	1.57E-07	3.27E-07	2.34E-06
o-Terphenyl	7.87E-07	5.04E-07	5.43E-07	6.48E-07	4.74E-07	4.79E-07	5.31E-07	5.85E-07	4.50E-07	2.49E-07	5.19E-07	3.72E-06
p-Terphenyl	2.57E-07	1.64E-07	1.77E-07	2.11E-07	1.54E-07	1.56E-07	1.73E-07	1.91E-07	1.47E-07	8.12E-08	1.69E-07	1.21E-06
Tetralin	1.11E-06	7.12E-07	7.67E-07	9.16E-07	6.69E-07	6.78E-07	7.51E-07	8.27E-07	6.35E-07	3.52E-07	7.33E-07	5.25E-06
Triphenylene/chrysene	6.50E-07	4.17E-07	4.48E-07	5.36E-07	3.91E-07	3.96E-07	4.39E-07	4.83E-07	3.72E-07	2.06E-07	4.29E-07	3.07E-06
<b>VOCs</b>												
Acetaldehyde	2.79E-03	1.79E-03	1.92E-03	2.30E-03	1.68E-03	1.70E-03	1.88E-03	2.07E-03	1.59E-03	8.82E-04	1.84E-03	1.32E-02
Acetophenone	7.33E-05	4.70E-05	5.06E-05	6.04E-05	4.41E-05	4.47E-05	4.95E-05	5.45E-05	4.19E-05	2.32E-05	4.83E-05	3.46E-04
Acrolien	1.42E-03	9.08E-04	9.78E-04	1.17E-03	8.53E-04	8.64E-04	9.57E-04	1.05E-03	8.10E-04	4.49E-04	9.34E-04	6.69E-03
Benzene	6.36E-03	4.07E-03	4.38E-03	5.24E-03	3.82E-03	3.87E-03	4.29E-03	4.72E-03	3.63E-03	2.01E-03	4.19E-03	3.00E-02
Benzyl chloride	3.42E-03	2.19E-03	2.36E-03	2.82E-03	2.06E-03	2.08E-03	2.31E-03	2.54E-03	1.96E-03	1.08E-03	2.26E-03	1.62E-02
Bis(2-ethylhexyl)phthalate (DEHP)	3.57E-04	2.29E-04	2.46E-04	2.94E-04	2.15E-04	2.17E-04	2.41E-04	2.65E-04	2.04E-04	1.13E-04	2.35E-04	1.69E-03
Bromoform	1.91E-04	1.22E-04	1.31E-04	1.57E-04	1.15E-04	1.16E-04	1.29E-04	1.42E-04	1.09E-04	6.03E-05	1.26E-04	9.00E-04
Carbon disulphide	6.36E-04	4.07E-04	4.38E-04	5.24E-04	3.82E-04	3.87E-04	4.29E-04	4.72E-04	3.63E-04	2.01E-04	4.19E-04	3.00E-03
2-Chloroacetophenone	3.42E-05	2.19E-05	2.36E-05	2.82E-05	2.06E-05	2.08E-05	2.31E-05	2.54E-05	1.96E-05	1.08E-05	2.26E-05	1.62E-04
Chlorobenzene	1.08E-04	6.89E-05	7.42E-05	8.86E-05	6.47E-05	6.55E-05	7.26E-05	7.99E-05	6.15E-05	3.40E-05	7.09E-05	5.08E-04
Chloroform	2.88E-04	1.85E-04	1.99E-04	2.38E-04	1.74E-04	1.76E-04	1.95E-04	2.14E-04	1.65E-04	9.13E-05	1.90E-04	1.36E-03
Cumene	2.59E-05	1.66E-05	1.79E-05	2.13E-05	1.56E-05	1.58E-05	1.75E-05	1.93E-05	1.48E-05	8.20E-06	1.71E-05	1.22E-04
Cyanide	1.22E-02	7.83E-03	8.43E-03	1.01E-02	7.35E-03	7.45E-03	8.25E-03	9.08E-03	6.98E-03	3.87E-03	8.06E-03	5.77E-02
2,4-Dinitrotoluene	1.37E-06	8.77E-07	9.44E-07	1.13E-06	8.23E-07	8.34E-07	9.24E-07	1.02E-06	7.82E-07	4.33E-07	9.02E-07	6.46E-06
Dimethyl Sulphate	2.35E-04	1.50E-04	1.62E-04	1.93E-04	1.41E-04	1.43E-04	1.58E-04	1.74E-04	1.34E-04	7.42E-05	1.55E-04	1.11E-03
Ethyl benzene	4.60E-04	2.94E-04	3.17E-04	3.79E-04	2.76E-04	2.80E-04	3.10E-04	3.42E-04	2.63E-04	1.45E-04	3.03E-04	2.17E-03
Ethyl chloride	2.05E-04	1.32E-04	1.42E-04	1.69E-04	1.24E-04	1.25E-04	1.39E-04	1.53E-04	1.17E-04	6.50E-05	1.35E-04	9.70E-04

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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
Ethylene dichloride	1.96E-04	1.25E-04	1.35E-04	1.61E-04	1.18E-04	1.19E-04	1.32E-04	1.45E-04	1.12E-04	6.19E-05	1.29E-04	9.23E-04
Ethylene dibromide	5.87E-06	3.76E-06	4.05E-06	4.83E-06	3.53E-06	3.57E-06	3.96E-06	4.36E-06	3.35E-06	1.86E-06	3.87E-06	2.77E-05
Formaldehyde	1.17E-03	7.52E-04	8.09E-04	9.67E-04	7.06E-04	7.15E-04	7.92E-04	8.72E-04	6.70E-04	3.71E-04	7.73E-04	5.54E-03
Hexane	3.28E-04	2.10E-04	2.26E-04	2.70E-04	1.97E-04	2.00E-04	2.21E-04	2.43E-04	1.87E-04	1.04E-04	2.16E-04	1.55E-03
Isophorone	2.84E-03	1.82E-03	1.96E-03	2.34E-03	1.71E-03	1.73E-03	1.91E-03	2.11E-03	1.62E-03	8.97E-04	1.87E-03	1.34E-02
Methylbromide	7.82E-04	5.01E-04	5.39E-04	6.44E-04	4.71E-04	4.77E-04	5.28E-04	5.81E-04	4.47E-04	2.47E-04	5.16E-04	3.69E-03
Methyl chloride	2.59E-03	1.66E-03	1.79E-03	2.13E-03	1.56E-03	1.58E-03	1.75E-03	1.93E-03	1.48E-03	8.20E-04	1.71E-03	1.22E-02
Methyl ethyl ketone	1.91E-03	1.22E-03	1.31E-03	1.57E-03	1.15E-03	1.16E-03	1.29E-03	1.42E-03	1.09E-03	6.03E-04	1.26E-03	9.00E-03
Methyl hydrazine	8.31E-04	5.32E-04	5.73E-04	6.85E-04	5.00E-04	5.06E-04	5.61E-04	6.18E-04	4.75E-04	2.63E-04	5.48E-04	3.92E-03
Methyl methacrylate	9.78E-05	6.26E-05	6.74E-05	8.06E-05	5.88E-05	5.96E-05	6.60E-05	7.27E-05	5.59E-05	3.09E-05	6.44E-05	4.62E-04
Methyl tert-butyl ether	1.71E-04	1.10E-04	1.18E-04	1.41E-04	1.03E-04	1.04E-04	1.15E-04	1.27E-04	9.78E-05	5.41E-05	1.13E-04	8.08E-04
Methylene chloride	1.42E-03	9.08E-04	9.78E-04	1.17E-03	8.53E-04	8.64E-04	9.57E-04	1.05E-03	8.10E-04	4.49E-04	9.34E-04	6.69E-03
Phenol	7.82E-05	5.01E-05	5.39E-05	6.44E-05	4.71E-05	4.77E-05	5.28E-05	5.81E-05	4.47E-05	2.47E-05	5.16E-05	3.69E-04
Propionaldehyde	1.86E-03	1.19E-03	1.28E-03	1.53E-03	1.12E-03	1.13E-03	1.25E-03	1.38E-03	1.06E-03	5.88E-04	1.22E-03	8.77E-03
Tetrachloroethylene	2.10E-04	1.35E-04	1.45E-04	1.73E-04	1.26E-04	1.28E-04	1.42E-04	1.56E-04	1.20E-04	6.65E-05	1.39E-04	9.93E-04
Toluene	1.17E-03	7.52E-04	8.09E-04	9.67E-04	7.06E-04	7.15E-04	7.92E-04	8.72E-04	6.70E-04	3.71E-04	7.73E-04	5.54E-03
1,1,1-Trichloroethane	9.78E-05	6.26E-05	6.74E-05	8.06E-05	5.88E-05	5.96E-05	6.60E-05	7.27E-05	5.59E-05	3.09E-05	6.44E-05	4.62E-04
Styrene	1.22E-04	7.83E-05	8.43E-05	1.01E-04	7.35E-05	7.45E-05	8.25E-05	9.08E-05	6.98E-05	3.87E-05	8.06E-05	5.77E-04
Xylenes	1.81E-04	1.16E-04	1.25E-04	1.49E-04	1.09E-04	1.10E-04	1.22E-04	1.34E-04	1.03E-04	5.72E-05	1.19E-04	8.54E-04
Vinyl acetate	3.72E-05	2.38E-05	2.56E-05	3.06E-05	2.24E-05	2.26E-05	2.51E-05	2.76E-05	2.12E-05	1.18E-05	2.45E-05	1.75E-04
Toluene	1.17E-03	7.52E-04	8.09E-04	9.67E-04	7.06E-04	7.15E-04	7.92E-04	8.72E-04	6.70E-04	3.71E-04	7.73E-04	5.54E-03



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**Table C.2  
Maximum Predicted 24-hour Average COPC Concentrations (OS1)**

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
Total PM	1.96E-01	1.14E-01	2.00E-01	2.42E-01	2.14E-01	2.94E-01	2.05E-01	1.14E-01	1.01E-01	7.26E-02	1.33E-01	5.08E-01
PM <sub>10</sub>	1.81E-01	1.05E-01	1.84E-01	2.23E-01	1.98E-01	2.72E-01	1.91E-01	1.06E-01	9.43E-02	6.76E-02	1.25E-01	4.67E-01
PM <sub>2.5</sub>	1.17E-01	6.83E-02	1.20E-01	1.45E-01	1.30E-01	1.78E-01	1.27E-01	7.02E-02	6.17E-02	4.42E-02	8.09E-02	3.03E-01
Elemental Hg	4.43E-05	2.57E-05	4.51E-05	5.48E-05	4.93E-05	6.74E-05	4.77E-05	2.64E-05	2.26E-05	1.67E-05	3.04E-05	1.14E-04
Oxidized Hg	5.63E-06	3.28E-06	5.74E-06	6.97E-06	6.28E-06	8.58E-06	6.08E-06	3.37E-06	2.87E-06	2.12E-06	3.86E-06	1.45E-05
Particle-bound Hg	5.30E-08	3.08E-08	5.40E-08	6.52E-08	5.77E-08	7.93E-08	5.53E-08	3.08E-08	2.73E-08	1.96E-08	3.60E-08	1.37E-07
Total Hg	4.98E-05	2.89E-05	5.07E-05	6.13E-05	5.42E-05	7.45E-05	5.20E-05	2.89E-05	2.57E-05	1.84E-05	3.38E-05	1.29E-04
HCl	5.49E-03	3.19E-03	5.59E-03	6.79E-03	6.12E-03	8.36E-03	5.92E-03	3.28E-03	2.80E-03	2.07E-03	3.77E-03	1.42E-02
HF	5.04E-03	2.93E-03	5.13E-03	6.23E-03	5.61E-03	7.67E-03	5.43E-03	3.01E-03	2.57E-03	1.89E-03	3.45E-03	1.30E-02
CO	4.57E-01	2.66E-01	4.65E-01	5.65E-01	5.09E-01	6.96E-01	4.93E-01	2.73E-01	2.33E-01	1.72E-01	3.13E-01	1.18E+00
NO	3.28E+00	1.91E+00	3.34E+00	4.06E+00	3.66E+00	5.00E+00	3.54E+00	1.96E+00	1.67E+00	1.24E+00	2.25E+00	8.47E+00
NO <sub>2</sub>	1.88E+00	1.09E+00	1.92E+00	2.33E+00	2.10E+00	2.87E+00	2.03E+00	1.12E+00	9.59E-01	7.08E-01	1.29E+00	4.85E+00
NO <sub>x</sub>	5.17E+00	3.00E+00	5.26E+00	6.39E+00	5.76E+00	7.87E+00	5.57E+00	3.09E+00	2.63E+00	1.94E+00	3.54E+00	1.33E+01
NO <sub>2</sub> (100% conversion)	6.92E+00	4.02E+00	7.04E+00	8.56E+00	7.71E+00	1.05E+01	7.46E+00	4.13E+00	3.53E+00	2.60E+00	4.75E+00	1.78E+01
SO <sub>2</sub>	5.40E+00	3.14E+00	5.49E+00	6.68E+00	6.01E+00	8.22E+00	5.82E+00	3.22E+00	2.75E+00	2.03E+00	3.70E+00	1.39E+01
<b>Metals</b>												
Aluminum	2.36E-02	1.37E-02	2.41E-02	2.91E-02	2.57E-02	3.53E-02	2.47E-02	1.37E-02	1.22E-02	8.74E-03	1.60E-02	6.10E-02
Antimony	4.12E-06	2.40E-06	4.20E-06	5.07E-06	4.49E-06	6.17E-06	4.31E-06	2.39E-06	2.13E-06	1.53E-06	2.80E-06	1.07E-05
Arsenic	3.67E-05	2.13E-05	3.73E-05	4.51E-05	3.99E-05	5.48E-05	3.83E-05	2.13E-05	1.89E-05	1.36E-05	2.49E-05	9.47E-05
Barium	1.10E-02	6.41E-03	1.12E-02	1.36E-02	1.20E-02	1.65E-02	1.15E-02	6.41E-03	5.69E-03	4.09E-03	7.50E-03	2.85E-02
Beryllium	1.81E-06	1.05E-06	1.84E-06	2.23E-06	1.97E-06	2.71E-06	1.89E-06	1.05E-06	9.33E-07	6.70E-07	1.23E-06	4.68E-06
Boron	1.01E-03	5.86E-04	1.03E-03	1.24E-03	1.10E-03	1.51E-03	1.05E-03	5.85E-04	5.20E-04	3.73E-04	6.84E-04	2.61E-03
Cadmium	2.98E-06	1.73E-06	3.03E-06	3.66E-06	3.24E-06	4.46E-06	3.11E-06	1.73E-06	1.54E-06	1.10E-06	2.02E-06	7.70E-06
Chromium	4.81E-05	2.79E-05	4.90E-05	5.92E-05	5.24E-05	7.20E-05	5.03E-05	2.79E-05	2.48E-05	1.78E-05	3.27E-05	1.24E-04
Cobalt	7.33E-06	4.26E-06	7.47E-06	9.02E-06	7.98E-06	1.10E-05	7.66E-06	4.26E-06	3.78E-06	2.71E-06	4.98E-06	1.89E-05
Copper	1.17E-04	6.79E-05	1.19E-04	1.44E-04	1.27E-04	1.75E-04	1.22E-04	6.79E-05	6.02E-05	4.32E-05	7.93E-05	3.02E-04
Iron	8.71E-03	5.06E-03	8.87E-03	1.07E-02	9.48E-03	1.30E-02	9.10E-03	5.06E-03	4.49E-03	3.22E-03	5.91E-03	2.25E-02

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Lithium	1.92E-04	1.12E-04	1.96E-04	2.37E-04	2.10E-04	2.88E-04	2.01E-04	1.12E-04	9.92E-05	7.12E-05	1.31E-04	4.97E-04
Manganese	1.28E-04	7.45E-05	1.31E-04	1.58E-04	1.40E-04	1.92E-04	1.34E-04	7.45E-05	6.62E-05	4.75E-05	8.71E-05	3.32E-04
Mercury	4.98E-05	2.89E-05	5.07E-05	6.13E-05	5.42E-05	7.45E-05	5.20E-05	2.89E-05	2.57E-05	1.84E-05	3.38E-05	1.29E-04
Molybdenum	4.35E-05	2.53E-05	4.43E-05	5.35E-05	4.74E-05	6.51E-05	4.55E-05	2.53E-05	2.24E-05	1.61E-05	2.96E-05	1.12E-04
Nickel	3.21E-05	1.86E-05	3.27E-05	3.95E-05	3.49E-05	4.80E-05	3.35E-05	1.86E-05	1.65E-05	1.19E-05	2.18E-05	8.29E-05
Palladium	2.75E-05	1.60E-05	2.80E-05	3.38E-05	2.99E-05	4.11E-05	2.87E-05	1.60E-05	1.42E-05	1.02E-05	1.87E-05	7.11E-05
Lead	3.21E-05	1.86E-05	3.27E-05	3.95E-05	3.49E-05	4.80E-05	3.35E-05	1.86E-05	1.65E-05	1.19E-05	2.18E-05	8.29E-05
Selenium	2.98E-05	1.73E-05	3.03E-05	3.66E-05	3.24E-05	4.46E-05	3.11E-05	1.73E-05	1.54E-05	1.10E-05	2.02E-05	7.70E-05
Silver	1.95E-06	1.13E-06	1.98E-06	2.40E-06	2.12E-06	2.91E-06	2.03E-06	1.13E-06	1.00E-06	7.20E-07	1.32E-06	5.03E-06
Strontium	2.25E-03	1.30E-03	2.29E-03	2.76E-03	2.44E-03	3.36E-03	2.35E-03	1.30E-03	1.16E-03	8.31E-04	1.52E-03	5.80E-03
Thallium	4.12E-06	2.40E-06	4.20E-06	5.07E-06	4.49E-06	6.17E-06	4.31E-06	2.39E-06	2.13E-06	1.53E-06	2.80E-06	1.07E-05
Thorium	1.01E-05	5.86E-06	1.03E-05	1.24E-05	1.10E-05	1.51E-05	1.05E-05	5.85E-06	5.20E-06	3.73E-06	6.84E-06	2.61E-05
Tin	4.58E-05	2.66E-05	4.67E-05	5.64E-05	4.99E-05	6.86E-05	4.79E-05	2.66E-05	2.36E-05	1.70E-05	3.11E-05	1.18E-04
Uranium	4.58E-06	2.66E-06	4.67E-06	5.64E-06	4.99E-06	6.86E-06	4.79E-06	2.66E-06	2.36E-06	1.70E-06	3.11E-06	1.18E-05
Vanadium	7.10E-05	4.13E-05	7.23E-05	8.74E-05	7.73E-05	1.06E-04	7.42E-05	4.12E-05	3.66E-05	2.63E-05	4.82E-05	1.84E-04
Zinc	2.98E-05	1.73E-05	3.03E-05	3.66E-05	3.24E-05	4.46E-05	3.11E-05	1.73E-05	1.54E-05	1.10E-05	2.02E-05	7.70E-05
Tetrachlorodibenzo-p-dioxins	1.13E-12	6.58E-13	1.15E-12	1.39E-12	1.23E-12	1.69E-12	1.18E-12	6.57E-13	5.84E-13	4.19E-13	7.69E-13	2.93E-12
Pentachlorodibenzo-p-dioxins	8.90E-13	5.17E-13	9.06E-13	1.09E-12	9.69E-13	1.33E-12	9.29E-13	5.17E-13	4.59E-13	3.29E-13	6.04E-13	2.30E-12
Hexachlorodibenzo-p-dioxins	4.93E-11	2.87E-11	5.02E-11	6.07E-11	5.37E-11	7.38E-11	5.15E-11	2.86E-11	2.54E-11	1.82E-11	3.35E-11	1.27E-10
Heptachlorodibenzo-p-dioxins	1.32E-10	7.66E-11	1.34E-10	1.62E-10	1.44E-10	1.97E-10	1.38E-10	7.65E-11	6.80E-11	4.88E-11	8.95E-11	3.41E-10
Octachlorodibenzo-p-dioxins	1.85E-10	1.08E-10	1.89E-10	2.28E-10	2.02E-10	2.77E-10	1.93E-10	1.08E-10	9.55E-11	6.85E-11	1.26E-10	4.79E-10
<b>Total Dioxins</b>	3.19E-10	1.86E-10	3.25E-10	3.93E-10	3.48E-10	4.78E-10	3.34E-10	1.85E-10	1.65E-10	1.18E-10	2.17E-10	8.25E-10
Tetrachlorodibenzofurans	2.09E-10	1.22E-10	2.13E-10	2.58E-10	2.28E-10	3.13E-10	2.19E-10	1.22E-10	1.08E-10	7.75E-11	1.42E-10	5.41E-10
Pentachlorodibenzofurans	1.91E-10	1.11E-10	1.94E-10	2.35E-10	2.08E-10	2.86E-10	1.99E-10	1.11E-10	9.84E-11	7.06E-11	1.30E-10	4.93E-10
Hexachlorodibenzofurans	7.04E-11	4.09E-11	7.16E-11	8.65E-11	7.66E-11	1.05E-10	7.35E-11	4.09E-11	3.63E-11	2.60E-11	4.78E-11	1.82E-10
Heptachlorodibenzofurans	3.88E-11	2.25E-11	3.95E-11	4.77E-11	4.23E-11	5.81E-11	4.06E-11	2.25E-11	2.00E-11	1.44E-11	2.63E-11	1.00E-10
Octachlorodibenzofurans	8.33E-10	4.84E-10	8.48E-10	1.02E-09	9.07E-10	1.25E-09	8.70E-10	4.84E-10	4.29E-10	3.08E-10	5.65E-10	2.15E-09
<b>Total Furans</b>	2.83E-11	1.64E-11	2.88E-11	3.48E-11	3.08E-11	4.23E-11	2.96E-11	1.64E-11	1.46E-11	1.05E-11	1.92E-11	7.31E-11
<b>PAHs</b>	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acenaphthene	3.31E-06	1.92E-06	3.37E-06	4.09E-06	3.69E-06	5.04E-06	3.57E-06	1.98E-06	1.69E-06	1.24E-06	2.27E-06	8.53E-06
Acenaphthylene	2.30E-08	1.34E-08	2.34E-08	2.84E-08	2.56E-08	3.50E-08	2.48E-08	1.37E-08	1.17E-08	8.64E-09	1.58E-08	5.92E-08
Anthracene	1.45E-07	8.41E-08	1.47E-07	1.79E-07	1.61E-07	2.20E-07	1.56E-07	8.64E-08	7.37E-08	5.44E-08	9.93E-08	3.73E-07
Benzo(a)anthracene	2.07E-08	1.20E-08	2.11E-08	2.56E-08	2.30E-08	3.15E-08	2.23E-08	1.23E-08	1.05E-08	7.78E-09	1.42E-08	5.33E-08

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Benzo(b)anthracene	3.45E-08	2.00E-08	3.51E-08	4.26E-08	3.84E-08	5.25E-08	3.72E-08	2.06E-08	1.76E-08	1.30E-08	2.36E-08	8.88E-08
Benzo(b)fluoranthene	3.22E-08	1.87E-08	3.27E-08	3.98E-08	3.58E-08	4.90E-08	3.47E-08	1.92E-08	1.64E-08	1.21E-08	2.21E-08	8.29E-08
Benzo(k,j)fluoranthene	3.91E-08	2.27E-08	3.98E-08	4.83E-08	4.35E-08	5.95E-08	4.21E-08	2.33E-08	1.99E-08	1.47E-08	2.68E-08	1.01E-07
Benzo(a)flourene	5.05E-08	2.94E-08	5.15E-08	6.25E-08	5.63E-08	7.70E-08	5.45E-08	3.02E-08	2.58E-08	1.90E-08	3.47E-08	1.30E-07
Benzo(b)flourene	1.15E-08	6.68E-09	1.17E-08	1.42E-08	1.28E-08	1.75E-08	1.24E-08	6.86E-09	5.85E-09	4.32E-09	7.88E-09	2.96E-08
Benzo(g,h,i)perylene	9.19E-08	5.34E-08	9.36E-08	1.14E-07	1.02E-07	1.40E-07	9.91E-08	5.49E-08	4.68E-08	3.46E-08	6.30E-08	2.37E-07
Benzo(a)pyrene	2.99E-08	1.74E-08	3.04E-08	3.70E-08	3.33E-08	4.55E-08	3.22E-08	1.78E-08	1.52E-08	1.12E-08	2.05E-08	7.70E-08
Benzo(e)pyrene	1.33E-07	7.75E-08	1.36E-07	1.65E-07	1.48E-07	2.03E-07	1.44E-07	7.96E-08	6.79E-08	5.01E-08	9.14E-08	3.44E-07
Biphenyl	1.56E-06	9.08E-07	1.59E-06	1.93E-06	1.74E-06	2.38E-06	1.68E-06	9.33E-07	7.96E-07	5.88E-07	1.07E-06	4.03E-06
2-chloronaphthalene	4.82E-09	2.80E-09	4.91E-09	5.97E-09	5.37E-09	7.35E-09	5.20E-09	2.88E-09	2.46E-09	1.81E-09	3.31E-09	1.24E-08
Coronene	5.51E-08	3.21E-08	5.61E-08	6.82E-08	6.14E-08	8.40E-08	5.95E-08	3.29E-08	2.81E-08	2.07E-08	3.78E-08	1.42E-07
Dibenzo(a,c & a,h)anthracene	1.68E-09	9.75E-10	1.71E-09	2.08E-09	1.87E-09	2.55E-09	1.81E-09	1.00E-09	8.55E-10	6.31E-10	1.15E-09	4.32E-09
Dibenzo(a,j)acridine	8.27E-10	4.81E-10	8.42E-10	1.02E-09	9.21E-10	1.26E-09	8.92E-10	4.94E-10	4.21E-10	3.11E-10	5.67E-10	2.13E-09
7H-dibenzo(c,g)carbazole	1.29E-09	7.48E-10	1.31E-09	1.59E-09	1.43E-09	1.96E-09	1.39E-09	7.68E-10	6.56E-10	4.84E-10	8.82E-10	3.32E-09
Dibenzo(a,e)pyrene	2.30E-10	1.34E-10	2.34E-10	2.84E-10	2.56E-10	3.50E-10	2.48E-10	1.37E-10	1.17E-10	8.64E-11	1.58E-10	5.92E-10
Dibenzo(a,i)pyrene	2.99E-10	1.74E-10	3.04E-10	3.70E-10	3.33E-10	4.55E-10	3.22E-10	1.78E-10	1.52E-10	1.12E-10	2.05E-10	7.70E-10
9,10-dimethylanthracene	1.26E-08	7.35E-09	1.29E-08	1.56E-08	1.41E-08	1.92E-08	1.36E-08	7.55E-09	6.44E-09	4.75E-09	8.67E-09	3.26E-08
7,12-dimethylanthracene	3.91E-09	2.27E-09	3.98E-09	4.83E-09	4.35E-09	5.95E-09	4.21E-09	2.33E-09	1.99E-09	1.47E-09	2.68E-09	1.01E-08
1,2-dimethylnaphthalene	1.95E-08	1.14E-08	1.99E-08	2.42E-08	2.18E-08	2.97E-08	2.11E-08	1.17E-08	9.95E-09	7.35E-09	1.34E-08	5.03E-08
2,6 & 2,7-dimethylnaphthalene	7.58E-08	4.41E-08	7.72E-08	9.38E-08	8.45E-08	1.15E-07	8.18E-08	4.53E-08	3.86E-08	2.85E-08	5.20E-08	1.95E-07
Fluoranthene	3.91E-07	2.27E-07	3.98E-07	4.83E-07	4.35E-07	5.95E-07	4.21E-07	2.33E-07	1.99E-07	1.47E-07	2.68E-07	1.01E-06
Fluorene	4.60E-07	2.67E-07	4.68E-07	5.69E-07	5.12E-07	7.00E-07	4.96E-07	2.74E-07	2.34E-07	1.73E-07	3.15E-07	1.18E-06
Indeno(1,2,3-cd)pyrene	1.59E-08	9.22E-09	1.61E-08	1.96E-08	1.77E-08	2.41E-08	1.71E-08	9.47E-09	8.08E-09	5.96E-09	1.09E-08	4.09E-08
2-methylanthracene	2.53E-08	1.47E-08	2.57E-08	3.13E-08	2.82E-08	3.85E-08	2.73E-08	1.51E-08	1.29E-08	9.51E-09	1.73E-08	6.51E-08
3-methylcholanthrene	6.89E-08	4.01E-08	7.02E-08	8.53E-08	7.68E-08	1.05E-07	7.43E-08	4.12E-08	3.51E-08	2.59E-08	4.73E-08	1.78E-07
1-methylnaphthalene	4.60E-07	2.67E-07	4.68E-07	5.69E-07	5.12E-07	7.00E-07	4.96E-07	2.74E-07	2.34E-07	1.73E-07	3.15E-07	1.18E-06
2-methylnaphthalene	6.89E-07	4.01E-07	7.02E-07	8.53E-07	7.68E-07	1.05E-06	7.43E-07	4.12E-07	3.51E-07	2.59E-07	4.73E-07	1.78E-06
1-methylphenanthrene	1.91E-07	1.11E-07	1.94E-07	2.36E-07	2.12E-07	2.90E-07	2.06E-07	1.14E-07	9.72E-08	7.17E-08	1.31E-07	4.92E-07
9-methylphenanthrene	1.70E-07	9.88E-08	1.73E-07	2.10E-07	1.89E-07	2.59E-07	1.83E-07	1.02E-07	8.66E-08	6.40E-08	1.17E-07	4.38E-07
Naphthalene	1.38E-06	8.01E-07	1.40E-06	1.71E-06	1.54E-06	2.10E-06	1.49E-06	8.23E-07	7.02E-07	5.19E-07	9.45E-07	3.55E-06
Perylene	9.42E-09	5.48E-09	9.59E-09	1.17E-08	1.05E-08	1.43E-08	1.02E-08	5.63E-09	4.80E-09	3.54E-09	6.46E-09	2.43E-08
Phenanthrene	2.53E-06	1.47E-06	2.57E-06	3.13E-06	2.82E-06	3.85E-06	2.73E-06	1.51E-06	1.29E-06	9.51E-07	1.73E-06	6.51E-06
Picene	1.54E-09	8.95E-10	1.57E-09	1.90E-09	1.71E-09	2.34E-09	1.66E-09	9.19E-10	7.84E-10	5.79E-10	1.06E-09	3.97E-09

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Pyrene	2.53E-07	1.47E-07	2.57E-07	3.13E-07	2.82E-07	3.85E-07	2.73E-07	1.51E-07	1.29E-07	9.51E-08	1.73E-07	6.51E-07
Quinoline	1.91E-08	1.11E-08	1.94E-08	2.36E-08	2.12E-08	2.90E-08	2.06E-08	1.14E-08	9.72E-09	7.17E-09	1.31E-08	4.92E-08
m-Terphenyl	6.66E-08	3.87E-08	6.78E-08	8.24E-08	7.42E-08	1.01E-07	7.18E-08	3.98E-08	3.39E-08	2.51E-08	4.57E-08	1.72E-07
o-Terphenyl	1.06E-07	6.14E-08	1.08E-07	1.31E-07	1.18E-07	1.61E-07	1.14E-07	6.31E-08	5.38E-08	3.98E-08	7.25E-08	2.72E-07
p-Terphenyl	3.45E-08	2.00E-08	3.51E-08	4.26E-08	3.84E-08	5.25E-08	3.72E-08	2.06E-08	1.76E-08	1.30E-08	2.36E-08	8.88E-08
Tetralin	1.49E-07	8.68E-08	1.52E-07	1.85E-07	1.66E-07	2.27E-07	1.61E-07	8.92E-08	7.61E-08	5.62E-08	1.02E-07	3.85E-07
Triphenylene/chrysene	8.73E-08	5.08E-08	8.89E-08	1.08E-07	9.73E-08	1.33E-07	9.41E-08	5.21E-08	4.45E-08	3.28E-08	5.99E-08	2.25E-07
<b>VOCs</b>												
Acetaldehyde	3.74E-04	2.18E-04	3.81E-04	4.63E-04	4.17E-04	5.70E-04	4.03E-04	2.23E-04	1.91E-04	1.41E-04	2.57E-04	9.65E-04
Acetophenone	9.85E-06	5.72E-06	1.00E-05	1.22E-05	1.10E-05	1.50E-05	1.06E-05	5.88E-06	5.02E-06	3.70E-06	6.75E-06	2.54E-05
Acrolin	1.90E-04	1.11E-04	1.94E-04	2.36E-04	2.12E-04	2.90E-04	2.05E-04	1.14E-04	9.70E-05	7.16E-05	1.31E-04	4.91E-04
Benzene	8.53E-04	4.96E-04	8.69E-04	1.06E-03	9.51E-04	1.30E-03	9.20E-04	5.10E-04	4.35E-04	3.21E-04	5.85E-04	2.20E-03
Benzyl chloride	4.60E-04	2.67E-04	4.68E-04	5.69E-04	5.12E-04	7.00E-04	4.96E-04	2.74E-04	2.34E-04	1.73E-04	3.15E-04	1.18E-03
Bis(2-ethylhexyl)phthalate (DEHP)	4.79E-05	2.79E-05	4.88E-05	5.93E-05	5.34E-05	7.30E-05	5.17E-05	2.86E-05	2.44E-05	1.80E-05	3.29E-05	1.24E-04
Bromoform	2.56E-05	1.49E-05	2.61E-05	3.17E-05	2.85E-05	3.90E-05	2.76E-05	1.53E-05	1.30E-05	9.63E-06	1.76E-05	6.60E-05
Carbon disulphide	8.53E-05	4.96E-05	8.69E-05	1.06E-04	9.51E-05	1.30E-04	9.20E-05	5.10E-05	4.35E-05	3.21E-05	5.85E-05	2.20E-04
2-Chloroacetophenone	4.60E-06	2.67E-06	4.68E-06	5.69E-06	5.12E-06	7.00E-06	4.96E-06	2.74E-06	2.34E-06	1.73E-06	3.15E-06	1.18E-05
Chlorobenzene	1.44E-05	8.40E-06	1.47E-05	1.79E-05	1.61E-05	2.20E-05	1.56E-05	8.63E-06	7.36E-06	5.43E-06	9.91E-06	3.72E-05
Chloroform	3.87E-05	2.25E-05	3.94E-05	4.79E-05	4.31E-05	5.90E-05	4.18E-05	2.31E-05	1.97E-05	1.46E-05	2.66E-05	9.98E-05
Cumene	3.48E-06	2.02E-06	3.54E-06	4.31E-06	3.88E-06	5.30E-06	3.75E-06	2.08E-06	1.77E-06	1.31E-06	2.39E-06	8.97E-06
Cyanide	1.64E-03	9.54E-04	1.67E-03	2.03E-03	1.83E-03	2.50E-03	1.77E-03	9.80E-04	8.36E-04	6.17E-04	1.13E-03	4.23E-03
2,4-Dinitrotoluene	1.84E-07	1.07E-07	1.87E-07	2.27E-07	2.05E-07	2.80E-07	1.98E-07	1.10E-07	9.37E-08	6.91E-08	1.26E-07	4.74E-07
Dimethyl Sulphate	3.15E-05	1.83E-05	3.21E-05	3.90E-05	3.51E-05	4.80E-05	3.40E-05	1.88E-05	1.61E-05	1.19E-05	2.16E-05	8.12E-05
Ethyl benzene	6.17E-05	3.59E-05	6.28E-05	7.64E-05	6.87E-05	9.40E-05	6.65E-05	3.69E-05	3.14E-05	2.32E-05	4.23E-05	1.59E-04
Ethyl chloride	2.76E-05	1.60E-05	2.81E-05	3.41E-05	3.07E-05	4.20E-05	2.97E-05	1.65E-05	1.40E-05	1.04E-05	1.89E-05	7.11E-05
Ethylene dichloride	2.63E-05	1.53E-05	2.67E-05	3.25E-05	2.93E-05	4.00E-05	2.83E-05	1.57E-05	1.34E-05	9.88E-06	1.80E-05	6.77E-05
Ethylene dibromide	7.88E-07	4.58E-07	8.02E-07	9.75E-07	8.78E-07	1.20E-06	8.49E-07	4.70E-07	4.01E-07	2.96E-07	5.40E-07	2.03E-06
Formaldehyde	1.58E-04	9.16E-05	1.60E-04	1.95E-04	1.76E-04	2.40E-04	1.70E-04	9.41E-05	8.03E-05	5.93E-05	1.08E-04	4.06E-04
Hexane	4.40E-05	2.56E-05	4.48E-05	5.44E-05	4.90E-05	6.70E-05	4.74E-05	2.63E-05	2.24E-05	1.65E-05	3.02E-05	1.13E-04
Isophorone	3.81E-04	2.21E-04	3.88E-04	4.71E-04	4.24E-04	5.80E-04	4.11E-04	2.27E-04	1.94E-04	1.43E-04	2.61E-04	9.81E-04
Methylbromide	1.05E-04	6.11E-05	1.07E-04	1.30E-04	1.17E-04	1.60E-04	1.13E-04	6.27E-05	5.35E-05	3.95E-05	7.20E-05	2.71E-04
Methyl chloride	3.48E-04	2.02E-04	3.54E-04	4.31E-04	3.88E-04	5.30E-04	3.75E-04	2.08E-04	1.77E-04	1.31E-04	2.39E-04	8.97E-04
Methyl ethyl ketone	2.56E-04	1.49E-04	2.61E-04	3.17E-04	2.85E-04	3.90E-04	2.76E-04	1.53E-04	1.30E-04	9.63E-05	1.76E-04	6.60E-04

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Methyl hydrazine	1.12E-04	6.49E-05	1.14E-04	1.38E-04	1.24E-04	1.70E-04	1.20E-04	6.67E-05	5.69E-05	4.20E-05	7.65E-05	2.88E-04
Methyl methacrylate	1.31E-05	7.63E-06	1.34E-05	1.62E-05	1.46E-05	2.00E-05	1.42E-05	7.84E-06	6.69E-06	4.94E-06	9.00E-06	3.38E-05
Methyl tert-butyl ether	2.30E-05	1.34E-05	2.34E-05	2.84E-05	2.56E-05	3.50E-05	2.48E-05	1.37E-05	1.17E-05	8.64E-06	1.58E-05	5.92E-05
Methylene chloride	1.90E-04	1.11E-04	1.94E-04	2.36E-04	2.12E-04	2.90E-04	2.05E-04	1.14E-04	9.70E-05	7.16E-05	1.31E-04	4.91E-04
Phenol	1.05E-05	6.11E-06	1.07E-05	1.30E-05	1.17E-05	1.60E-05	1.13E-05	6.27E-06	5.35E-06	3.95E-06	7.20E-06	2.71E-05
Propionaldehyde	2.49E-04	1.45E-04	2.54E-04	3.09E-04	2.78E-04	3.80E-04	2.69E-04	1.49E-04	1.27E-04	9.38E-05	1.71E-04	6.43E-04
Tetrachloroethylene	2.82E-05	1.64E-05	2.87E-05	3.49E-05	3.14E-05	4.30E-05	3.04E-05	1.69E-05	1.44E-05	1.06E-05	1.94E-05	7.28E-05
Toluene	1.58E-04	9.16E-05	1.60E-04	1.95E-04	1.76E-04	2.40E-04	1.70E-04	9.41E-05	8.03E-05	5.93E-05	1.08E-04	4.06E-04
1,1,1-Trichloroethane	1.31E-05	7.63E-06	1.34E-05	1.62E-05	1.46E-05	2.00E-05	1.42E-05	7.84E-06	6.69E-06	4.94E-06	9.00E-06	3.38E-05
Styrene	1.64E-05	9.54E-06	1.67E-05	2.03E-05	1.83E-05	2.50E-05	1.77E-05	9.80E-06	8.36E-06	6.17E-06	1.13E-05	4.23E-05
Xylenes	2.43E-05	1.41E-05	2.47E-05	3.01E-05	2.71E-05	3.70E-05	2.62E-05	1.45E-05	1.24E-05	9.14E-06	1.67E-05	6.26E-05
Vinyl acetate	4.99E-06	2.90E-06	5.08E-06	6.17E-06	5.56E-06	7.60E-06	5.38E-06	2.98E-06	2.54E-06	1.88E-06	3.42E-06	1.29E-05

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**Table C.3  
Maximum Predicted Annual Average COPC Concentrations (OS1)**

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
<b>Common Air Contaminants</b>												
Total PM	1.38E-02	6.86E-03	7.51E-03	8.40E-03	8.88E-03	9.71E-03	9.23E-03	6.87E-03	3.83E-03	2.18E-03	4.97E-03	1.86E-02
PM <sub>10</sub>	1.28E-02	6.36E-03	6.95E-03	7.78E-03	8.24E-03	9.00E-03	8.64E-03	6.43E-03	3.56E-03	2.06E-03	4.66E-03	1.71E-02
PM <sub>2.5</sub>	8.33E-03	4.13E-03	4.51E-03	5.06E-03	5.36E-03	5.86E-03	5.67E-03	4.21E-03	2.32E-03	1.35E-03	3.04E-03	1.11E-02
NO	2.33E-01	1.15E-01	1.26E-01	1.41E-01	1.50E-01	1.64E-01	1.59E-01	1.17E-01	6.48E-02	3.83E-02	8.50E-02	3.11E-01
NO <sub>2</sub> (directly emitted)	1.34E-01	6.61E-02	7.22E-02	8.09E-02	8.59E-02	9.38E-02	9.11E-02	6.73E-02	3.71E-02	2.19E-02	4.87E-02	1.78E-01
NO <sub>x</sub>	3.67E-01	1.81E-01	1.98E-01	2.22E-01	2.36E-01	2.58E-01	2.50E-01	1.85E-01	1.02E-01	6.02E-02	1.34E-01	4.89E-01
NO <sub>2</sub> (100% conversion)	4.91E-01	2.43E-01	2.65E-01	2.97E-01	3.16E-01	3.45E-01	3.35E-01	2.47E-01	1.36E-01	8.06E-02	1.79E-01	6.54E-01
SO <sub>2</sub>	3.83E-01	1.89E-01	2.07E-01	2.32E-01	2.46E-01	2.69E-01	2.61E-01	1.93E-01	1.06E-01	6.29E-02	1.40E-01	5.10E-01
CO	3.24E-02	1.60E-02	1.75E-02	1.96E-02	2.08E-02	2.28E-02	2.21E-02	1.63E-02	9.01E-03	5.32E-03	1.18E-02	4.32E-02
HCl	3.90E-04	1.93E-04	2.10E-04	2.36E-04	2.50E-04	2.74E-04	2.66E-04	1.96E-04	1.08E-04	6.40E-05	1.42E-04	5.19E-04
HF	3.57E-04	1.77E-04	1.93E-04	2.16E-04	2.30E-04	2.51E-04	2.44E-04	1.80E-04	9.93E-05	5.87E-05	1.30E-04	4.76E-04
<b>Metals</b>												
Aluminum	1.67E-03	8.25E-04	9.03E-04	1.01E-03	1.07E-03	1.17E-03	1.11E-03	8.26E-04	4.60E-04	2.63E-04	5.98E-04	2.23E-03
Antimony	2.91E-07	1.44E-07	1.58E-07	1.76E-07	1.86E-07	2.04E-07	1.94E-07	1.44E-07	8.03E-08	4.59E-08	1.04E-07	3.90E-07
Arsenic	2.59E-06	1.28E-06	1.40E-06	1.57E-06	1.66E-06	1.81E-06	1.72E-06	1.28E-06	7.14E-07	4.08E-07	9.28E-07	3.46E-06
Barium	7.79E-04	3.86E-04	4.22E-04	4.72E-04	4.99E-04	5.46E-04	5.19E-04	3.86E-04	2.15E-04	1.23E-04	2.79E-04	1.04E-03
Beryllium	1.28E-07	6.32E-08	6.92E-08	7.74E-08	8.19E-08	8.95E-08	8.50E-08	6.33E-08	3.53E-08	2.01E-08	4.58E-08	1.71E-07
Boron	7.11E-05	3.52E-05	3.85E-05	4.31E-05	4.56E-05	4.98E-05	4.74E-05	3.53E-05	1.96E-05	1.12E-05	2.55E-05	9.52E-05
Cadmium	2.10E-07	1.04E-07	1.14E-07	1.27E-07	1.35E-07	1.47E-07	1.40E-07	1.04E-07	5.80E-08	3.31E-08	7.54E-08	2.81E-07
Chromium	3.39E-06	1.68E-06	1.84E-06	2.06E-06	2.18E-06	2.38E-06	2.26E-06	1.68E-06	9.37E-07	5.35E-07	1.22E-06	4.54E-06
Cobalt	5.17E-07	2.56E-07	2.80E-07	3.13E-07	3.32E-07	3.62E-07	3.44E-07	2.56E-07	1.43E-07	8.16E-08	1.86E-07	6.93E-07
Copper	8.24E-06	4.08E-06	4.47E-06	5.00E-06	5.28E-06	5.78E-06	5.49E-06	4.09E-06	2.28E-06	1.30E-06	2.96E-06	1.10E-05
Iron	6.14E-04	3.04E-04	3.33E-04	3.72E-04	3.94E-04	4.30E-04	4.09E-04	3.04E-04	1.70E-04	9.69E-05	2.20E-04	8.22E-04
Lithium	1.36E-05	6.72E-06	7.36E-06	8.23E-06	8.70E-06	9.52E-06	9.04E-06	6.73E-06	3.75E-06	2.14E-06	4.87E-06	1.82E-05
Manganese	9.05E-06	4.48E-06	4.91E-06	5.49E-06	5.80E-06	6.34E-06	6.03E-06	4.49E-06	2.50E-06	1.43E-06	3.25E-06	1.21E-05
Mercury (Total)	3.51E-06	1.74E-06	1.90E-06	2.13E-06	2.25E-06	2.46E-06	2.34E-06	1.74E-06	9.71E-07	5.54E-07	1.26E-06	4.71E-06

*Brandon Generating Station Licence Review  
Air Quality Impact Assessment*

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
Elemental Hg	3.14E-06	1.55E-06	1.70E-06	1.90E-06	2.02E-06	2.21E-06	2.14E-06	1.58E-06	8.73E-07	5.16E-07	1.15E-06	4.19E-06
Oxidized Hg	4.00E-07	1.98E-07	2.16E-07	2.42E-07	2.57E-07	2.81E-07	2.73E-07	2.01E-07	1.11E-07	6.57E-08	1.46E-07	5.33E-07
Particle-bound Hg	3.74E-09	1.85E-09	2.03E-09	2.26E-09	2.40E-09	2.62E-09	2.49E-09	1.85E-09	1.03E-09	5.89E-10	1.34E-09	5.00E-09
Molybdenum	3.07E-06	1.52E-06	1.66E-06	1.86E-06	1.97E-06	2.15E-06	2.05E-06	1.52E-06	8.48E-07	4.84E-07	1.10E-06	4.11E-06
Nickel	2.26E-06	1.12E-06	1.23E-06	1.37E-06	1.45E-06	1.59E-06	1.51E-06	1.12E-06	6.25E-07	3.57E-07	8.12E-07	3.03E-06
Palladium	1.94E-06	9.60E-07	1.05E-06	1.18E-06	1.24E-06	1.36E-06	1.29E-06	9.62E-07	5.36E-07	3.06E-07	6.96E-07	2.60E-06
Lead	2.26E-06	1.12E-06	1.23E-06	1.37E-06	1.45E-06	1.59E-06	1.51E-06	1.12E-06	6.25E-07	3.57E-07	8.12E-07	3.03E-06
Selenium	2.10E-06	1.04E-06	1.14E-06	1.27E-06	1.35E-06	1.47E-06	1.40E-06	1.04E-06	5.80E-07	3.31E-07	7.54E-07	2.81E-06
Silver	1.37E-07	6.80E-08	7.45E-08	8.33E-08	8.81E-08	9.63E-08	9.15E-08	6.81E-08	3.79E-08	2.17E-08	4.93E-08	1.84E-07
Strontium	1.58E-04	7.84E-05	8.58E-05	9.60E-05	1.02E-04	1.11E-04	1.06E-04	7.85E-05	4.37E-05	2.50E-05	5.68E-05	2.12E-04
Thallium	2.91E-07	1.44E-07	1.58E-07	1.76E-07	1.86E-07	2.04E-07	1.94E-07	1.44E-07	8.03E-08	4.59E-08	1.04E-07	3.90E-07
Thorium	7.11E-07	3.52E-07	3.85E-07	4.31E-07	4.56E-07	4.98E-07	4.74E-07	3.53E-07	1.96E-07	1.12E-07	2.55E-07	9.52E-07
Tin	3.23E-06	1.60E-06	1.75E-06	1.96E-06	2.07E-06	2.27E-06	2.15E-06	1.60E-06	8.93E-07	5.10E-07	1.16E-06	4.33E-06
Uranium	3.23E-07	1.60E-07	1.75E-07	1.96E-07	2.07E-07	2.27E-07	2.15E-07	1.60E-07	8.93E-08	5.10E-08	1.16E-07	4.33E-07
Vanadium	5.01E-06	2.48E-06	2.72E-06	3.04E-06	3.21E-06	3.51E-06	3.34E-06	2.48E-06	1.38E-06	7.90E-07	1.80E-06	6.71E-06
Zinc	2.10E-06	1.04E-06	1.14E-06	1.27E-06	1.35E-06	1.47E-06	1.40E-06	1.04E-06	5.80E-07	3.31E-07	7.54E-07	2.81E-06
<b>Dioxins and Furans</b>												
Tetrachlorodibenzo-p-dioxins	8.06E-14	3.99E-14	4.35E-14	4.88E-14	5.18E-14	5.66E-14	5.49E-14	4.06E-14	2.24E-14	1.32E-14	2.94E-14	1.07E-13
Pentachlorodibenzo-p-dioxins	6.33E-14	3.13E-14	3.42E-14	3.83E-14	4.07E-14	4.45E-14	4.32E-14	3.19E-14	1.76E-14	1.04E-14	2.31E-14	8.44E-14
Hexachlorodibenzo-p-dioxins	3.51E-12	1.74E-12	1.90E-12	2.13E-12	2.26E-12	2.47E-12	2.39E-12	1.77E-12	9.75E-13	5.76E-13	1.28E-12	4.68E-12
Heptachlorodibenzo-p-dioxins	9.38E-12	4.64E-12	5.07E-12	5.68E-12	6.03E-12	6.59E-12	6.40E-12	4.73E-12	2.61E-12	1.54E-12	3.42E-12	1.25E-11
Octachlorodibenzo-p-dioxins	1.32E-11	6.52E-12	7.12E-12	7.98E-12	8.47E-12	9.25E-12	8.98E-12	6.64E-12	3.66E-12	2.16E-12	4.81E-12	1.76E-11
Total Dioxins	2.27E-11	1.12E-11	1.23E-11	1.38E-11	1.46E-11	1.60E-11	1.55E-11	1.15E-11	6.32E-12	3.73E-12	8.29E-12	3.03E-11
Tetrachlorodibenzofurans	1.49E-11	7.38E-12	8.05E-12	9.03E-12	9.58E-12	1.05E-11	1.02E-11	7.51E-12	4.14E-12	2.45E-12	5.44E-12	1.99E-11
Pentachlorodibenzofurans	1.36E-11	6.72E-12	7.34E-12	8.23E-12	8.73E-12	9.54E-12	9.26E-12	6.84E-12	3.77E-12	2.23E-12	4.95E-12	1.81E-11
Hexachlorodibenzofurans	5.01E-12	2.48E-12	2.70E-12	3.03E-12	3.22E-12	3.52E-12	3.41E-12	2.52E-12	1.39E-12	8.22E-13	1.83E-12	6.67E-12
Heptachlorodibenzofurans	2.76E-12	1.37E-12	1.49E-12	1.67E-12	1.78E-12	1.94E-12	1.88E-12	1.39E-12	7.67E-13	4.54E-13	1.01E-12	3.68E-12
Octachlorodibenzofurans	5.93E-11	2.93E-11	3.20E-11	3.59E-11	3.81E-11	4.16E-11	4.04E-11	2.99E-11	1.65E-11	9.73E-12	2.16E-11	7.90E-11
Total Furans	2.01E-12	9.97E-13	1.09E-12	1.22E-12	1.29E-12	1.41E-12	1.37E-12	1.01E-12	5.60E-13	3.31E-13	7.35E-13	2.68E-12
<b>PAHs</b>												
Acenaphthene	2.35E-07	1.16E-07	1.27E-07	1.42E-07	1.51E-07	1.65E-07	1.60E-07	1.18E-07	6.52E-08	3.86E-08	8.56E-08	3.13E-07

*Brandon Generating Station Licence Review  
Air Quality Impact Assessment*

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Acenaphthylene	1.63E-09	8.07E-10	8.81E-10	9.88E-10	1.05E-09	1.14E-09	1.11E-09	8.22E-10	4.53E-10	2.68E-10	5.95E-10	2.17E-09
Anthracene	1.03E-08	5.08E-09	5.55E-09	6.22E-09	6.60E-09	7.21E-09	7.00E-09	5.18E-09	2.85E-09	1.69E-09	3.75E-09	1.37E-08
Benzo(a)anthracene	1.47E-09	7.26E-10	7.93E-10	8.89E-10	9.43E-10	1.03E-09	1.00E-09	7.39E-10	4.08E-10	2.41E-10	5.35E-10	1.96E-09
Benzo(b)anthracene	2.45E-09	1.21E-09	1.32E-09	1.48E-09	1.57E-09	1.72E-09	1.67E-09	1.23E-09	6.79E-10	4.02E-10	8.92E-10	3.26E-09
Benzo(b)fluoranthene	2.28E-09	1.13E-09	1.23E-09	1.38E-09	1.47E-09	1.60E-09	1.56E-09	1.15E-09	6.34E-10	3.75E-10	8.33E-10	3.04E-09
Benzo(k,j)fluoranthene	2.77E-09	1.37E-09	1.50E-09	1.68E-09	1.78E-09	1.95E-09	1.89E-09	1.40E-09	7.70E-10	4.55E-10	1.01E-09	3.69E-09
Benzo(a)flourene	3.59E-09	1.77E-09	1.94E-09	2.17E-09	2.31E-09	2.52E-09	2.45E-09	1.81E-09	9.97E-10	5.89E-10	1.31E-09	4.78E-09
Benzo(b)flourene	8.15E-10	4.03E-10	4.40E-10	4.94E-10	5.24E-10	5.72E-10	5.56E-10	4.11E-10	2.26E-10	1.34E-10	2.97E-10	1.09E-09
Benzo(g,h,i)perylene	6.52E-09	3.23E-09	3.52E-09	3.95E-09	4.19E-09	4.58E-09	4.45E-09	3.29E-09	1.81E-09	1.07E-09	2.38E-09	8.69E-09
Benzo(a)pyrene	2.12E-09	1.05E-09	1.15E-09	1.28E-09	1.36E-09	1.49E-09	1.45E-09	1.07E-09	5.89E-10	3.48E-10	7.73E-10	2.82E-09
Benzo(e)pyrene	9.46E-09	4.68E-09	5.11E-09	5.73E-09	6.08E-09	6.64E-09	6.45E-09	4.76E-09	2.63E-09	1.55E-09	3.45E-09	1.26E-08
Biphenyl	1.11E-07	5.49E-08	5.99E-08	6.72E-08	7.13E-08	7.79E-08	7.56E-08	5.59E-08	3.08E-08	1.82E-08	4.04E-08	1.48E-07
2-chloronaphthalene	3.42E-10	1.69E-10	1.85E-10	2.07E-10	2.20E-10	2.40E-10	2.33E-10	1.73E-10	9.51E-11	5.62E-11	1.25E-10	4.56E-10
Coronene	3.91E-09	1.94E-09	2.11E-09	2.37E-09	2.52E-09	2.75E-09	2.67E-09	1.97E-09	1.09E-09	6.43E-10	1.43E-09	5.22E-09
Dibenzo(a,c & a,h)anthracene	1.19E-10	5.89E-11	6.43E-11	7.21E-11	7.65E-11	8.36E-11	8.11E-11	6.00E-11	3.31E-11	1.95E-11	4.34E-11	1.59E-10
Dibenzo(a,j)acridine	5.87E-11	2.90E-11	3.17E-11	3.56E-11	3.77E-11	4.12E-11	4.00E-11	2.96E-11	1.63E-11	9.64E-12	2.14E-11	7.82E-11
7H-dibenzo(c,g)carbazole	9.13E-11	4.52E-11	4.93E-11	5.53E-11	5.87E-11	6.41E-11	6.23E-11	4.60E-11	2.54E-11	1.50E-11	3.33E-11	1.22E-10
Dibenzo(a,e)pyrene	1.63E-11	8.07E-12	8.81E-12	9.88E-12	1.05E-11	1.14E-11	1.11E-11	8.22E-12	4.53E-12	2.68E-12	5.95E-12	2.17E-11
Dibenzo(a,i)pyrene	2.12E-11	1.05E-11	1.15E-11	1.28E-11	1.36E-11	1.49E-11	1.45E-11	1.07E-11	5.89E-12	3.48E-12	7.73E-12	2.82E-11
9,10-dimethylanthracene	8.97E-10	4.44E-10	4.84E-10	5.43E-10	5.77E-10	6.30E-10	6.11E-10	4.52E-10	2.49E-10	1.47E-10	3.27E-10	1.20E-09
7,12-dimethylanthracene	2.77E-10	1.37E-10	1.50E-10	1.68E-10	1.78E-10	1.95E-10	1.89E-10	1.40E-10	7.70E-11	4.55E-11	1.01E-10	3.69E-10
1,2-dimethylnaphthalene	1.39E-09	6.86E-10	7.49E-10	8.40E-10	8.91E-10	9.73E-10	9.45E-10	6.98E-10	3.85E-10	2.28E-10	5.05E-10	1.85E-09
2,6 & 2,7-dimethylnaphthalene	5.38E-09	2.66E-09	2.91E-09	3.26E-09	3.46E-09	3.78E-09	3.67E-09	2.71E-09	1.49E-09	8.83E-10	1.96E-09	7.17E-09
Fluoranthene	2.77E-08	1.37E-08	1.50E-08	1.68E-08	1.78E-08	1.95E-08	1.89E-08	1.40E-08	7.70E-09	4.55E-09	1.01E-08	3.69E-08
Fluorene	3.26E-08	1.61E-08	1.76E-08	1.98E-08	2.10E-08	2.29E-08	2.22E-08	1.64E-08	9.06E-09	5.35E-09	1.19E-08	4.35E-08
Indeno(1,2,3-cd)pyrene	1.13E-09	5.57E-10	6.08E-10	6.81E-10	7.23E-10	7.90E-10	7.67E-10	5.67E-10	3.13E-10	1.85E-10	4.10E-10	1.50E-09
2-methylanthracene	1.79E-09	8.87E-10	9.69E-10	1.09E-09	1.15E-09	1.26E-09	1.22E-09	9.04E-10	4.98E-10	2.94E-10	6.54E-10	2.39E-09
3-methylcholanthrene	4.89E-09	2.42E-09	2.64E-09	2.96E-09	3.14E-09	3.43E-09	3.33E-09	2.46E-09	1.36E-09	8.03E-10	1.78E-09	6.52E-09
1-methylnaphthalene	3.26E-08	1.61E-08	1.76E-08	1.98E-08	2.10E-08	2.29E-08	2.22E-08	1.64E-08	9.06E-09	5.35E-09	1.19E-08	4.35E-08
2-methylnaphthalene	4.89E-08	2.42E-08	2.64E-08	2.96E-08	3.14E-08	3.43E-08	3.33E-08	2.46E-08	1.36E-08	8.03E-09	1.78E-08	6.52E-08



*Brandon Generating Station Licence Review  
Air Quality Impact Assessment*

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
1-methylphenanthrene	1.35E-08	6.70E-09	7.31E-09	8.20E-09	8.70E-09	9.50E-09	9.23E-09	6.82E-09	3.76E-09	2.22E-09	4.94E-09	1.80E-08
9-methylphenanthrene	1.21E-08	5.97E-09	6.52E-09	7.31E-09	7.76E-09	8.47E-09	8.23E-09	6.08E-09	3.35E-09	1.98E-09	4.40E-09	1.61E-08
Naphthalene	9.78E-08	4.84E-08	5.28E-08	5.93E-08	6.29E-08	6.87E-08	6.67E-08	4.93E-08	2.72E-08	1.61E-08	3.57E-08	1.30E-07
Perylene	6.69E-10	3.31E-10	3.61E-10	4.05E-10	4.30E-10	4.69E-10	4.56E-10	3.37E-10	1.86E-10	1.10E-10	2.44E-10	8.91E-10
Phenanthrene	1.79E-07	8.87E-08	9.69E-08	1.09E-07	1.15E-07	1.26E-07	1.22E-07	9.04E-08	4.98E-08	2.94E-08	6.54E-08	2.39E-07
Picene	1.09E-10	5.41E-11	5.90E-11	6.62E-11	7.02E-11	7.67E-11	7.45E-11	5.50E-11	3.04E-11	1.79E-11	3.98E-11	1.46E-10
Pyrene	1.79E-08	8.87E-09	9.69E-09	1.09E-08	1.15E-08	1.26E-08	1.22E-08	9.04E-09	4.98E-09	2.94E-09	6.54E-09	2.39E-08
Quinoline	1.35E-09	6.70E-10	7.31E-10	8.20E-10	8.70E-10	9.50E-10	9.23E-10	6.82E-10	3.76E-10	2.22E-10	4.94E-10	1.80E-09
m-Terphenyl	4.73E-09	2.34E-09	2.55E-09	2.86E-09	3.04E-09	3.32E-09	3.22E-09	2.38E-09	1.31E-09	7.76E-10	1.72E-09	6.30E-09
o-Terphenyl	7.50E-09	3.71E-09	4.05E-09	4.54E-09	4.82E-09	5.27E-09	5.11E-09	3.78E-09	2.08E-09	1.23E-09	2.74E-09	1.00E-08
p-Terphenyl	2.45E-09	1.21E-09	1.32E-09	1.48E-09	1.57E-09	1.72E-09	1.67E-09	1.23E-09	6.79E-10	4.02E-10	8.92E-10	3.26E-09
Tetralin	1.06E-08	5.24E-09	5.73E-09	6.42E-09	6.81E-09	7.44E-09	7.23E-09	5.34E-09	2.94E-09	1.74E-09	3.87E-09	1.41E-08
Triphenylene/chrysene	6.20E-09	3.07E-09	3.35E-09	3.75E-09	3.98E-09	4.35E-09	4.22E-09	3.12E-09	1.72E-09	1.02E-09	2.26E-09	8.26E-09
<b>VOCs</b>												
Acetaldehyde	2.66E-05	1.31E-05	1.43E-05	1.61E-05	1.71E-05	1.86E-05	1.81E-05	1.34E-05	7.38E-06	4.36E-06	9.68E-06	3.54E-05
Acetophenone	6.99E-07	3.46E-07	3.77E-07	4.23E-07	4.49E-07	4.91E-07	4.76E-07	3.52E-07	1.94E-07	1.15E-07	2.55E-07	9.31E-07
Acrolien	1.35E-05	6.69E-06	7.30E-06	8.18E-06	8.69E-06	9.49E-06	9.21E-06	6.81E-06	3.75E-06	2.22E-06	4.93E-06	1.80E-05
Benzene	6.06E-05	3.00E-05	3.27E-05	3.67E-05	3.89E-05	4.25E-05	4.13E-05	3.05E-05	1.68E-05	9.94E-06	2.21E-05	8.07E-05
Benzyl chloride	3.26E-05	1.61E-05	1.76E-05	1.98E-05	2.10E-05	2.29E-05	2.22E-05	1.64E-05	9.06E-06	5.35E-06	1.19E-05	4.35E-05
Bis(2-ethylhexyl)phthalate (DEHP)	3.40E-06	1.68E-06	1.84E-06	2.06E-06	2.19E-06	2.39E-06	2.32E-06	1.71E-06	9.45E-07	5.58E-07	1.24E-06	4.53E-06
Bromoform	1.82E-06	8.99E-07	9.81E-07	1.10E-06	1.17E-06	1.28E-06	1.24E-06	9.15E-07	5.05E-07	2.98E-07	6.63E-07	2.42E-06
Carbon disulphide	6.06E-06	3.00E-06	3.27E-06	3.67E-06	3.89E-06	4.25E-06	4.13E-06	3.05E-06	1.68E-06	9.94E-07	2.21E-06	8.07E-06
2-Chloroacetophenone	3.26E-07	1.61E-07	1.76E-07	1.98E-07	2.10E-07	2.29E-07	2.22E-07	1.64E-07	9.06E-08	5.35E-08	1.19E-07	4.35E-07
Chlorobenzene	1.02E-06	5.07E-07	5.54E-07	6.21E-07	6.59E-07	7.20E-07	6.99E-07	5.16E-07	2.85E-07	1.68E-07	3.74E-07	1.37E-06
Chloroform	2.75E-06	1.36E-06	1.48E-06	1.66E-06	1.77E-06	1.93E-06	1.87E-06	1.38E-06	7.64E-07	4.51E-07	1.00E-06	3.66E-06
Cumene	2.47E-07	1.22E-07	1.33E-07	1.50E-07	1.59E-07	1.73E-07	1.68E-07	1.24E-07	6.86E-08	4.05E-08	9.01E-08	3.29E-07
Cyanide	1.16E-04	5.76E-05	6.29E-05	7.05E-05	7.49E-05	8.18E-05	7.94E-05	5.87E-05	3.24E-05	1.91E-05	4.25E-05	1.55E-04
2,4-Dinitrotoluene	1.30E-08	6.45E-09	7.05E-09	7.90E-09	8.39E-09	9.16E-09	8.89E-09	6.57E-09	3.62E-09	2.14E-09	4.76E-09	1.74E-08

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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Dimethyl Sulphate	2.24E-06	1.11E-06	1.21E-06	1.35E-06	1.44E-06	1.57E-06	1.52E-06	1.13E-06	6.21E-07	3.67E-07	8.16E-07	2.98E-06
Ethyl benzene	4.38E-06	2.17E-06	2.37E-06	2.65E-06	2.82E-06	3.08E-06	2.99E-06	2.21E-06	1.22E-06	7.19E-07	1.60E-06	5.84E-06
Ethyl chloride	1.96E-06	9.68E-07	1.06E-06	1.19E-06	1.26E-06	1.37E-06	1.33E-06	9.86E-07	5.44E-07	3.21E-07	7.14E-07	2.61E-06
Ethylene dichloride	1.86E-06	9.22E-07	1.01E-06	1.13E-06	1.20E-06	1.31E-06	1.27E-06	9.39E-07	5.18E-07	3.06E-07	6.80E-07	2.48E-06
Ethylene dibromide	5.59E-08	2.77E-08	3.02E-08	3.39E-08	3.59E-08	3.93E-08	3.81E-08	2.82E-08	1.55E-08	9.18E-09	2.04E-08	7.45E-08
Formaldehyde	1.12E-05	5.53E-06	6.04E-06	6.77E-06	7.19E-06	7.85E-06	7.62E-06	5.63E-06	3.11E-06	1.84E-06	4.08E-06	1.49E-05
Hexane	3.12E-06	1.54E-06	1.69E-06	1.89E-06	2.01E-06	2.19E-06	2.13E-06	1.57E-06	8.67E-07	5.12E-07	1.14E-06	4.16E-06
Isophorone	2.70E-05	1.34E-05	1.46E-05	1.64E-05	1.74E-05	1.90E-05	1.84E-05	1.36E-05	7.51E-06	4.44E-06	9.85E-06	3.60E-05
Methylbromide	7.45E-06	3.69E-06	4.03E-06	4.52E-06	4.79E-06	5.23E-06	5.08E-06	3.76E-06	2.07E-06	1.22E-06	2.72E-06	9.93E-06
Methyl chloride	2.47E-05	1.22E-05	1.33E-05	1.50E-05	1.59E-05	1.73E-05	1.68E-05	1.24E-05	6.86E-06	4.05E-06	9.01E-06	3.29E-05
Methyl ethyl ketone	1.82E-05	8.99E-06	9.81E-06	1.10E-05	1.17E-05	1.28E-05	1.24E-05	9.15E-06	5.05E-06	2.98E-06	6.63E-06	2.42E-05
Methyl hydrazine	7.92E-06	3.92E-06	4.28E-06	4.80E-06	5.09E-06	5.56E-06	5.40E-06	3.99E-06	2.20E-06	1.30E-06	2.89E-06	1.06E-05
Methyl methacrylate	9.32E-07	4.61E-07	5.03E-07	5.64E-07	5.99E-07	6.54E-07	6.35E-07	4.69E-07	2.59E-07	1.53E-07	3.40E-07	1.24E-06
Methyl tert-butyl ether	1.63E-06	8.07E-07	8.81E-07	9.88E-07	1.05E-06	1.15E-06	1.11E-06	8.22E-07	4.53E-07	2.68E-07	5.95E-07	2.17E-06
Methylene chloride	1.35E-05	6.69E-06	7.30E-06	8.18E-06	8.69E-06	9.49E-06	9.21E-06	6.81E-06	3.75E-06	2.22E-06	4.93E-06	1.80E-05
Phenol	7.45E-07	3.69E-07	4.03E-07	4.52E-07	4.79E-07	5.23E-07	5.08E-07	3.76E-07	2.07E-07	1.22E-07	2.72E-07	9.93E-07
Propionaldehyde	1.77E-05	8.76E-06	9.56E-06	1.07E-05	1.14E-05	1.24E-05	1.21E-05	8.92E-06	4.92E-06	2.91E-06	6.46E-06	2.36E-05
Tetrachloroethylene	2.00E-06	9.91E-07	1.08E-06	1.21E-06	1.29E-06	1.41E-06	1.37E-06	1.01E-06	5.57E-07	3.29E-07	7.31E-07	2.67E-06
Toluene	1.12E-05	5.53E-06	6.04E-06	6.77E-06	7.19E-06	7.85E-06	7.62E-06	5.63E-06	3.11E-06	1.84E-06	4.08E-06	1.49E-05
1,1,1-Trichloroethane	9.32E-07	4.61E-07	5.03E-07	5.64E-07	5.99E-07	6.54E-07	6.35E-07	4.69E-07	2.59E-07	1.53E-07	3.40E-07	1.24E-06
Styrene	1.16E-06	5.76E-07	6.29E-07	7.05E-07	7.49E-07	8.18E-07	7.94E-07	5.87E-07	3.24E-07	1.91E-07	4.25E-07	1.55E-06
Xylenes	1.72E-06	8.53E-07	9.31E-07	1.04E-06	1.11E-06	1.21E-06	1.18E-06	8.68E-07	4.79E-07	2.83E-07	6.29E-07	2.30E-06
Vinyl acetate	3.54E-07	1.75E-07	1.91E-07	2.14E-07	2.28E-07	2.49E-07	2.41E-07	1.78E-07	9.84E-08	5.81E-08	1.29E-07	4.72E-07

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**Table C.4  
Total Predicted Annual (wet plus dry) Deposition Rates (OS1)**

COPC	Annual Total Wet+Dry Deposition ( $\mu\text{g}/\text{m}^2$ ) at Discrete Receptors											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
<b>Common Air Contaminants</b>												
Total PM	3.62E+03	9.28E+02	7.01E+03	5.57E+03	8.55E+03	1.06E+04	9.61E+03	5.00E+03	2.07E+03	1.73E+03	2.21E+03	4.94E+04
PM <sub>10</sub>	3.33E+03	8.53E+02	6.45E+03	5.12E+03	7.87E+03	9.77E+03	8.85E+03	4.60E+03	1.90E+03	1.59E+03	2.03E+03	4.55E+04
PM <sub>2.5</sub>	2.16E+03	5.53E+02	4.18E+03	3.32E+03	5.10E+03	6.33E+03	5.73E+03	2.98E+03	1.23E+03	1.03E+03	1.32E+03	2.95E+04
NO	4.18E+04	1.95E+04	3.15E+04	2.82E+04	3.29E+04	3.92E+04	3.76E+04	2.21E+04	1.34E+04	9.37E+03	1.62E+04	1.69E+05
NO <sub>2</sub>	2.39E+04	1.12E+04	1.81E+04	1.62E+04	1.88E+04	2.25E+04	2.16E+04	1.27E+04	7.68E+03	5.37E+03	9.30E+03	9.71E+04
NO <sub>x</sub>	6.57E+04	3.07E+04	4.96E+04	4.44E+04	5.17E+04	6.17E+04	5.92E+04	3.48E+04	2.11E+04	1.47E+04	2.55E+04	2.67E+05
SO <sub>2</sub>	6.86E+04	3.20E+04	5.18E+04	4.63E+04	5.40E+04	6.45E+04	6.18E+04	3.63E+04	2.20E+04	1.54E+04	2.67E+04	2.78E+05
CO	5.81E+03	2.71E+03	4.38E+03	3.92E+03	4.57E+03	5.46E+03	5.23E+03	3.08E+03	1.86E+03	1.30E+03	2.26E+03	2.36E+04
HCl	6.98E+01	3.26E+01	5.27E+01	4.71E+01	5.50E+01	6.56E+01	6.29E+01	3.70E+01	2.24E+01	1.57E+01	2.71E+01	2.83E+02
HF	6.40E+01	2.99E+01	4.83E+01	4.32E+01	5.04E+01	6.02E+01	5.77E+01	3.39E+01	2.05E+01	1.44E+01	2.49E+01	2.60E+02
<b>Metals</b>												
Aluminum	4.36E+02	1.12E+02	8.43E+02	6.70E+02	1.03E+03	1.28E+03	1.16E+03	6.02E+02	2.49E+02	2.08E+02	2.66E+02	5.95E+03
Antimony	7.61E-02	1.95E-02	1.47E-01	1.17E-01	1.80E-01	2.23E-01	2.02E-01	1.05E-01	4.34E-02	3.62E-02	4.64E-02	1.04E+00
Arsenic	6.76E-01	1.73E-01	1.31E+00	1.04E+00	1.60E+00	1.98E+00	1.79E+00	9.33E-01	3.86E-01	3.22E-01	4.12E-01	9.23E+00
Barium	2.04E+02	5.22E+01	3.94E+02	3.13E+02	4.81E+02	5.97E+02	5.41E+02	2.81E+02	1.16E+02	9.70E+01	1.24E+02	2.78E+03
Beryllium	3.34E-02	8.55E-03	6.46E-02	5.13E-02	7.88E-02	9.79E-02	8.86E-02	4.61E-02	1.91E-02	1.59E-02	2.04E-02	4.56E-01
Boron	1.86E+01	4.76E+00	3.60E+01	2.86E+01	4.39E+01	5.45E+01	4.94E+01	2.57E+01	1.06E+01	8.86E+00	1.13E+01	2.54E+02
Cadmium	5.50E-02	1.41E-02	1.06E-01	8.45E-02	1.30E-01	1.61E-01	1.46E-01	7.58E-02	3.14E-02	2.62E-02	3.35E-02	7.50E-01
Chromium	8.88E-01	2.27E-01	1.72E+00	1.36E+00	2.10E+00	2.60E+00	2.36E+00	1.23E+00	5.07E-01	4.23E-01	5.41E-01	1.21E+01
Cobalt	1.35E-01	3.46E-02	2.62E-01	2.08E-01	3.19E-01	3.97E-01	3.59E-01	1.87E-01	7.72E-02	6.44E-02	8.25E-02	1.85E+00
Copper	2.16E+00	5.52E-01	4.17E+00	3.31E+00	5.09E+00	6.32E+00	5.72E+00	2.98E+00	1.23E+00	1.03E+00	1.31E+00	2.94E+01
Iron	1.61E+02	4.11E+01	3.11E+02	2.47E+02	3.79E+02	4.71E+02	4.26E+02	2.22E+02	9.17E+01	7.65E+01	9.80E+01	2.19E+03
Lithium	3.55E+00	9.09E-01	6.87E+00	5.46E+00	8.38E+00	1.04E+01	9.42E+00	4.90E+00	2.03E+00	1.69E+00	2.17E+00	4.84E+01
Manganese	2.37E+00	6.06E-01	4.58E+00	3.64E+00	5.59E+00	6.94E+00	6.28E+00	3.27E+00	1.35E+00	1.13E+00	1.44E+00	3.23E+01
Mercury (Total)	9.19E-01	2.35E-01	1.78E+00	1.41E+00	2.17E+00	2.69E+00	2.44E+00	1.27E+00	5.25E-01	4.38E-01	5.61E-01	1.25E+01
Elemental Hg	5.63E-01	2.63E-01	4.25E-01	3.80E-01	4.43E-01	5.29E-01	5.07E-01	2.98E-01	1.81E-01	1.26E-01	2.19E-01	2.28E+00

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Oxidized Hg	7.16E-02	3.34E-02	5.41E-02	4.84E-02	5.64E-02	6.73E-02	6.45E-02	3.79E-02	2.30E-02	1.61E-02	2.78E-02	2.91E-01
Particle-bound Hg	9.78E-04	2.50E-04	1.89E-03	1.50E-03	2.31E-03	2.87E-03	2.59E-03	1.35E-03	5.58E-04	4.65E-04	5.96E-04	1.33E-02
Molybdenum	8.03E-01	2.06E-01	1.55E+00	1.23E+00	1.90E+00	2.35E+00	2.13E+00	1.11E+00	4.58E-01	3.82E-01	4.90E-01	1.10E+01
Nickel	5.92E-01	1.52E-01	1.14E+00	9.10E-01	1.40E+00	1.73E+00	1.57E+00	8.17E-01	3.38E-01	2.82E-01	3.61E-01	8.07E+00
Palladium	5.07E-01	1.30E-01	9.81E-01	7.80E-01	1.20E+00	1.49E+00	1.35E+00	7.00E-01	2.89E-01	2.42E-01	3.09E-01	6.92E+00
Lead	5.92E-01	1.52E-01	1.14E+00	9.10E-01	1.40E+00	1.73E+00	1.57E+00	8.17E-01	3.38E-01	2.82E-01	3.61E-01	8.07E+00
Selenium	5.50E-01	1.41E-01	1.06E+00	8.45E-01	1.30E+00	1.61E+00	1.46E+00	7.58E-01	3.14E-01	2.62E-01	3.35E-01	7.50E+00
Silver	3.59E-02	9.20E-03	6.95E-02	5.52E-02	8.48E-02	1.05E-01	9.53E-02	4.96E-02	2.05E-02	1.71E-02	2.19E-02	4.90E-01
Strontium	4.14E+01	1.06E+01	8.01E+01	6.37E+01	9.78E+01	1.21E+02	1.10E+02	5.72E+01	2.36E+01	1.97E+01	2.53E+01	5.65E+02
Thallium	7.61E-02	1.95E-02	1.47E-01	1.17E-01	1.80E-01	2.23E-01	2.02E-01	1.05E-01	4.34E-02	3.62E-02	4.64E-02	1.04E+00
Thorium	1.86E-01	4.76E-02	3.60E-01	2.86E-01	4.39E-01	5.45E-01	4.94E-01	2.57E-01	1.06E-01	8.86E-02	1.13E-01	2.54E+00
Tin	8.46E-01	2.16E-01	1.63E+00	1.30E+00	2.00E+00	2.48E+00	2.24E+00	1.17E+00	4.82E-01	4.03E-01	5.16E-01	1.15E+01
Uranium	8.46E-02	2.16E-02	1.63E-01	1.30E-01	2.00E-01	2.48E-01	2.24E-01	1.17E-01	4.82E-02	4.03E-02	5.16E-02	1.15E+00
Vanadium	1.31E+00	3.35E-01	2.53E+00	2.01E+00	3.09E+00	3.84E+00	3.48E+00	1.81E+00	7.48E-01	6.24E-01	7.99E-01	1.79E+01
Zinc	5.50E-01	1.41E-01	1.06E+00	8.45E-01	1.30E+00	1.61E+00	1.46E+00	7.58E-01	3.14E-01	2.62E-01	3.35E-01	7.50E+00
Tetrachlorodibenzo-p-dioxins	1.44E-08	6.74E-09	1.09E-08	9.75E-09	1.14E-08	1.36E-08	1.30E-08	7.64E-09	4.63E-09	3.24E-09	5.61E-09	5.86E-08
Pentachlorodibenzo-p-dioxins	1.13E-08	5.29E-09	8.56E-09	7.66E-09	8.93E-09	1.07E-08	1.02E-08	6.01E-09	3.64E-09	2.54E-09	4.41E-09	4.60E-08
Hexachlorodibenzo-p-dioxins	6.29E-07	2.94E-07	4.75E-07	4.25E-07	4.95E-07	5.91E-07	5.66E-07	3.33E-07	2.02E-07	1.41E-07	2.44E-07	2.55E-06
Heptachlorodibenzo-p-dioxins	1.68E-06	7.85E-07	1.27E-06	1.13E-06	1.32E-06	1.58E-06	1.51E-06	8.90E-07	5.39E-07	3.77E-07	6.53E-07	6.82E-06
Octachlorodibenzo-p-dioxins	2.36E-06	1.10E-06	1.78E-06	1.59E-06	1.86E-06	2.22E-06	2.13E-06	1.25E-06	7.57E-07	5.30E-07	9.17E-07	9.58E-06
<b>Total Dioxins</b>	4.07E-06	1.90E-06	3.07E-06	2.75E-06	3.21E-06	3.83E-06	3.67E-06	2.16E-06	1.31E-06	9.14E-07	1.58E-06	1.65E-05
Tetrachlorodibenzofurans	2.67E-06	1.25E-06	2.02E-06	1.80E-06	2.10E-06	2.51E-06	2.40E-06	1.41E-06	8.56E-07	5.99E-07	1.04E-06	1.08E-05
Pentachlorodibenzofurans	2.43E-06	1.14E-06	1.84E-06	1.64E-06	1.92E-06	2.29E-06	2.19E-06	1.29E-06	7.80E-07	5.46E-07	9.46E-07	9.87E-06
Hexachlorodibenzofurans	8.97E-07	4.19E-07	6.77E-07	6.06E-07	7.06E-07	8.43E-07	8.08E-07	4.75E-07	2.88E-07	2.01E-07	3.49E-07	3.64E-06
Heptachlorodibenzofurans	4.95E-07	2.31E-07	3.74E-07	3.34E-07	3.90E-07	4.65E-07	4.46E-07	2.62E-07	1.59E-07	1.11E-07	1.92E-07	2.01E-06
Octachlorodibenzofurans	1.06E-05	4.96E-06	8.02E-06	7.17E-06	8.36E-06	9.98E-06	9.56E-06	5.62E-06	3.41E-06	2.38E-06	4.13E-06	4.31E-05
<b>Total Furans</b>	3.61E-07	1.68E-07	2.72E-07	2.44E-07	2.84E-07	3.39E-07	3.25E-07	1.91E-07	1.16E-07	8.10E-08	1.40E-07	1.46E-06
<b>PAHs</b>												
Acenaphthene	4.21E-02	1.96E-02	3.18E-02	2.84E-02	3.31E-02	3.95E-02	3.79E-02	2.23E-02	1.35E-02	9.44E-03	1.63E-02	1.71E-01
Acenaphthylene	2.92E-04	1.36E-04	2.21E-04	1.97E-04	2.30E-04	2.75E-04	2.63E-04	1.55E-04	9.37E-05	6.56E-05	1.14E-04	1.19E-03
Anthracene	1.84E-03	8.59E-04	1.39E-03	1.24E-03	1.45E-03	1.73E-03	1.66E-03	9.75E-04	5.90E-04	4.13E-04	7.15E-04	7.47E-03
Benzo(a)anthracene	2.63E-04	1.23E-04	1.98E-04	1.78E-04	2.07E-04	2.47E-04	2.37E-04	1.39E-04	8.43E-05	5.90E-05	1.02E-04	1.07E-03
Benzo(b)anthracene	4.38E-04	2.05E-04	3.31E-04	2.96E-04	3.45E-04	4.12E-04	3.95E-04	2.32E-04	1.41E-04	9.83E-05	1.70E-04	1.78E-03

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Benzo(b)fluoranthene	4.09E-04	1.91E-04	3.09E-04	2.76E-04	3.22E-04	3.84E-04	3.68E-04	2.17E-04	1.31E-04	9.18E-05	1.59E-04	1.66E-03
Benzo(k,j)fluoranthene	4.96E-04	2.32E-04	3.75E-04	3.35E-04	3.91E-04	4.67E-04	4.47E-04	2.63E-04	1.59E-04	1.11E-04	1.93E-04	2.01E-03
Benzo(a)fluorene	6.42E-04	3.00E-04	4.85E-04	4.34E-04	5.06E-04	6.04E-04	5.79E-04	3.40E-04	2.06E-04	1.44E-04	2.50E-04	2.61E-03
Benzo(b)fluorene	1.46E-04	6.82E-05	1.10E-04	9.86E-05	1.15E-04	1.37E-04	1.32E-04	7.73E-05	4.68E-05	3.28E-05	5.68E-05	5.93E-04
Benzo(g,h,i)perylene	1.17E-03	5.45E-04	8.82E-04	7.89E-04	9.20E-04	1.10E-03	1.05E-03	6.19E-04	3.75E-04	2.62E-04	4.54E-04	4.74E-03
Benzo(a)pyrene	3.80E-04	1.77E-04	2.87E-04	2.56E-04	2.99E-04	3.57E-04	3.42E-04	2.01E-04	1.22E-04	8.52E-05	1.48E-04	1.54E-03
Benzo(e)pyrene	1.69E-03	7.91E-04	1.28E-03	1.14E-03	1.33E-03	1.59E-03	1.53E-03	8.97E-04	5.43E-04	3.80E-04	6.58E-04	6.87E-03
Biphenyl	1.99E-02	9.27E-03	1.50E-02	1.34E-02	1.56E-02	1.87E-02	1.79E-02	1.05E-02	6.37E-03	4.46E-03	7.72E-03	8.06E-02
2-chloronaphthalene	6.13E-05	2.86E-05	4.63E-05	4.14E-05	4.83E-05	5.76E-05	5.52E-05	3.25E-05	1.97E-05	1.38E-05	2.38E-05	2.49E-04
Coronene	7.01E-04	3.27E-04	5.29E-04	4.73E-04	5.52E-04	6.59E-04	6.31E-04	3.71E-04	2.25E-04	1.57E-04	2.72E-04	2.84E-03
Dibenzo(a,c & a,h)anthracene	2.13E-05	9.95E-06	1.61E-05	1.44E-05	1.68E-05	2.00E-05	1.92E-05	1.13E-05	6.84E-06	4.79E-06	8.29E-06	8.65E-05
Dibenzo(a,j)acridine	1.05E-05	4.91E-06	7.94E-06	7.10E-06	8.28E-06	9.88E-06	9.47E-06	5.57E-06	3.37E-06	2.36E-06	4.09E-06	4.27E-05
7H-dibenzo(c,g)carbazole	1.64E-05	7.64E-06	1.23E-05	1.10E-05	1.29E-05	1.54E-05	1.47E-05	8.66E-06	5.25E-06	3.67E-06	6.36E-06	6.64E-05
Dibenzo(a,e)pyrene	2.92E-06	1.36E-06	2.21E-06	1.97E-06	2.30E-06	2.75E-06	2.63E-06	1.55E-06	9.37E-07	6.56E-07	1.14E-06	1.19E-05
Dibenzo(a,i)pyrene	3.80E-06	1.77E-06	2.87E-06	2.56E-06	2.99E-06	3.57E-06	3.42E-06	2.01E-06	1.22E-06	8.52E-07	1.48E-06	1.54E-05
9,10-dimethylanthracene	1.61E-04	7.50E-05	1.21E-04	1.09E-04	1.27E-04	1.51E-04	1.45E-04	8.51E-05	5.15E-05	3.61E-05	6.24E-05	6.52E-04
7,12-dimethylanthracene	4.96E-05	2.32E-05	3.75E-05	3.35E-05	3.91E-05	4.67E-05	4.47E-05	2.63E-05	1.59E-05	1.11E-05	1.93E-05	2.01E-04
1,2-dimethylnaphthalene	2.48E-04	1.16E-04	1.87E-04	1.68E-04	1.96E-04	2.33E-04	2.24E-04	1.31E-04	7.96E-05	5.57E-05	9.65E-05	1.01E-03
2,6 & 2,7-dimethylnaphthalene	9.64E-04	4.50E-04	7.28E-04	6.51E-04	7.59E-04	9.06E-04	8.68E-04	5.10E-04	3.09E-04	2.16E-04	3.75E-04	3.91E-03
Fluoranthene	4.96E-03	2.32E-03	3.75E-03	3.35E-03	3.91E-03	4.67E-03	4.47E-03	2.63E-03	1.59E-03	1.11E-03	1.93E-03	2.01E-02
Fluorene	5.84E-03	2.73E-03	4.41E-03	3.95E-03	4.60E-03	5.49E-03	5.26E-03	3.09E-03	1.87E-03	1.31E-03	2.27E-03	2.37E-02
Indeno(1,2,3-cd)pyrene	2.01E-04	9.41E-05	1.52E-04	1.36E-04	1.59E-04	1.89E-04	1.82E-04	1.07E-04	6.46E-05	4.52E-05	7.83E-05	8.18E-04
2-methylanthracene	3.21E-04	1.50E-04	2.43E-04	2.17E-04	2.53E-04	3.02E-04	2.89E-04	1.70E-04	1.03E-04	7.21E-05	1.25E-04	1.30E-03
3-methylcholanthrene	8.76E-04	4.09E-04	6.62E-04	5.92E-04	6.90E-04	8.24E-04	7.89E-04	4.64E-04	2.81E-04	1.97E-04	3.41E-04	3.56E-03
1-methylnaphthalene	5.84E-03	2.73E-03	4.41E-03	3.95E-03	4.60E-03	5.49E-03	5.26E-03	3.09E-03	1.87E-03	1.31E-03	2.27E-03	2.37E-02
2-methylnaphthalene	8.76E-03	4.09E-03	6.62E-03	5.92E-03	6.90E-03	8.24E-03	7.89E-03	4.64E-03	2.81E-03	1.97E-03	3.41E-03	3.56E-02
1-methylphenanthrene	2.42E-03	1.13E-03	1.83E-03	1.64E-03	1.91E-03	2.28E-03	2.18E-03	1.28E-03	7.78E-04	5.44E-04	9.42E-04	9.84E-03
9-methylphenanthrene	2.16E-03	1.01E-03	1.63E-03	1.46E-03	1.70E-03	2.03E-03	1.95E-03	1.14E-03	6.93E-04	4.85E-04	8.40E-04	8.77E-03
Naphthalene	1.75E-02	8.18E-03	1.32E-02	1.18E-02	1.38E-02	1.65E-02	1.58E-02	9.28E-03	5.62E-03	3.93E-03	6.81E-03	7.11E-02
Perylene	1.20E-04	5.59E-05	9.04E-05	8.09E-05	9.43E-05	1.13E-04	1.08E-04	6.34E-05	3.84E-05	2.69E-05	4.65E-05	4.86E-04
Phenanthrene	3.21E-02	1.50E-02	2.43E-02	2.17E-02	2.53E-02	3.02E-02	2.89E-02	1.70E-02	1.03E-02	7.21E-03	1.25E-02	1.30E-01
Picene	1.96E-05	9.14E-06	1.48E-05	1.32E-05	1.54E-05	1.84E-05	1.76E-05	1.04E-05	6.28E-06	4.39E-06	7.61E-06	7.94E-05
Pyrene	3.21E-03	1.50E-03	2.43E-03	2.17E-03	2.53E-03	3.02E-03	2.89E-03	1.70E-03	1.03E-03	7.21E-04	1.25E-03	1.30E-02

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Quinoline	2.42E-04	1.13E-04	1.83E-04	1.64E-04	1.91E-04	2.28E-04	2.18E-04	1.28E-04	7.78E-05	5.44E-05	9.42E-05	9.84E-04
m-Terphenyl	8.47E-04	3.95E-04	6.39E-04	5.72E-04	6.67E-04	7.96E-04	7.63E-04	4.49E-04	2.72E-04	1.90E-04	3.29E-04	3.44E-03
o-Terphenyl	1.34E-03	6.27E-04	1.01E-03	9.08E-04	1.06E-03	1.26E-03	1.21E-03	7.12E-04	4.31E-04	3.02E-04	5.22E-04	5.45E-03
p-Terphenyl	4.38E-04	2.05E-04	3.31E-04	2.96E-04	3.45E-04	4.12E-04	3.95E-04	2.32E-04	1.41E-04	9.83E-05	1.70E-04	1.78E-03
Tetralin	1.90E-03	8.86E-04	1.43E-03	1.28E-03	1.50E-03	1.78E-03	1.71E-03	1.01E-03	6.09E-04	4.26E-04	7.38E-04	7.70E-03
Triphenylene/chrysene	1.11E-03	5.18E-04	8.38E-04	7.50E-04	8.74E-04	1.04E-03	1.00E-03	5.88E-04	3.56E-04	2.49E-04	4.31E-04	4.50E-03
<b>VOCs</b>												
Acetaldehyde	4.76E+00	2.22E+00	3.59E+00	3.21E+00	3.75E+00	4.47E+00	4.28E+00	2.52E+00	1.53E+00	1.07E+00	1.85E+00	1.93E+01
Acetophenone	1.25E-01	5.84E-02	9.45E-02	8.46E-02	9.86E-02	1.18E-01	1.13E-01	6.63E-02	4.01E-02	2.81E-02	4.87E-02	5.08E-01
Acroliene	2.42E+00	1.13E+00	1.83E+00	1.63E+00	1.91E+00	2.27E+00	2.18E+00	1.28E+00	7.76E-01	5.43E-01	9.41E-01	9.82E+00
Benzene	1.08E+01	5.07E+00	8.19E+00	7.33E+00	8.54E+00	1.02E+01	9.77E+00	5.75E+00	3.48E+00	2.43E+00	4.22E+00	4.40E+01
Benzyl chloride	5.84E+00	2.73E+00	4.41E+00	3.95E+00	4.60E+00	5.49E+00	5.26E+00	3.09E+00	1.87E+00	1.31E+00	2.27E+00	2.37E+01
Bis(2-ethylhexyl)phthalate (DEHP)	6.09E-01	2.84E-01	4.60E-01	4.11E-01	4.80E-01	5.73E-01	5.49E-01	3.23E-01	1.95E-01	1.37E-01	2.37E-01	2.47E+00
Bromoform	3.25E-01	1.52E-01	2.46E-01	2.20E-01	2.56E-01	3.06E-01	2.93E-01	1.72E-01	1.04E-01	7.30E-02	1.26E-01	1.32E+00
Carbon disulphide	1.08E+00	5.07E-01	8.19E-01	7.33E-01	8.54E-01	1.02E+00	9.77E-01	5.75E-01	3.48E-01	2.43E-01	4.22E-01	4.40E+00
2-Chloroacetophenone	5.84E-02	2.73E-02	4.41E-02	3.95E-02	4.60E-02	5.49E-02	5.26E-02	3.09E-02	1.87E-02	1.31E-02	2.27E-02	2.37E-01
Chlorobenzene	1.84E-01	8.57E-02	1.39E-01	1.24E-01	1.45E-01	1.73E-01	1.65E-01	9.72E-02	5.89E-02	4.12E-02	7.14E-02	7.45E-01
Chloroform	4.92E-01	2.30E-01	3.72E-01	3.33E-01	3.88E-01	4.63E-01	4.43E-01	2.61E-01	1.58E-01	1.11E-01	1.91E-01	2.00E+00
Cumene	4.42E-02	2.07E-02	3.34E-02	2.99E-02	3.48E-02	4.16E-02	3.98E-02	2.34E-02	1.42E-02	9.93E-03	1.72E-02	1.79E-01
Cyanide	2.09E+01	9.74E+00	1.58E+01	1.41E+01	1.64E+01	1.96E+01	1.88E+01	1.10E+01	6.69E+00	4.68E+00	8.11E+00	8.47E+01
2,4-Dinitrotoluene	2.34E-03	1.09E-03	1.76E-03	1.58E-03	1.84E-03	2.20E-03	2.10E-03	1.24E-03	7.49E-04	5.24E-04	9.08E-04	9.48E-03
Dimethyl Sulphate	4.00E-01	1.87E-01	3.02E-01	2.71E-01	3.15E-01	3.76E-01	3.61E-01	2.12E-01	1.28E-01	8.99E-02	1.56E-01	1.63E+00
Ethyl benzene	7.84E-01	3.66E-01	5.92E-01	5.30E-01	6.18E-01	7.37E-01	7.07E-01	4.15E-01	2.52E-01	1.76E-01	3.05E-01	3.18E+00
Ethyl chloride	3.50E-01	1.64E-01	2.65E-01	2.37E-01	2.76E-01	3.29E-01	3.16E-01	1.86E-01	1.12E-01	7.87E-02	1.36E-01	1.42E+00
Ethylene dichloride	3.34E-01	1.56E-01	2.52E-01	2.25E-01	2.63E-01	3.14E-01	3.01E-01	1.77E-01	1.07E-01	7.49E-02	1.30E-01	1.35E+00
Ethylene dibromide	1.00E-02	4.68E-03	7.56E-03	6.76E-03	7.89E-03	9.41E-03	9.02E-03	5.30E-03	3.21E-03	2.25E-03	3.89E-03	4.06E-02
Formaldehyde	2.00E+00	9.35E-01	1.51E+00	1.35E+00	1.58E+00	1.88E+00	1.80E+00	1.06E+00	6.42E-01	4.50E-01	7.78E-01	8.13E+00
Hexane	5.59E-01	2.61E-01	4.22E-01	3.78E-01	4.40E-01	5.26E-01	5.04E-01	2.96E-01	1.79E-01	1.25E-01	2.17E-01	2.27E+00
Isophorone	4.84E+00	2.26E+00	3.65E+00	3.27E+00	3.81E+00	4.55E+00	4.36E+00	2.56E+00	1.55E+00	1.09E+00	1.88E+00	1.96E+01
Methylbromide	1.33E+00	6.23E-01	1.01E+00	9.02E-01	1.05E+00	1.25E+00	1.20E+00	7.07E-01	4.28E-01	3.00E-01	5.19E-01	5.42E+00
Methyl chloride	4.42E+00	2.07E+00	3.34E+00	2.99E+00	3.48E+00	4.16E+00	3.98E+00	2.34E+00	1.42E+00	9.93E-01	1.72E+00	1.79E+01
Methyl ethyl ketone	3.25E+00	1.52E+00	2.46E+00	2.20E+00	2.56E+00	3.06E+00	2.93E+00	1.72E+00	1.04E+00	7.30E-01	1.26E+00	1.32E+01

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Methyl hydrazine	1.42E+00	6.62E-01	1.07E+00	9.58E-01	1.12E+00	1.33E+00	1.28E+00	7.51E-01	4.55E-01	3.18E-01	5.51E-01	5.76E+00
Methyl methacrylate	1.67E-01	7.79E-02	1.26E-01	1.13E-01	1.31E-01	1.57E-01	1.50E-01	8.84E-02	5.35E-02	3.75E-02	6.49E-02	6.77E-01
Methyl tert-butyl ether	2.92E-01	1.36E-01	2.21E-01	1.97E-01	2.30E-01	2.75E-01	2.63E-01	1.55E-01	9.37E-02	6.56E-02	1.14E-01	1.19E+00
Methylene chloride	2.42E+00	1.13E+00	1.83E+00	1.63E+00	1.91E+00	2.27E+00	2.18E+00	1.28E+00	7.76E-01	5.43E-01	9.41E-01	9.82E+00
Phenol	1.33E-01	6.23E-02	1.01E-01	9.02E-02	1.05E-01	1.25E-01	1.20E-01	7.07E-02	4.28E-02	3.00E-02	5.19E-02	5.42E-01
Propionaldehyde	3.17E+00	1.48E+00	2.39E+00	2.14E+00	2.50E+00	2.98E+00	2.86E+00	1.68E+00	1.02E+00	7.12E-01	1.23E+00	1.29E+01
Tetrachloroethylene	3.59E-01	1.68E-01	2.71E-01	2.42E-01	2.83E-01	3.37E-01	3.23E-01	1.90E-01	1.15E-01	8.05E-02	1.39E-01	1.46E+00
Toluene	2.00E+00	9.35E-01	1.51E+00	1.35E+00	1.58E+00	1.88E+00	1.80E+00	1.06E+00	6.42E-01	4.50E-01	7.78E-01	8.13E+00
1,1,1-Trichloroethane	1.67E-01	7.79E-02	1.26E-01	1.13E-01	1.31E-01	1.57E-01	1.50E-01	8.84E-02	5.35E-02	3.75E-02	6.49E-02	6.77E-01
Styrene	2.09E-01	9.74E-02	1.58E-01	1.41E-01	1.64E-01	1.96E-01	1.88E-01	1.10E-01	6.69E-02	4.68E-02	8.11E-02	8.47E-01
Xylenes	3.09E-01	1.44E-01	2.33E-01	2.09E-01	2.43E-01	2.90E-01	2.78E-01	1.64E-01	9.90E-02	6.93E-02	1.20E-01	1.25E+00
Vinyl acetate	6.34E-02	2.96E-02	4.79E-02	4.28E-02	4.99E-02	5.96E-02	5.71E-02	3.36E-02	2.03E-02	1.42E-02	2.46E-02	2.57E-01

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**Table C.5  
Maximum Predicted 1-hour Average COPC Concentrations (OS3)**

COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
<b>Common Air Contaminants</b>												
Total PM	3.25E+00	2.08E+00	2.24E+00	2.68E+00	1.95E+00	1.97E+00	2.19E+00	2.39E+00	1.85E+00	9.99E-01	2.12E+00	1.54E+01
PM <sub>10</sub>	3.02E+00	1.93E+00	2.08E+00	2.49E+00	1.81E+00	1.83E+00	2.04E+00	2.24E+00	1.74E+00	9.38E-01	1.99E+00	1.42E+01
PM <sub>2.5</sub>	1.85E+00	1.19E+00	1.28E+00	1.53E+00	1.11E+00	1.13E+00	1.25E+00	1.38E+00	1.07E+00	5.87E-01	1.23E+00	8.74E+00
NO	3.26E+01	2.09E+01	2.25E+01	2.69E+01	1.96E+01	1.99E+01	2.20E+01	2.42E+01	1.86E+01	1.03E+01	2.15E+01	1.54E+02
NO <sub>2</sub> (directly emitted)	1.81E+01	1.16E+01	1.25E+01	1.49E+01	1.09E+01	1.10E+01	1.22E+01	1.35E+01	1.04E+01	5.73E+00	1.19E+01	8.55E+01
NO <sub>x</sub>	5.07E+01	3.25E+01	3.50E+01	4.18E+01	3.05E+01	3.09E+01	3.42E+01	3.77E+01	2.90E+01	1.61E+01	3.34E+01	2.40E+02
NO <sub>2</sub> (100% conversion)	6.81E+01	4.36E+01	4.70E+01	5.61E+01	4.10E+01	4.15E+01	4.60E+01	5.06E+01	3.89E+01	2.16E+01	4.49E+01	3.22E+02
SO <sub>2</sub>	5.62E+01	3.60E+01	3.88E+01	4.63E+01	3.38E+01	3.42E+01	3.79E+01	4.18E+01	3.21E+01	1.78E+01	3.71E+01	2.65E+02
CO	4.05E+00	2.59E+00	2.79E+00	3.33E+00	2.43E+00	2.46E+00	2.73E+00	3.01E+00	2.31E+00	1.28E+00	2.67E+00	1.91E+01
<b>Inorganic Gases</b>												
HCl	4.09E-02	2.62E-02	2.82E-02	3.37E-02	2.46E-02	2.49E-02	2.76E-02	3.04E-02	2.34E-02	1.29E-02	2.69E-02	1.93E-01
HF	3.75E-02	2.40E-02	2.59E-02	3.09E-02	2.26E-02	2.28E-02	2.53E-02	2.79E-02	2.14E-02	1.19E-02	2.47E-02	1.77E-01
<b>Metals</b>												
Aluminum	1.76E-01	1.13E-01	1.21E-01	1.45E-01	1.05E-01	1.07E-01	1.18E-01	1.29E-01	9.99E-02	5.41E-02	1.15E-01	8.33E-01
Antimony	3.07E-05	1.97E-05	2.12E-05	2.53E-05	1.84E-05	1.86E-05	2.07E-05	2.26E-05	1.74E-05	9.44E-06	2.00E-05	1.45E-04
Arsenic	3.65E-04	2.34E-04	2.52E-04	3.01E-04	2.19E-04	2.22E-04	2.46E-04	2.69E-04	2.08E-04	1.12E-04	2.38E-04	1.73E-03
Barium	8.22E-02	5.26E-02	5.67E-02	6.78E-02	4.93E-02	4.99E-02	5.54E-02	6.05E-02	4.67E-02	2.53E-02	5.36E-02	3.89E-01
Beryllium	4.55E-05	2.91E-05	3.14E-05	3.76E-05	2.73E-05	2.76E-05	3.07E-05	3.35E-05	2.59E-05	1.40E-05	2.96E-05	2.16E-04
Boron	1.40E-02	8.99E-03	9.68E-03	1.16E-02	8.42E-03	8.52E-03	9.46E-03	1.03E-02	7.98E-03	4.32E-03	9.14E-03	6.65E-02
Cadmium	3.61E-05	2.31E-05	2.49E-05	2.98E-05	2.16E-05	2.19E-05	2.43E-05	2.66E-05	2.05E-05	1.11E-05	2.35E-05	1.71E-04
Chromium	1.32E-03	8.47E-04	9.12E-04	1.09E-03	7.94E-04	8.03E-04	8.91E-04	9.74E-04	7.52E-04	4.07E-04	8.62E-04	6.27E-03
Cobalt	7.97E-05	5.10E-05	5.49E-05	6.57E-05	4.78E-05	4.83E-05	5.37E-05	5.86E-05	4.53E-05	2.45E-05	5.19E-05	3.77E-04
Copper	2.02E-03	1.29E-03	1.39E-03	1.67E-03	1.21E-03	1.22E-03	1.36E-03	1.49E-03	1.15E-03	6.20E-04	1.31E-03	9.56E-03
Iron	6.48E-02	4.15E-02	4.47E-02	5.35E-02	3.89E-02	3.93E-02	4.37E-02	4.77E-02	3.68E-02	1.99E-02	4.22E-02	3.07E-01
Lithium	1.43E-03	9.17E-04	9.88E-04	1.18E-03	8.59E-04	8.70E-04	9.65E-04	1.05E-03	8.14E-04	4.40E-04	9.33E-04	6.79E-03
Manganese	2.05E-03	1.31E-03	1.42E-03	1.69E-03	1.23E-03	1.25E-03	1.38E-03	1.51E-03	1.17E-03	6.31E-04	1.34E-03	9.72E-03



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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
Mercury	3.70E-04	2.37E-04	2.55E-04	3.05E-04	2.22E-04	2.25E-04	2.49E-04	2.72E-04	2.10E-04	1.14E-04	2.41E-04	1.75E-03
Elemental Hg	2.05E+04	1.32E+04	1.42E+04	1.69E+04	1.24E+04	1.25E+04	1.39E+04	1.53E+04	1.17E+04	6.50E+03	1.35E+04	9.69E+04
Oxidized Hg	2.61E+03	1.67E+03	1.80E+03	2.15E+03	1.57E+03	1.59E+03	1.76E+03	1.94E+03	1.49E+03	8.27E+02	1.72E+03	1.23E+04
Particle-bound Hg	2.46E+01	1.57E+01	1.69E+01	2.03E+01	1.47E+01	1.49E+01	1.65E+01	1.81E+01	1.40E+01	7.55E+00	1.60E+01	1.16E+02
Molybdenum	1.04E-03	6.67E-04	7.18E-04	8.59E-04	6.25E-04	6.32E-04	7.01E-04	7.66E-04	5.92E-04	3.20E-04	6.78E-04	4.93E-03
Nickel	1.06E-03	6.81E-04	7.33E-04	8.77E-04	6.38E-04	6.45E-04	7.16E-04	7.83E-04	6.04E-04	3.27E-04	6.93E-04	5.04E-03
Palladium	2.05E-04	1.31E-04	1.41E-04	1.69E-04	1.23E-04	1.24E-04	1.38E-04	1.51E-04	1.16E-04	6.29E-05	1.33E-04	9.70E-04
Lead	4.17E-04	2.67E-04	2.87E-04	3.44E-04	2.50E-04	2.53E-04	2.81E-04	3.07E-04	2.37E-04	1.28E-04	2.71E-04	1.97E-03
Selenium	3.07E-04	1.96E-04	2.12E-04	2.53E-04	1.84E-04	1.86E-04	2.07E-04	2.26E-04	1.74E-04	9.43E-05	2.00E-04	1.45E-03
Silver	9.30E-05	5.95E-05	6.41E-05	7.67E-05	5.58E-05	5.64E-05	6.26E-05	6.84E-05	5.28E-05	2.86E-05	6.05E-05	4.40E-04
Strontium	1.67E-02	1.07E-02	1.15E-02	1.38E-02	1.00E-02	1.01E-02	1.13E-02	1.23E-02	9.50E-03	5.14E-03	1.09E-02	7.92E-02
Thallium	9.51E-04	6.09E-04	6.55E-04	7.84E-04	5.70E-04	5.77E-04	6.40E-04	7.00E-04	5.40E-04	2.92E-04	6.19E-04	4.50E-03
Thorium	3.33E-04	2.13E-04	2.30E-04	2.75E-04	2.00E-04	2.02E-04	2.24E-04	2.45E-04	1.89E-04	1.02E-04	2.17E-04	1.58E-03
Tin	9.97E-03	6.38E-03	6.87E-03	8.22E-03	5.98E-03	6.05E-03	6.71E-03	7.34E-03	5.66E-03	3.06E-03	6.49E-03	4.72E-02
Uranium	5.26E-05	3.36E-05	3.62E-05	4.33E-05	3.15E-05	3.19E-05	3.54E-05	3.87E-05	2.99E-05	1.61E-05	3.42E-05	2.49E-04
Vanadium	1.51E-03	9.65E-04	1.04E-03	1.24E-03	9.04E-04	9.15E-04	1.02E-03	1.11E-03	8.56E-04	4.63E-04	9.82E-04	7.14E-03
Zinc	2.82E-04	1.81E-04	1.95E-04	2.33E-04	1.69E-04	1.71E-04	1.90E-04	2.08E-04	1.60E-04	8.68E-05	1.84E-04	1.34E-03
<b>Dioxins and Furans</b>												
Tetrachlorodibenzo-p-dioxins	1.14E-11	7.28E-12	7.84E-12	9.39E-12	6.83E-12	6.90E-12	7.66E-12	8.37E-12	6.47E-12	3.50E-12	7.41E-12	5.39E-11
Pentachlorodibenzo-p-dioxins	8.94E-12	5.72E-12	6.16E-12	7.38E-12	5.36E-12	5.43E-12	6.02E-12	6.58E-12	5.08E-12	2.75E-12	5.82E-12	4.23E-11
Hexachlorodibenzo-p-dioxins	4.96E-10	3.17E-10	3.42E-10	4.09E-10	2.97E-10	3.01E-10	3.34E-10	3.65E-10	2.82E-10	1.52E-10	3.23E-10	2.35E-09
Heptachlorodibenzo-p-dioxins	1.33E-09	8.48E-10	9.13E-10	1.09E-09	7.95E-10	8.04E-10	8.92E-10	9.75E-10	7.53E-10	4.07E-10	8.63E-10	6.27E-09
Octachlorodibenzo-p-dioxins	1.86E-09	1.19E-09	1.28E-09	1.54E-09	1.12E-09	1.13E-09	1.25E-09	1.37E-09	1.06E-09	5.72E-10	1.21E-09	8.82E-09
Total Dioxins	3.21E-09	2.06E-09	2.21E-09	2.65E-09	1.93E-09	1.95E-09	2.16E-09	2.36E-09	1.82E-09	9.87E-10	2.09E-09	1.52E-08
Tetrachlorodibenzofurans	2.11E-09	1.35E-09	1.45E-09	1.74E-09	1.26E-09	1.28E-09	1.42E-09	1.55E-09	1.20E-09	6.47E-10	1.37E-09	9.97E-09
Pentachlorodibenzofurans	1.92E-09	1.23E-09	1.32E-09	1.58E-09	1.15E-09	1.16E-09	1.29E-09	1.41E-09	1.09E-09	5.90E-10	1.25E-09	9.08E-09
Hexachlorodibenzofurans	7.07E-10	4.53E-10	4.87E-10	5.83E-10	4.24E-10	4.29E-10	4.76E-10	5.20E-10	4.02E-10	2.17E-10	4.61E-10	3.35E-09
Heptachlorodibenzofurans	3.90E-10	2.50E-10	2.69E-10	3.22E-10	2.34E-10	2.37E-10	2.63E-10	2.87E-10	2.22E-10	1.20E-10	2.54E-10	1.85E-09
Octachlorodibenzofurans	8.37E-09	5.36E-09	5.77E-09	6.91E-09	5.02E-09	5.08E-09	5.64E-09	6.16E-09	4.76E-09	2.57E-09	5.45E-09	3.96E-08
Total Furans	2.85E-10	1.82E-10	1.96E-10	2.35E-10	1.71E-10	1.73E-10	1.92E-10	2.09E-10	1.62E-10	8.74E-11	1.85E-10	1.35E-09
<b>PAHs</b>	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Acenaphthene	3.33E-05	2.13E-05	2.29E-05	2.74E-05	2.00E-05	2.03E-05	2.24E-05	2.47E-05	1.90E-05	1.05E-05	2.19E-05	1.57E-04
Acenaphthylene	2.31E-07	1.48E-07	1.59E-07	1.90E-07	1.39E-07	1.41E-07	1.56E-07	1.72E-07	1.32E-07	7.31E-08	1.52E-07	1.09E-06
Anthracene	1.46E-06	9.32E-07	1.00E-06	1.20E-06	8.75E-07	8.87E-07	9.82E-07	1.08E-06	8.31E-07	4.60E-07	9.59E-07	6.87E-06
Benzo(a)anthracene	2.08E-07	1.33E-07	1.43E-07	1.71E-07	1.25E-07	1.27E-07	1.40E-07	1.55E-07	1.19E-07	6.58E-08	1.37E-07	9.82E-07
Benzo(b)anthracene	3.47E-07	2.22E-07	2.39E-07	2.85E-07	2.08E-07	2.11E-07	2.34E-07	2.58E-07	1.98E-07	1.10E-07	2.28E-07	1.64E-06
Benzo(b)fluoranthene	3.23E-07	2.07E-07	2.23E-07	2.66E-07	1.95E-07	1.97E-07	2.18E-07	2.40E-07	1.85E-07	1.02E-07	2.13E-07	1.53E-06
Benzo(k,j)fluoranthene	3.93E-07	2.52E-07	2.71E-07	3.24E-07	2.36E-07	2.39E-07	2.65E-07	2.92E-07	2.24E-07	1.24E-07	2.59E-07	1.85E-06
Benzo(a)flourene	5.08E-07	3.26E-07	3.50E-07	4.19E-07	3.06E-07	3.10E-07	3.43E-07	3.78E-07	2.90E-07	1.61E-07	3.35E-07	2.40E-06
Benzo(b)flourene	1.16E-07	7.40E-08	7.96E-08	9.51E-08	6.95E-08	7.04E-08	7.79E-08	8.58E-08	6.60E-08	3.65E-08	7.61E-08	5.45E-07
Benzo(g,h,i)perylene	9.24E-07	5.92E-07	6.37E-07	7.61E-07	5.56E-07	5.63E-07	6.24E-07	6.87E-07	5.28E-07	2.92E-07	6.09E-07	4.36E-06
Benzo(a)pyrene	3.00E-07	1.92E-07	2.07E-07	2.47E-07	1.81E-07	1.83E-07	2.03E-07	2.23E-07	1.72E-07	9.50E-08	1.98E-07	1.42E-06
Benzo(e)pyrene	1.34E-06	8.58E-07	9.24E-07	1.10E-06	8.06E-07	8.16E-07	9.04E-07	9.96E-07	7.65E-07	4.24E-07	8.83E-07	6.33E-06
Biphenyl	1.57E-05	1.01E-05	1.08E-05	1.29E-05	9.45E-06	9.57E-06	1.06E-05	1.17E-05	8.97E-06	4.97E-06	1.04E-05	7.42E-05
2-chloronaphthalene	4.85E-08	3.11E-08	3.35E-08	4.00E-08	2.92E-08	2.96E-08	3.27E-08	3.61E-08	2.77E-08	1.53E-08	3.20E-08	2.29E-07
Coronene	5.54E-07	3.55E-07	3.82E-07	4.57E-07	3.34E-07	3.38E-07	3.74E-07	4.12E-07	3.17E-07	1.75E-07	3.65E-07	2.62E-06
Dibenzo(a,c & a,h)anthracene	1.69E-08	1.08E-08	1.16E-08	1.39E-08	1.01E-08	1.03E-08	1.14E-08	1.25E-08	9.63E-09	5.34E-09	1.11E-08	7.96E-08
Dibenzo(a,j)acridine	8.32E-09	5.33E-09	5.73E-09	6.85E-09	5.00E-09	5.07E-09	5.61E-09	6.18E-09	4.75E-09	2.63E-09	5.48E-09	3.93E-08
7H-dibenzo(c,g)carbazole	1.29E-08	8.29E-09	8.92E-09	1.07E-08	7.78E-09	7.88E-09	8.73E-09	9.61E-09	7.39E-09	4.09E-09	8.53E-09	6.11E-08
Dibenzo(a,e)pyrene	2.31E-09	1.48E-09	1.59E-09	1.90E-09	1.39E-09	1.41E-09	1.56E-09	1.72E-09	1.32E-09	7.31E-10	1.52E-09	1.09E-08
Dibenzo(a,i)pyrene	3.00E-09	1.92E-09	2.07E-09	2.47E-09	1.81E-09	1.83E-09	2.03E-09	2.23E-09	1.72E-09	9.50E-10	1.98E-09	1.42E-08
9,10-dimethylanthracene	1.27E-07	8.14E-08	8.76E-08	1.05E-07	7.64E-08	7.74E-08	8.57E-08	9.44E-08	7.26E-08	4.02E-08	8.37E-08	6.00E-07
7,12-dimethylanthracene	3.93E-08	2.52E-08	2.71E-08	3.24E-08	2.36E-08	2.39E-08	2.65E-08	2.92E-08	2.24E-08	1.24E-08	2.59E-08	1.85E-07
1,2-dimethylnaphthalene	1.96E-07	1.26E-07	1.35E-07	1.62E-07	1.18E-07	1.20E-07	1.33E-07	1.46E-07	1.12E-07	6.21E-08	1.29E-07	9.27E-07
2,6 & 2,7-dimethylnaphthalene	7.62E-07	4.88E-07	5.26E-07	6.28E-07	4.59E-07	4.64E-07	5.14E-07	5.67E-07	4.36E-07	2.41E-07	5.02E-07	3.60E-06
Fluoranthene	3.93E-06	2.52E-06	2.71E-06	3.24E-06	2.36E-06	2.39E-06	2.65E-06	2.92E-06	2.24E-06	1.24E-06	2.59E-06	1.85E-05
Fluorene	4.62E-06	2.96E-06	3.19E-06	3.81E-06	2.78E-06	2.81E-06	3.12E-06	3.43E-06	2.64E-06	1.46E-06	3.04E-06	2.18E-05
Indeno(1,2,3-cd)pyrene	1.59E-07	1.02E-07	1.10E-07	1.31E-07	9.59E-08	9.71E-08	1.08E-07	1.18E-07	9.11E-08	5.04E-08	1.05E-07	7.53E-07
2-methylanthracene	2.54E-07	1.63E-07	1.75E-07	2.09E-07	1.53E-07	1.55E-07	1.71E-07	1.89E-07	1.45E-07	8.04E-08	1.67E-07	1.20E-06
3-methylcholanthrene	6.93E-07	4.44E-07	4.78E-07	5.71E-07	4.17E-07	4.22E-07	4.68E-07	5.15E-07	3.96E-07	2.19E-07	4.57E-07	3.27E-06
1-methylnaphthalene	4.62E-06	2.96E-06	3.19E-06	3.81E-06	2.78E-06	2.81E-06	3.12E-06	3.43E-06	2.64E-06	1.46E-06	3.04E-06	2.18E-05
2-methylnaphthalene	6.93E-06	4.44E-06	4.78E-06	5.71E-06	4.17E-06	4.22E-06	4.68E-06	5.15E-06	3.96E-06	2.19E-06	4.57E-06	3.27E-05

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COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
1-methylphenanthrene	1.92E-06	1.23E-06	1.32E-06	1.58E-06	1.15E-06	1.17E-06	1.29E-06	1.43E-06	1.10E-06	6.07E-07	1.26E-06	9.05E-06
9-methylphenanthrene	1.71E-06	1.10E-06	1.18E-06	1.41E-06	1.03E-06	1.04E-06	1.15E-06	1.27E-06	9.77E-07	5.41E-07	1.13E-06	8.07E-06
Naphthalene	1.39E-05	8.88E-06	9.56E-06	1.14E-05	8.34E-06	8.44E-06	9.35E-06	1.03E-05	7.92E-06	4.39E-06	9.13E-06	6.54E-05
Perylene	9.47E-08	6.07E-08	6.53E-08	7.80E-08	5.70E-08	5.77E-08	6.39E-08	7.04E-08	5.41E-08	3.00E-08	6.24E-08	4.47E-07
Phenanthrene	2.54E-05	1.63E-05	1.75E-05	2.09E-05	1.53E-05	1.55E-05	1.71E-05	1.89E-05	1.45E-05	8.04E-06	1.67E-05	1.20E-04
Picene	1.55E-08	9.91E-09	1.07E-08	1.28E-08	9.31E-09	9.43E-09	1.04E-08	1.15E-08	8.84E-09	4.90E-09	1.02E-08	7.31E-08
Pyrene	2.54E-06	1.63E-06	1.75E-06	2.09E-06	1.53E-06	1.55E-06	1.71E-06	1.89E-06	1.45E-06	8.04E-07	1.67E-06	1.20E-05
Quinoline	1.92E-07	1.23E-07	1.32E-07	1.58E-07	1.15E-07	1.17E-07	1.29E-07	1.43E-07	1.10E-07	6.07E-08	1.26E-07	9.05E-07
m-Terphenyl	6.70E-07	4.29E-07	4.62E-07	5.52E-07	4.03E-07	4.08E-07	4.52E-07	4.98E-07	3.83E-07	2.12E-07	4.42E-07	3.16E-06
o-Terphenyl	1.06E-06	6.81E-07	7.33E-07	8.75E-07	6.39E-07	6.47E-07	7.17E-07	7.90E-07	6.07E-07	3.36E-07	7.00E-07	5.02E-06
p-Terphenyl	3.47E-07	2.22E-07	2.39E-07	2.85E-07	2.08E-07	2.11E-07	2.34E-07	2.58E-07	1.98E-07	1.10E-07	2.28E-07	1.64E-06
Tetralin	1.50E-06	9.62E-07	1.04E-06	1.24E-06	9.03E-07	9.15E-07	1.01E-06	1.12E-06	8.58E-07	4.75E-07	9.90E-07	7.09E-06
Triphenylene/chrysene	8.78E-07	5.62E-07	6.05E-07	7.23E-07	5.28E-07	5.35E-07	5.92E-07	6.52E-07	5.02E-07	2.78E-07	5.79E-07	4.14E-06
<b>VOCs</b>												
Acetaldehyde	2.79E-03	1.79E-03	1.92E-03	2.30E-03	1.68E-03	1.70E-03	1.88E-03	2.07E-03	1.59E-03	8.82E-04	1.84E-03	1.32E-02
Acetophenone	7.33E-05	4.70E-05	5.06E-05	6.04E-05	4.41E-05	4.47E-05	4.95E-05	5.45E-05	4.19E-05	2.32E-05	4.83E-05	3.46E-04
Acrolien	1.42E-03	9.08E-04	9.78E-04	1.17E-03	8.53E-04	8.64E-04	9.57E-04	1.05E-03	8.10E-04	4.49E-04	9.34E-04	6.69E-03
Benzene	6.36E-03	4.07E-03	4.38E-03	5.24E-03	3.82E-03	3.87E-03	4.29E-03	4.72E-03	3.63E-03	2.01E-03	4.19E-03	3.00E-02
Benzyl chloride	3.42E-03	2.19E-03	2.36E-03	2.82E-03	2.06E-03	2.08E-03	2.31E-03	2.54E-03	1.96E-03	1.08E-03	2.26E-03	1.62E-02
Bis(2-ethylhexyl)phthalate (DEHP)	3.57E-04	2.29E-04	2.46E-04	2.94E-04	2.15E-04	2.17E-04	2.41E-04	2.65E-04	2.04E-04	1.13E-04	2.35E-04	1.69E-03
Bromoform	1.91E-04	1.22E-04	1.31E-04	1.57E-04	1.15E-04	1.16E-04	1.29E-04	1.42E-04	1.09E-04	6.03E-05	1.26E-04	9.00E-04
Carbon disulphide	6.36E-04	4.07E-04	4.38E-04	5.24E-04	3.82E-04	3.87E-04	4.29E-04	4.72E-04	3.63E-04	2.01E-04	4.19E-04	3.00E-03
2-Chloroacetophenone	3.42E-05	2.19E-05	2.36E-05	2.82E-05	2.06E-05	2.08E-05	2.31E-05	2.54E-05	1.96E-05	1.08E-05	2.26E-05	1.62E-04
Chlorobenzene	1.08E-04	6.89E-05	7.42E-05	8.86E-05	6.47E-05	6.55E-05	7.26E-05	7.99E-05	6.15E-05	3.40E-05	7.09E-05	5.08E-04
Chloroform	2.88E-04	1.85E-04	1.99E-04	2.38E-04	1.74E-04	1.76E-04	1.95E-04	2.14E-04	1.65E-04	9.13E-05	1.90E-04	1.36E-03
Cumene	2.59E-05	1.66E-05	1.79E-05	2.13E-05	1.56E-05	1.58E-05	1.75E-05	1.93E-05	1.48E-05	8.20E-06	1.71E-05	1.22E-04
Cyanide	1.22E-02	7.83E-03	8.43E-03	1.01E-02	7.35E-03	7.45E-03	8.25E-03	9.08E-03	6.98E-03	3.87E-03	8.06E-03	5.77E-02
2,4-Dinitrotoluene	1.37E-06	8.77E-07	9.44E-07	1.13E-06	8.23E-07	8.34E-07	9.24E-07	1.02E-06	7.82E-07	4.33E-07	9.02E-07	6.46E-06
Dimethyl Sulphate	2.35E-04	1.50E-04	1.62E-04	1.93E-04	1.41E-04	1.43E-04	1.58E-04	1.74E-04	1.34E-04	7.42E-05	1.55E-04	1.11E-03
Ethyl benzene	4.60E-04	2.94E-04	3.17E-04	3.79E-04	2.76E-04	2.80E-04	3.10E-04	3.42E-04	2.63E-04	1.45E-04	3.03E-04	2.17E-03

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COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Ethyl chloride	2.05E-04	1.32E-04	1.42E-04	1.69E-04	1.24E-04	1.25E-04	1.39E-04	1.53E-04	1.17E-04	6.50E-05	1.35E-04	9.70E-04
Ethylene dichloride	1.96E-04	1.25E-04	1.35E-04	1.61E-04	1.18E-04	1.19E-04	1.32E-04	1.45E-04	1.12E-04	6.19E-05	1.29E-04	9.23E-04
Ethylene dibromide	5.87E-06	3.76E-06	4.05E-06	4.83E-06	3.53E-06	3.57E-06	3.96E-06	4.36E-06	3.35E-06	1.86E-06	3.87E-06	2.77E-05
Formaldehyde	1.17E-03	7.52E-04	8.09E-04	9.67E-04	7.06E-04	7.15E-04	7.92E-04	8.72E-04	6.70E-04	3.71E-04	7.73E-04	5.54E-03
Hexane	3.28E-04	2.10E-04	2.26E-04	2.70E-04	1.97E-04	2.00E-04	2.21E-04	2.43E-04	1.87E-04	1.04E-04	2.16E-04	1.55E-03
Isophorone	2.84E-03	1.82E-03	1.96E-03	2.34E-03	1.71E-03	1.73E-03	1.91E-03	2.11E-03	1.62E-03	8.97E-04	1.87E-03	1.34E-02
Methylbromide	7.82E-04	5.01E-04	5.39E-04	6.44E-04	4.71E-04	4.77E-04	5.28E-04	5.81E-04	4.47E-04	2.47E-04	5.16E-04	3.69E-03
Methyl chloride	2.59E-03	1.66E-03	1.79E-03	2.13E-03	1.56E-03	1.58E-03	1.75E-03	1.93E-03	1.48E-03	8.20E-04	1.71E-03	1.22E-02
Methyl ethyl ketone	1.91E-03	1.22E-03	1.31E-03	1.57E-03	1.15E-03	1.16E-03	1.29E-03	1.42E-03	1.09E-03	6.03E-04	1.26E-03	9.00E-03
Methyl hydrazine	8.31E-04	5.32E-04	5.73E-04	6.85E-04	5.00E-04	5.06E-04	5.61E-04	6.18E-04	4.75E-04	2.63E-04	5.48E-04	3.92E-03
Methyl methacrylate	9.78E-05	6.26E-05	6.74E-05	8.06E-05	5.88E-05	5.96E-05	6.60E-05	7.27E-05	5.59E-05	3.09E-05	6.44E-05	4.62E-04
Methyl tert-butyl ether	1.71E-04	1.10E-04	1.18E-04	1.41E-04	1.03E-04	1.04E-04	1.15E-04	1.27E-04	9.78E-05	5.41E-05	1.13E-04	8.08E-04
Methylene chloride	1.42E-03	9.08E-04	9.78E-04	1.17E-03	8.53E-04	8.64E-04	9.57E-04	1.05E-03	8.10E-04	4.49E-04	9.34E-04	6.69E-03
Phenol	7.82E-05	5.01E-05	5.39E-05	6.44E-05	4.71E-05	4.77E-05	5.28E-05	5.81E-05	4.47E-05	2.47E-05	5.16E-05	3.69E-04
Propionaldehyde	1.86E-03	1.19E-03	1.28E-03	1.53E-03	1.12E-03	1.13E-03	1.25E-03	1.38E-03	1.06E-03	5.88E-04	1.22E-03	8.77E-03
Tetrachloroethylene	2.10E-04	1.35E-04	1.45E-04	1.73E-04	1.26E-04	1.28E-04	1.42E-04	1.56E-04	1.20E-04	6.65E-05	1.39E-04	9.93E-04
Toluene	1.17E-03	7.52E-04	8.09E-04	9.67E-04	7.06E-04	7.15E-04	7.92E-04	8.72E-04	6.70E-04	3.71E-04	7.73E-04	5.54E-03
1,1,1-Trichloroethane	9.78E-05	6.26E-05	6.74E-05	8.06E-05	5.88E-05	5.96E-05	6.60E-05	7.27E-05	5.59E-05	3.09E-05	6.44E-05	4.62E-04
Styrene	1.22E-04	7.83E-05	8.43E-05	1.01E-04	7.35E-05	7.45E-05	8.25E-05	9.08E-05	6.98E-05	3.87E-05	8.06E-05	5.77E-04
Xylenes	1.81E-04	1.16E-04	1.25E-04	1.49E-04	1.09E-04	1.10E-04	1.22E-04	1.34E-04	1.03E-04	5.72E-05	1.19E-04	8.54E-04
Vinyl acetate	3.72E-05	2.38E-05	2.56E-05	3.06E-05	2.24E-05	2.26E-05	2.51E-05	2.76E-05	2.12E-05	1.18E-05	2.45E-05	1.75E-04

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**Table C.6  
Maximum Predicted 24-hour Average COPC Concentrations (OS3)**

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
<b>Common Air Contaminants</b>												
Total PM	4.37E-01	2.54E-01	4.45E-01	5.37E-01	4.75E-01	6.53E-01	4.56E-01	2.54E-01	2.25E-01	1.62E-01	2.96E-01	1.13E+00
PM <sub>10</sub>	4.05E-01	2.36E-01	4.12E-01	4.99E-01	4.43E-01	6.07E-01	4.26E-01	2.38E-01	2.11E-01	1.51E-01	2.79E-01	1.04E+00
PM <sub>2.5</sub>	2.49E-01	1.45E-01	2.53E-01	3.08E-01	2.75E-01	3.77E-01	2.68E-01	1.49E-01	1.31E-01	9.35E-02	1.71E-01	6.41E-01
NO	4.38E+00	2.55E+00	4.46E+00	5.42E+00	4.88E+00	6.67E+00	4.72E+00	2.62E+00	2.23E+00	1.65E+00	3.00E+00	1.13E+01
NO <sub>2</sub>	2.43E+00	1.41E+00	2.48E+00	3.01E+00	2.71E+00	3.70E+00	2.62E+00	1.45E+00	1.24E+00	9.15E-01	1.67E+00	6.27E+00
NO <sub>x</sub>	6.81E+00	3.96E+00	6.93E+00	8.43E+00	7.59E+00	1.04E+01	7.35E+00	4.07E+00	3.47E+00	2.56E+00	4.67E+00	1.76E+01
NO <sub>2</sub> 100% convert	9.15E+00	5.32E+00	9.31E+00	1.13E+01	1.02E+01	1.39E+01	9.86E+00	5.46E+00	4.66E+00	3.44E+00	6.27E+00	2.36E+01
SO <sub>2</sub>	7.55E+00	4.39E+00	7.69E+00	9.34E+00	8.41E+00	1.15E+01	8.14E+00	4.51E+00	3.85E+00	2.84E+00	5.18E+00	1.95E+01
CO	5.43E-01	3.16E-01	5.53E-01	6.72E-01	6.05E-01	8.27E-01	5.86E-01	3.24E-01	2.77E-01	2.04E-01	3.73E-01	1.40E+00
<b>Inorganic Gases</b>												
HCl	5.49E-03	3.19E-03	5.59E-03	6.79E-03	6.12E-03	8.36E-03	5.92E-03	3.28E-03	2.80E-03	2.07E-03	3.77E-03	1.42E-02
HF	5.04E-03	2.93E-03	5.13E-03	6.23E-03	5.61E-03	7.67E-03	5.43E-03	3.01E-03	2.57E-03	1.89E-03	3.45E-03	1.30E-02
<b>Metals</b>												
Aluminum	2.36E-02	1.37E-02	2.41E-02	2.91E-02	2.57E-02	3.53E-02	2.47E-02	1.37E-02	1.22E-02	8.74E-03	1.60E-02	6.10E-02
Antimony	4.12E-06	2.40E-06	4.20E-06	5.07E-06	4.49E-06	6.17E-06	4.31E-06	2.39E-06	2.13E-06	1.53E-06	2.80E-06	1.07E-05
Arsenic	4.91E-05	2.85E-05	5.00E-05	6.03E-05	5.34E-05	7.34E-05	5.13E-05	2.85E-05	2.53E-05	1.81E-05	3.33E-05	1.27E-04
Barium	1.10E-02	6.41E-03	1.12E-02	1.36E-02	1.20E-02	1.65E-02	1.15E-02	6.41E-03	5.69E-03	4.09E-03	7.50E-03	2.85E-02
Beryllium	6.11E-06	3.55E-06	6.23E-06	7.52E-06	6.66E-06	9.15E-06	6.39E-06	3.55E-06	3.15E-06	2.26E-06	4.15E-06	1.58E-05
Boron	1.89E-03	1.10E-03	1.92E-03	2.32E-03	2.05E-03	2.82E-03	1.97E-03	1.10E-03	9.72E-04	6.98E-04	1.28E-03	4.87E-03
Cadmium	4.85E-06	2.81E-06	4.94E-06	5.96E-06	5.28E-06	7.25E-06	5.06E-06	2.81E-06	2.50E-06	1.79E-06	3.29E-06	1.25E-05
Chromium	1.78E-04	1.03E-04	1.81E-04	2.19E-04	1.94E-04	2.66E-04	1.86E-04	1.03E-04	9.16E-05	6.58E-05	1.21E-04	4.59E-04
Cobalt	1.07E-05	6.22E-06	1.09E-05	1.32E-05	1.17E-05	1.60E-05	1.12E-05	6.21E-06	5.52E-06	3.96E-06	7.26E-06	2.77E-05
Copper	2.71E-04	1.57E-04	2.76E-04	3.33E-04	2.95E-04	4.06E-04	2.83E-04	1.57E-04	1.40E-04	1.00E-04	1.84E-04	7.01E-04
Iron	8.71E-03	5.06E-03	8.87E-03	1.07E-02	9.48E-03	1.30E-02	9.10E-03	5.06E-03	4.49E-03	3.22E-03	5.91E-03	2.25E-02
Lithium	1.92E-04	1.12E-04	1.96E-04	2.37E-04	2.10E-04	2.88E-04	2.01E-04	1.12E-04	9.92E-05	7.12E-05	1.31E-04	4.97E-04
Manganese	2.76E-04	1.60E-04	2.81E-04	3.39E-04	3.00E-04	4.13E-04	2.88E-04	1.60E-04	1.42E-04	1.02E-04	1.87E-04	7.13E-04

*Brandon Generating Station Licence Review  
Air Quality Impact Assessment*

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
Mercury (Total)	4.97E-05	2.89E-05	5.06E-05	6.12E-05	5.41E-05	7.44E-05	5.19E-05	2.89E-05	2.56E-05	1.84E-05	3.38E-05	1.28E-04
Elemental Hg	2.76E+03	1.60E+03	2.81E+03	3.41E+03	3.07E+03	4.20E+03	2.97E+03	1.65E+03	1.40E+03	1.04E+03	1.89E+03	7.11E+03
Oxidized Hg	3.51E+02	2.04E+02	3.57E+02	4.34E+02	3.91E+02	5.34E+02	3.78E+02	2.10E+02	1.79E+02	1.32E+02	2.41E+02	9.04E+02
Particle-bound Hg	3.30E+00	1.92E+00	3.36E+00	4.06E+00	3.59E+00	4.94E+00	3.45E+00	1.92E+00	1.70E+00	1.22E+00	2.24E+00	8.52E+00
Molybdenum	1.40E-04	8.12E-05	1.42E-04	1.72E-04	1.52E-04	2.09E-04	1.46E-04	8.12E-05	7.21E-05	5.17E-05	9.49E-05	3.61E-04
Nickel	1.43E-04	8.30E-05	1.45E-04	1.76E-04	1.56E-04	2.14E-04	1.49E-04	8.30E-05	7.36E-05	5.28E-05	9.70E-05	3.69E-04
Palladium	2.75E-05	1.60E-05	2.80E-05	3.38E-05	2.99E-05	4.11E-05	2.87E-05	1.60E-05	1.42E-05	1.02E-05	1.87E-05	7.11E-05
Lead	5.60E-05	3.25E-05	5.70E-05	6.88E-05	6.09E-05	8.37E-05	5.84E-05	3.25E-05	2.88E-05	2.07E-05	3.80E-05	1.45E-04
Selenium	4.12E-05	2.39E-05	4.20E-05	5.07E-05	4.49E-05	6.17E-05	4.31E-05	2.39E-05	2.13E-05	1.52E-05	2.80E-05	1.07E-04
Silver	1.25E-05	7.25E-06	1.27E-05	1.54E-05	1.36E-05	1.87E-05	1.30E-05	7.25E-06	6.44E-06	4.62E-06	8.48E-06	3.23E-05
Strontium	2.25E-03	1.30E-03	2.29E-03	2.76E-03	2.44E-03	3.36E-03	2.35E-03	1.30E-03	1.16E-03	8.31E-04	1.52E-03	5.80E-03
Thallium	1.28E-04	7.42E-05	1.30E-04	1.57E-04	1.39E-04	1.91E-04	1.33E-04	7.41E-05	6.58E-05	4.72E-05	8.67E-05	3.30E-04
Thorium	4.47E-05	2.60E-05	4.55E-05	5.50E-05	4.87E-05	6.69E-05	4.67E-05	2.60E-05	2.31E-05	1.65E-05	3.04E-05	1.16E-04
Tin	1.34E-03	7.78E-04	1.36E-03	1.65E-03	1.46E-03	2.00E-03	1.40E-03	7.77E-04	6.90E-04	4.95E-04	9.09E-04	3.46E-03
Uranium	7.06E-06	4.10E-06	7.19E-06	8.68E-06	7.68E-06	1.06E-05	7.37E-06	4.10E-06	3.64E-06	2.61E-06	4.79E-06	1.82E-05
Vanadium	2.02E-04	1.18E-04	2.06E-04	2.49E-04	2.20E-04	3.03E-04	2.11E-04	1.18E-04	1.04E-04	7.49E-05	1.37E-04	5.23E-04
Zinc	3.79E-05	2.20E-05	3.86E-05	4.66E-05	4.13E-05	5.67E-05	3.96E-05	2.20E-05	1.96E-05	1.40E-05	2.57E-05	9.80E-05
<b>Dioxins and Furans</b>												
Tetrachlorodibenzo-p-dioxins	1.53E-12	8.88E-13	1.56E-12	1.88E-12	1.66E-12	2.29E-12	1.60E-12	8.88E-13	7.88E-13	5.65E-13	1.04E-12	3.95E-12
Pentachlorodibenzo-p-dioxins	1.20E-12	6.97E-13	1.22E-12	1.48E-12	1.31E-12	1.80E-12	1.25E-12	6.97E-13	6.19E-13	4.44E-13	8.15E-13	3.10E-12
Hexachlorodibenzo-p-dioxins	6.66E-11	3.87E-11	6.78E-11	8.19E-11	7.25E-11	9.96E-11	6.96E-11	3.87E-11	3.43E-11	2.46E-11	4.52E-11	1.72E-10
Heptachlorodibenzo-p-dioxins	1.78E-10	1.03E-10	1.81E-10	2.19E-10	1.94E-10	2.66E-10	1.86E-10	1.03E-10	9.17E-11	6.58E-11	1.21E-10	4.60E-10
Octachlorodibenzo-p-dioxins	2.50E-10	1.45E-10	2.55E-10	3.07E-10	2.72E-10	3.74E-10	2.61E-10	1.45E-10	1.29E-10	9.25E-11	1.70E-10	6.46E-10
Total Dioxins	4.31E-10	2.50E-10	4.39E-10	5.30E-10	4.70E-10	6.45E-10	4.50E-10	2.50E-10	2.22E-10	1.60E-10	2.93E-10	1.11E-09
Tetrachlorodibenzofurans	2.83E-10	1.64E-10	2.88E-10	3.48E-10	3.08E-10	4.23E-10	2.95E-10	1.64E-10	1.46E-10	1.05E-10	1.92E-10	7.31E-10
Pentachlorodibenzofurans	2.58E-10	1.50E-10	2.62E-10	3.17E-10	2.81E-10	3.85E-10	2.69E-10	1.50E-10	1.33E-10	9.53E-11	1.75E-10	6.66E-10
Hexachlorodibenzofurans	9.50E-11	5.52E-11	9.67E-11	1.17E-10	1.03E-10	1.42E-10	9.92E-11	5.52E-11	4.90E-11	3.51E-11	6.45E-11	2.45E-10
Heptachlorodibenzofurans	5.24E-11	3.04E-11	5.34E-11	6.45E-11	5.71E-11	7.84E-11	5.47E-11	3.04E-11	2.70E-11	1.94E-11	3.56E-11	1.35E-10
Octachlorodibenzofurans	1.12E-09	6.53E-10	1.15E-09	1.38E-09	1.22E-09	1.68E-09	1.17E-09	6.53E-10	5.80E-10	4.16E-10	7.63E-10	2.91E-09
Total Furans	3.82E-11	2.22E-11	3.89E-11	4.70E-11	4.16E-11	5.72E-11	3.99E-11	2.22E-11	1.97E-11	1.41E-11	2.59E-11	9.87E-11
<b>PAHs</b>	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*Brandon Generating Station Licence Review  
Air Quality Impact Assessment*

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Acenaphthene	4.47E-06	2.60E-06	4.55E-06	5.53E-06	4.98E-06	6.80E-06	4.82E-06	2.67E-06	2.28E-06	1.68E-06	3.06E-06	1.15E-05
Acenaphthylene	3.10E-08	1.80E-08	3.16E-08	3.84E-08	3.46E-08	4.72E-08	3.34E-08	1.85E-08	1.58E-08	1.17E-08	2.13E-08	8.00E-08
Anthracene	1.95E-07	1.14E-07	1.99E-07	2.42E-07	2.18E-07	2.98E-07	2.11E-07	1.17E-07	9.96E-08	7.35E-08	1.34E-07	5.04E-07
Benzo(a)anthracene	2.79E-08	1.62E-08	2.84E-08	3.45E-08	3.11E-08	4.25E-08	3.01E-08	1.67E-08	1.42E-08	1.05E-08	1.91E-08	7.20E-08
Benzo(b)anthracene	4.65E-08	2.70E-08	4.74E-08	5.76E-08	5.18E-08	7.08E-08	5.02E-08	2.78E-08	2.37E-08	1.75E-08	3.19E-08	1.20E-07
Benzo(b)fluoranthene	4.34E-08	2.52E-08	4.42E-08	5.37E-08	4.84E-08	6.61E-08	4.68E-08	2.59E-08	2.21E-08	1.63E-08	2.98E-08	1.12E-07
Benzo(k,j)fluoranthene	5.27E-08	3.07E-08	5.37E-08	6.52E-08	5.87E-08	8.03E-08	5.69E-08	3.15E-08	2.69E-08	1.98E-08	3.62E-08	1.36E-07
Benzo(a)flourene	6.82E-08	3.97E-08	6.95E-08	8.44E-08	7.60E-08	1.04E-07	7.36E-08	4.08E-08	3.48E-08	2.57E-08	4.68E-08	1.76E-07
Benzo(b)flourene	1.55E-08	9.02E-09	1.58E-08	1.92E-08	1.73E-08	2.36E-08	1.67E-08	9.26E-09	7.90E-09	5.83E-09	1.06E-08	4.00E-08
Benzo(g,h,i)perylene	1.24E-07	7.21E-08	1.26E-07	1.54E-07	1.38E-07	1.89E-07	1.34E-07	7.41E-08	6.32E-08	4.67E-08	8.51E-08	3.20E-07
Benzo(a)pyrene	4.03E-08	2.34E-08	4.11E-08	4.99E-08	4.49E-08	6.14E-08	4.35E-08	2.41E-08	2.05E-08	1.52E-08	2.77E-08	1.04E-07
Benzo(e)pyrene	1.80E-07	1.05E-07	1.83E-07	2.23E-07	2.00E-07	2.74E-07	1.94E-07	1.07E-07	9.17E-08	6.77E-08	1.23E-07	4.64E-07
Biphenyl	2.11E-06	1.23E-06	2.15E-06	2.61E-06	2.35E-06	3.21E-06	2.27E-06	1.26E-06	1.07E-06	7.93E-07	1.45E-06	5.44E-06
2-chloronaphthalene	6.51E-09	3.79E-09	6.63E-09	8.06E-09	7.26E-09	9.92E-09	7.02E-09	3.89E-09	3.32E-09	2.45E-09	4.47E-09	1.68E-08
Coronene	7.44E-08	4.33E-08	7.58E-08	9.21E-08	8.29E-08	1.13E-07	8.03E-08	4.45E-08	3.79E-08	2.80E-08	5.11E-08	1.92E-07
Dibenzo(a,c & a,h)anthracene	2.26E-09	1.32E-09	2.31E-09	2.80E-09	2.52E-09	3.45E-09	2.44E-09	1.35E-09	1.15E-09	8.52E-10	1.55E-09	5.84E-09
Dibenzo(a,j)acridine	1.12E-09	6.49E-10	1.14E-09	1.38E-09	1.24E-09	1.70E-09	1.20E-09	6.67E-10	5.69E-10	4.20E-10	7.66E-10	2.88E-09
7H-dibenzo(c,g)carbazole	1.74E-09	1.01E-09	1.77E-09	2.15E-09	1.93E-09	2.64E-09	1.87E-09	1.04E-09	8.85E-10	6.53E-10	1.19E-09	4.48E-09
Dibenzo(a,e)pyrene	3.10E-10	1.80E-10	3.16E-10	3.84E-10	3.46E-10	4.72E-10	3.34E-10	1.85E-10	1.58E-10	1.17E-10	2.13E-10	8.00E-10
Dibenzo(a,i)pyrene	4.03E-10	2.34E-10	4.11E-10	4.99E-10	4.49E-10	6.14E-10	4.35E-10	2.41E-10	2.05E-10	1.52E-10	2.77E-10	1.04E-09
9,10-dimethylanthracene	1.71E-08	9.92E-09	1.74E-08	2.11E-08	1.90E-08	2.60E-08	1.84E-08	1.02E-08	8.69E-09	6.42E-09	1.17E-08	4.40E-08
7,12-dimethylanthracene	5.27E-09	3.07E-09	5.37E-09	6.52E-09	5.87E-09	8.03E-09	5.69E-09	3.15E-09	2.69E-09	1.98E-09	3.62E-09	1.36E-08
1,2-dimethylnaphthalene	2.64E-08	1.53E-08	2.68E-08	3.26E-08	2.94E-08	4.01E-08	2.84E-08	1.57E-08	1.34E-08	9.92E-09	1.81E-08	6.80E-08
2,6 & 2,7-dimethylnaphthalene	1.02E-07	5.95E-08	1.04E-07	1.27E-07	1.14E-07	1.56E-07	1.10E-07	6.11E-08	5.22E-08	3.85E-08	7.02E-08	2.64E-07
Fluoranthene	5.27E-07	3.07E-07	5.37E-07	6.52E-07	5.87E-07	8.03E-07	5.69E-07	3.15E-07	2.69E-07	1.98E-07	3.62E-07	1.36E-06
Fluorene	6.20E-07	3.61E-07	6.32E-07	7.68E-07	6.91E-07	9.45E-07	6.69E-07	3.70E-07	3.16E-07	2.33E-07	4.25E-07	1.60E-06
Indeno(1,2,3-cd)pyrene	2.14E-08	1.24E-08	2.18E-08	2.65E-08	2.38E-08	3.26E-08	2.31E-08	1.28E-08	1.09E-08	8.05E-09	1.47E-08	5.52E-08
2-methylanthracene	3.41E-08	1.98E-08	3.47E-08	4.22E-08	3.80E-08	5.20E-08	3.68E-08	2.04E-08	1.74E-08	1.28E-08	2.34E-08	8.80E-08
3-methylcholanthrene	9.31E-08	5.41E-08	9.47E-08	1.15E-07	1.04E-07	1.42E-07	1.00E-07	5.56E-08	4.74E-08	3.50E-08	6.38E-08	2.40E-07
1-methylnaphthalene	6.20E-07	3.61E-07	6.32E-07	7.68E-07	6.91E-07	9.45E-07	6.69E-07	3.70E-07	3.16E-07	2.33E-07	4.25E-07	1.60E-06
2-methylnaphthalene	9.31E-07	5.41E-07	9.47E-07	1.15E-06	1.04E-06	1.42E-06	1.00E-06	5.56E-07	4.74E-07	3.50E-07	6.38E-07	2.40E-06

*Brandon Generating Station Licence Review  
Air Quality Impact Assessment*

COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
1-methylphenanthrene	2.57E-07	1.50E-07	2.62E-07	3.19E-07	2.87E-07	3.92E-07	2.78E-07	1.54E-07	1.31E-07	9.68E-08	1.77E-07	6.64E-07
9-methylphenanthrene	2.30E-07	1.33E-07	2.34E-07	2.84E-07	2.56E-07	3.50E-07	2.48E-07	1.37E-07	1.17E-07	8.63E-08	1.57E-07	5.92E-07
Naphthalene	1.86E-06	1.08E-06	1.89E-06	2.30E-06	2.07E-06	2.83E-06	2.01E-06	1.11E-06	9.48E-07	7.00E-07	1.28E-06	4.80E-06
Perylene	1.27E-08	7.39E-09	1.29E-08	1.57E-08	1.42E-08	1.94E-08	1.37E-08	7.60E-09	6.48E-09	4.78E-09	8.72E-09	3.28E-08
Phenanthrene	3.41E-06	1.98E-06	3.47E-06	4.22E-06	3.80E-06	5.20E-06	3.68E-06	2.04E-06	1.74E-06	1.28E-06	2.34E-06	8.80E-06
Picene	2.08E-09	1.21E-09	2.12E-09	2.57E-09	2.32E-09	3.16E-09	2.24E-09	1.24E-09	1.06E-09	7.82E-10	1.43E-09	5.36E-09
Pyrene	3.41E-07	1.98E-07	3.47E-07	4.22E-07	3.80E-07	5.20E-07	3.68E-07	2.04E-07	1.74E-07	1.28E-07	2.34E-07	8.80E-07
Quinoline	2.57E-08	1.50E-08	2.62E-08	3.19E-08	2.87E-08	3.92E-08	2.78E-08	1.54E-08	1.31E-08	9.68E-09	1.77E-08	6.64E-08
m-Terphenyl	9.00E-08	5.23E-08	9.16E-08	1.11E-07	1.00E-07	1.37E-07	9.70E-08	5.37E-08	4.58E-08	3.38E-08	6.17E-08	2.32E-07
o-Terphenyl	1.43E-07	8.29E-08	1.45E-07	1.77E-07	1.59E-07	2.17E-07	1.54E-07	8.52E-08	7.27E-08	5.37E-08	9.79E-08	3.68E-07
p-Terphenyl	4.65E-08	2.70E-08	4.74E-08	5.76E-08	5.18E-08	7.08E-08	5.02E-08	2.78E-08	2.37E-08	1.75E-08	3.19E-08	1.20E-07
Tetralin	2.02E-07	1.17E-07	2.05E-07	2.49E-07	2.25E-07	3.07E-07	2.17E-07	1.20E-07	1.03E-07	7.58E-08	1.38E-07	5.20E-07
Triphenylene/chrysene	1.18E-07	6.85E-08	1.20E-07	1.46E-07	1.31E-07	1.79E-07	1.27E-07	7.04E-08	6.01E-08	4.43E-08	8.08E-08	3.04E-07
<b>VOCs</b>												
Acetaldehyde	3.74E-04	2.18E-04	3.81E-04	4.63E-04	4.17E-04	5.70E-04	4.03E-04	2.23E-04	1.91E-04	1.41E-04	2.57E-04	9.65E-04
Acetophenone	9.85E-06	5.72E-06	1.00E-05	1.22E-05	1.10E-05	1.50E-05	1.06E-05	5.88E-06	5.02E-06	3.70E-06	6.75E-06	2.54E-05
Acroliene	1.90E-04	1.11E-04	1.94E-04	2.36E-04	2.12E-04	2.90E-04	2.05E-04	1.14E-04	9.70E-05	7.16E-05	1.31E-04	4.91E-04
Benzene	8.53E-04	4.96E-04	8.69E-04	1.06E-03	9.51E-04	1.30E-03	9.20E-04	5.10E-04	4.35E-04	3.21E-04	5.85E-04	2.20E-03
Benzyl chloride	4.60E-04	2.67E-04	4.68E-04	5.69E-04	5.12E-04	7.00E-04	4.96E-04	2.74E-04	2.34E-04	1.73E-04	3.15E-04	1.18E-03
Bis(2-ethylhexyl)phthalate (DEHP)	4.79E-05	2.79E-05	4.88E-05	5.93E-05	5.34E-05	7.30E-05	5.17E-05	2.86E-05	2.44E-05	1.80E-05	3.29E-05	1.24E-04
Bromoform	2.56E-05	1.49E-05	2.61E-05	3.17E-05	2.85E-05	3.90E-05	2.76E-05	1.53E-05	1.30E-05	9.63E-06	1.76E-05	6.60E-05
Carbon disulphide	8.53E-05	4.96E-05	8.69E-05	1.06E-04	9.51E-05	1.30E-04	9.20E-05	5.10E-05	4.35E-05	3.21E-05	5.85E-05	2.20E-04
2-Chloroacetophenone	4.60E-06	2.67E-06	4.68E-06	5.69E-06	5.12E-06	7.00E-06	4.96E-06	2.74E-06	2.34E-06	1.73E-06	3.15E-06	1.18E-05
Chlorobenzene	1.44E-05	8.40E-06	1.47E-05	1.79E-05	1.61E-05	2.20E-05	1.56E-05	8.63E-06	7.36E-06	5.43E-06	9.91E-06	3.72E-05
Chloroform	3.87E-05	2.25E-05	3.94E-05	4.79E-05	4.31E-05	5.90E-05	4.18E-05	2.31E-05	1.97E-05	1.46E-05	2.66E-05	9.98E-05
Cumene	3.48E-06	2.02E-06	3.54E-06	4.31E-06	3.88E-06	5.30E-06	3.75E-06	2.08E-06	1.77E-06	1.31E-06	2.39E-06	8.97E-06
Cyanide	1.64E-03	9.54E-04	1.67E-03	2.03E-03	1.83E-03	2.50E-03	1.77E-03	9.80E-04	8.36E-04	6.17E-04	1.13E-03	4.23E-03
2,4-Dinitrotoluene	1.84E-07	1.07E-07	1.87E-07	2.27E-07	2.05E-07	2.80E-07	1.98E-07	1.10E-07	9.37E-08	6.91E-08	1.26E-07	4.74E-07
Dimethyl Sulphate	3.15E-05	1.83E-05	3.21E-05	3.90E-05	3.51E-05	4.80E-05	3.40E-05	1.88E-05	1.61E-05	1.19E-05	2.16E-05	8.12E-05
Ethyl benzene	6.17E-05	3.59E-05	6.28E-05	7.64E-05	6.87E-05	9.40E-05	6.65E-05	3.69E-05	3.14E-05	2.32E-05	4.23E-05	1.59E-04



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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Ethyl chloride	2.76E-05	1.60E-05	2.81E-05	3.41E-05	3.07E-05	4.20E-05	2.97E-05	1.65E-05	1.40E-05	1.04E-05	1.89E-05	7.11E-05
Ethylene dichloride	2.63E-05	1.53E-05	2.67E-05	3.25E-05	2.93E-05	4.00E-05	2.83E-05	1.57E-05	1.34E-05	9.88E-06	1.80E-05	6.77E-05
Ethylene dibromide	7.88E-07	4.58E-07	8.02E-07	9.75E-07	8.78E-07	1.20E-06	8.49E-07	4.70E-07	4.01E-07	2.96E-07	5.40E-07	2.03E-06
Formaldehyde	1.58E-04	9.16E-05	1.60E-04	1.95E-04	1.76E-04	2.40E-04	1.70E-04	9.41E-05	8.03E-05	5.93E-05	1.08E-04	4.06E-04
Hexane	4.40E-05	2.56E-05	4.48E-05	5.44E-05	4.90E-05	6.70E-05	4.74E-05	2.63E-05	2.24E-05	1.65E-05	3.02E-05	1.13E-04
Isophorone	3.81E-04	2.21E-04	3.88E-04	4.71E-04	4.24E-04	5.80E-04	4.11E-04	2.27E-04	1.94E-04	1.43E-04	2.61E-04	9.81E-04
Methylbromide	1.05E-04	6.11E-05	1.07E-04	1.30E-04	1.17E-04	1.60E-04	1.13E-04	6.27E-05	5.35E-05	3.95E-05	7.20E-05	2.71E-04
Methyl chloride	3.48E-04	2.02E-04	3.54E-04	4.31E-04	3.88E-04	5.30E-04	3.75E-04	2.08E-04	1.77E-04	1.31E-04	2.39E-04	8.97E-04
Methyl ethyl ketone	2.56E-04	1.49E-04	2.61E-04	3.17E-04	2.85E-04	3.90E-04	2.76E-04	1.53E-04	1.30E-04	9.63E-05	1.76E-04	6.60E-04
Methyl hydrazine	1.12E-04	6.49E-05	1.14E-04	1.38E-04	1.24E-04	1.70E-04	1.20E-04	6.67E-05	5.69E-05	4.20E-05	7.65E-05	2.88E-04
Methyl methacrylate	1.31E-05	7.63E-06	1.34E-05	1.62E-05	1.46E-05	2.00E-05	1.42E-05	7.84E-06	6.69E-06	4.94E-06	9.00E-06	3.38E-05
Methyl tert-butyl ether	2.30E-05	1.34E-05	2.34E-05	2.84E-05	2.56E-05	3.50E-05	2.48E-05	1.37E-05	1.17E-05	8.64E-06	1.58E-05	5.92E-05
Methylene chloride	1.90E-04	1.11E-04	1.94E-04	2.36E-04	2.12E-04	2.90E-04	2.05E-04	1.14E-04	9.70E-05	7.16E-05	1.31E-04	4.91E-04
Phenol	1.05E-05	6.11E-06	1.07E-05	1.30E-05	1.17E-05	1.60E-05	1.13E-05	6.27E-06	5.35E-06	3.95E-06	7.20E-06	2.71E-05
Propionaldehyde	2.49E-04	1.45E-04	2.54E-04	3.09E-04	2.78E-04	3.80E-04	2.69E-04	1.49E-04	1.27E-04	9.38E-05	1.71E-04	6.43E-04
Tetrachloroethylene	2.82E-05	1.64E-05	2.87E-05	3.49E-05	3.14E-05	4.30E-05	3.04E-05	1.69E-05	1.44E-05	1.06E-05	1.94E-05	7.28E-05
Toluene	1.58E-04	9.16E-05	1.60E-04	1.95E-04	1.76E-04	2.40E-04	1.70E-04	9.41E-05	8.03E-05	5.93E-05	1.08E-04	4.06E-04
1,1,1-Trichloroethane	1.31E-05	7.63E-06	1.34E-05	1.62E-05	1.46E-05	2.00E-05	1.42E-05	7.84E-06	6.69E-06	4.94E-06	9.00E-06	3.38E-05
Styrene	1.64E-05	9.54E-06	1.67E-05	2.03E-05	1.83E-05	2.50E-05	1.77E-05	9.80E-06	8.36E-06	6.17E-06	1.13E-05	4.23E-05
Xylenes	2.43E-05	1.41E-05	2.47E-05	3.01E-05	2.71E-05	3.70E-05	2.62E-05	1.45E-05	1.24E-05	9.14E-06	1.67E-05	6.26E-05
Vinyl acetate	4.99E-06	2.90E-06	5.08E-06	6.17E-06	5.56E-06	7.60E-06	5.38E-06	2.98E-06	2.54E-06	1.88E-06	3.42E-06	1.29E-05

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**Table C.7  
Maximum Predicted Annual Average COPC Concentrations (OS3)**

COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
<b>Common Air Contaminants</b>												
Total PM	3.08E-02	1.53E-02	1.67E-02	1.87E-02	1.97E-02	2.16E-02	2.05E-02	1.53E-02	8.51E-03	4.86E-03	1.11E-02	4.12E-02
PM <sub>10</sub>	2.87E-02	1.42E-02	1.55E-02	1.74E-02	1.84E-02	2.01E-02	1.93E-02	1.44E-02	7.97E-03	4.61E-03	1.04E-02	3.83E-02
PM <sub>2.5</sub>	1.76E-02	8.74E-03	9.55E-03	1.07E-02	1.14E-02	1.24E-02	1.20E-02	8.90E-03	4.91E-03	2.86E-03	6.44E-03	2.35E-02
NO	3.11E-01	1.54E-01	1.68E-01	1.88E-01	2.00E-01	2.18E-01	2.12E-01	1.57E-01	8.63E-02	5.10E-02	1.13E-01	4.14E-01
NO <sub>2</sub>	1.73E-01	8.54E-02	9.33E-02	1.05E-01	1.11E-01	1.21E-01	1.18E-01	8.70E-02	4.80E-02	2.83E-02	6.30E-02	2.30E-01
NO <sub>x</sub>	4.83E-01	2.39E-01	2.61E-01	2.93E-01	3.11E-01	3.39E-01	3.30E-01	2.44E-01	1.34E-01	7.94E-02	1.76E-01	6.44E-01
NO <sub>2</sub> 100% convert	6.49E-01	3.21E-01	3.51E-01	3.93E-01	4.17E-01	4.56E-01	4.43E-01	3.27E-01	1.80E-01	1.07E-01	2.37E-01	8.65E-01
SO <sub>2</sub>	5.36E-01	2.65E-01	2.89E-01	3.25E-01	3.44E-01	3.76E-01	3.65E-01	2.70E-01	1.49E-01	8.80E-02	1.95E-01	7.14E-01
CO	3.86E-02	1.91E-02	2.08E-02	2.34E-02	2.48E-02	2.71E-02	2.63E-02	1.94E-02	1.07E-02	6.33E-03	1.41E-02	5.14E-02
<b>Inorganic Gases</b>												
HCl	3.90E-04	1.93E-04	2.10E-04	2.36E-04	2.50E-04	2.74E-04	2.66E-04	1.96E-04	1.08E-04	6.40E-05	1.42E-04	5.19E-04
HF	3.57E-04	1.77E-04	1.93E-04	2.16E-04	2.30E-04	2.51E-04	2.44E-04	1.80E-04	9.93E-05	5.87E-05	1.30E-04	4.76E-04
<b>Metals</b>												
Aluminum	1.67E-03	8.25E-04	9.03E-04	1.01E-03	1.07E-03	1.17E-03	1.11E-03	8.26E-04	4.60E-04	2.63E-04	5.98E-04	2.23E-03
Antimony	2.91E-07	1.44E-07	1.58E-07	1.76E-07	1.86E-07	2.04E-07	1.94E-07	1.44E-07	8.03E-08	4.59E-08	1.04E-07	3.90E-07
Arsenic	3.46E-06	1.71E-06	1.88E-06	2.10E-06	2.22E-06	2.43E-06	2.31E-06	1.72E-06	9.56E-07	5.46E-07	1.24E-06	4.63E-06
Barium	7.79E-04	3.86E-04	4.22E-04	4.72E-04	4.99E-04	5.46E-04	5.19E-04	3.86E-04	2.15E-04	1.23E-04	2.79E-04	1.04E-03
Beryllium	4.31E-07	2.14E-07	2.34E-07	2.61E-07	2.76E-07	3.02E-07	2.87E-07	2.14E-07	1.19E-07	6.80E-08	1.55E-07	5.77E-07
Boron	1.33E-04	6.59E-05	7.21E-05	8.06E-05	8.53E-05	9.32E-05	8.86E-05	6.59E-05	3.67E-05	2.10E-05	4.77E-05	1.78E-04
Cadmium	3.42E-07	1.69E-07	1.85E-07	2.07E-07	2.19E-07	2.40E-07	2.28E-07	1.69E-07	9.44E-08	5.39E-08	1.23E-07	4.58E-07
Chromium	1.25E-05	6.21E-06	6.80E-06	7.60E-06	8.04E-06	8.79E-06	8.35E-06	6.22E-06	3.46E-06	1.98E-06	4.50E-06	1.68E-05
Cobalt	7.55E-07	3.74E-07	4.09E-07	4.58E-07	4.84E-07	5.29E-07	5.03E-07	3.74E-07	2.08E-07	1.19E-07	2.71E-07	1.01E-06
Copper	1.91E-05	9.47E-06	1.04E-05	1.16E-05	1.23E-05	1.34E-05	1.27E-05	9.48E-06	5.28E-06	3.02E-06	6.86E-06	2.56E-05
Iron	6.14E-04	3.04E-04	3.33E-04	3.72E-04	3.94E-04	4.30E-04	4.09E-04	3.04E-04	1.70E-04	9.69E-05	2.20E-04	8.22E-04
Lithium	1.36E-05	6.72E-06	7.36E-06	8.23E-06	8.70E-06	9.52E-06	9.04E-06	6.73E-06	3.75E-06	2.14E-06	4.87E-06	1.82E-05
Manganese	1.94E-05	9.63E-06	1.05E-05	1.18E-05	1.25E-05	1.36E-05	1.30E-05	9.64E-06	5.37E-06	3.07E-06	6.98E-06	2.60E-05

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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Mercury (Total)	3.51E-06	1.74E-06	1.90E-06	2.13E-06	2.25E-06	2.46E-06	2.34E-06	1.74E-06	9.69E-07	5.53E-07	1.26E-06	4.70E-06
Elemental Hg	6.20E-06	3.07E-06	3.35E-06	3.76E-06	3.99E-06	4.36E-06	4.23E-06	3.13E-06	1.72E-06	1.02E-06	2.26E-06	8.27E-06
Oxidized Hg	7.90E-07	3.91E-07	4.27E-07	4.78E-07	5.08E-07	5.54E-07	5.38E-07	3.98E-07	2.19E-07	1.30E-07	2.88E-07	1.05E-06
Particle-bound Hg	7.38E-09	3.65E-09	4.00E-09	4.47E-09	4.73E-09	5.17E-09	4.92E-09	3.66E-09	2.04E-09	1.16E-09	2.65E-09	9.88E-09
Molybdenum	9.86E-06	4.88E-06	5.35E-06	5.98E-06	6.32E-06	6.91E-06	6.57E-06	4.89E-06	2.72E-06	1.56E-06	3.54E-06	1.32E-05
Nickel	1.01E-05	4.99E-06	5.46E-06	6.11E-06	6.46E-06	7.06E-06	6.71E-06	5.00E-06	2.78E-06	1.59E-06	3.61E-06	1.35E-05
Palladium	1.94E-06	9.60E-07	1.05E-06	1.18E-06	1.24E-06	1.36E-06	1.29E-06	9.62E-07	5.36E-07	3.06E-07	6.96E-07	2.60E-06
Lead	3.94E-06	1.95E-06	2.14E-06	2.39E-06	2.53E-06	2.77E-06	2.63E-06	1.96E-06	1.09E-06	6.22E-07	1.42E-06	5.28E-06
Selenium	2.91E-06	1.44E-06	1.58E-06	1.76E-06	1.86E-06	2.04E-06	1.94E-06	1.44E-06	8.03E-07	4.59E-07	1.04E-06	3.89E-06
Silver	8.80E-07	4.36E-07	4.77E-07	5.34E-07	5.65E-07	6.17E-07	5.87E-07	4.37E-07	2.43E-07	1.39E-07	3.16E-07	1.18E-06
Strontium	1.58E-04	7.84E-05	8.58E-05	9.60E-05	1.02E-04	1.11E-04	1.06E-04	7.85E-05	4.37E-05	2.50E-05	5.68E-05	2.12E-04
Thallium	9.00E-06	4.46E-06	4.88E-06	5.46E-06	5.77E-06	6.31E-06	6.00E-06	4.47E-06	2.49E-06	1.42E-06	3.23E-06	1.21E-05
Thorium	3.15E-06	1.56E-06	1.71E-06	1.91E-06	2.02E-06	2.21E-06	2.10E-06	1.56E-06	8.71E-07	4.97E-07	1.13E-06	4.22E-06
Tin	9.44E-05	4.68E-05	5.12E-05	5.72E-05	6.05E-05	6.62E-05	6.29E-05	4.68E-05	2.61E-05	1.49E-05	3.39E-05	1.26E-04
Uranium	4.98E-07	2.46E-07	2.70E-07	3.02E-07	3.19E-07	3.49E-07	3.32E-07	2.47E-07	1.37E-07	7.85E-08	1.79E-07	6.67E-07
Vanadium	1.43E-05	7.07E-06	7.74E-06	8.65E-06	9.15E-06	1.00E-05	9.51E-06	7.08E-06	3.94E-06	2.25E-06	5.12E-06	1.91E-05
Zinc	2.67E-06	1.32E-06	1.45E-06	1.62E-06	1.71E-06	1.87E-06	1.78E-06	1.33E-06	7.39E-07	4.22E-07	9.60E-07	3.58E-06
Tetrachlorodibenzo-p-dioxins	1.08E-13	5.34E-14	5.84E-14	6.53E-14	6.91E-14	7.56E-14	7.18E-14	5.34E-14	2.98E-14	1.70E-14	3.87E-14	1.44E-13
Pentachlorodibenzo-p-dioxins	8.47E-14	4.19E-14	4.59E-14	5.13E-14	5.43E-14	5.94E-14	5.64E-14	4.20E-14	2.34E-14	1.34E-14	3.04E-14	1.13E-13
Hexachlorodibenzo-p-dioxins	4.70E-12	2.33E-12	2.55E-12	2.85E-12	3.01E-12	3.29E-12	3.13E-12	2.33E-12	1.30E-12	7.41E-13	1.69E-12	6.29E-12
Heptachlorodibenzo-p-dioxins	1.25E-11	6.21E-12	6.80E-12	7.61E-12	8.05E-12	8.80E-12	8.36E-12	6.22E-12	3.47E-12	1.98E-12	4.50E-12	1.68E-11
Octachlorodibenzo-p-dioxins	1.76E-11	8.73E-12	9.56E-12	1.07E-11	1.13E-11	1.24E-11	1.17E-11	8.74E-12	4.87E-12	2.78E-12	6.33E-12	2.36E-11
<b>Total Dioxins</b>	3.04E-11	1.51E-11	1.65E-11	1.84E-11	1.95E-11	2.13E-11	2.03E-11	1.51E-11	8.40E-12	4.80E-12	1.09E-11	4.07E-11
Tetrachlorodibenzofurans	1.99E-11	9.87E-12	1.08E-11	1.21E-11	1.28E-11	1.40E-11	1.33E-11	9.89E-12	5.51E-12	3.15E-12	7.16E-12	2.67E-11
Pentachlorodibenzofurans	1.82E-11	9.00E-12	9.85E-12	1.10E-11	1.17E-11	1.27E-11	1.21E-11	9.01E-12	5.02E-12	2.87E-12	6.52E-12	2.43E-11
Hexachlorodibenzofurans	6.70E-12	3.32E-12	3.63E-12	4.06E-12	4.29E-12	4.70E-12	4.46E-12	3.32E-12	1.85E-12	1.06E-12	2.40E-12	8.97E-12
Heptachlorodibenzofurans	3.70E-12	1.83E-12	2.00E-12	2.24E-12	2.37E-12	2.59E-12	2.46E-12	1.83E-12	1.02E-12	5.83E-13	1.33E-12	4.95E-12
Octachlorodibenzofurans	7.93E-11	3.93E-11	4.30E-11	4.81E-11	5.08E-11	5.56E-11	5.28E-11	3.93E-11	2.19E-11	1.25E-11	2.85E-11	1.06E-10
<b>Total Furans</b>	2.69E-12	1.33E-12	1.46E-12	1.63E-12	1.73E-12	1.89E-12	1.80E-12	1.34E-12	7.44E-13	4.25E-13	9.67E-13	3.61E-12
<b>PAHs</b>												
Acenaphthene	3.14E-07	1.56E-07	1.70E-07	1.90E-07	2.01E-07	2.20E-07	2.09E-07	1.56E-07	8.68E-08	4.95E-08	1.13E-07	4.21E-07

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COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Acenaphthylene	2.18E-09	1.08E-09	1.18E-09	1.32E-09	1.40E-09	1.53E-09	1.45E-09	1.08E-09	6.03E-10	3.44E-10	7.83E-10	2.92E-09
Anthracene	1.37E-08	6.81E-09	7.45E-09	8.33E-09	8.81E-09	9.63E-09	9.16E-09	6.81E-09	3.80E-09	2.17E-09	4.93E-09	1.84E-08
Benzo(a)anthracene	1.96E-09	9.72E-10	1.06E-09	1.19E-09	1.26E-09	1.38E-09	1.31E-09	9.74E-10	5.42E-10	3.10E-10	7.04E-10	2.63E-09
Benzo(b)anthracene	3.27E-09	1.62E-09	1.77E-09	1.98E-09	2.10E-09	2.29E-09	2.18E-09	1.62E-09	9.04E-10	5.16E-10	1.17E-09	4.38E-09
Benzo(b)fluoranthene	3.05E-09	1.51E-09	1.66E-09	1.85E-09	1.96E-09	2.14E-09	2.03E-09	1.51E-09	8.44E-10	4.82E-10	1.10E-09	4.09E-09
Benzo(k,j)fluoranthene	3.71E-09	1.84E-09	2.01E-09	2.25E-09	2.38E-09	2.60E-09	2.47E-09	1.84E-09	1.02E-09	5.85E-10	1.33E-09	4.97E-09
Benzo(a)flourene	4.80E-09	2.38E-09	2.60E-09	2.91E-09	3.08E-09	3.36E-09	3.20E-09	2.38E-09	1.33E-09	7.57E-10	1.72E-09	6.43E-09
Benzo(b)flourene	1.09E-09	5.40E-10	5.91E-10	6.61E-10	6.99E-10	7.65E-10	7.27E-10	5.41E-10	3.01E-10	1.72E-10	3.91E-10	1.46E-09
Benzo(g,h,i)perylene	8.72E-09	4.32E-09	4.73E-09	5.29E-09	5.59E-09	6.12E-09	5.81E-09	4.33E-09	2.41E-09	1.38E-09	3.13E-09	1.17E-08
Benzo(a)pyrene	2.84E-09	1.40E-09	1.54E-09	1.72E-09	1.82E-09	1.99E-09	1.89E-09	1.41E-09	7.83E-10	4.47E-10	1.02E-09	3.80E-09
Benzo(e)pyrene	1.27E-08	6.27E-09	6.86E-09	7.67E-09	8.11E-09	8.87E-09	8.43E-09	6.27E-09	3.50E-09	2.00E-09	4.54E-09	1.69E-08
Biphenyl	1.48E-07	7.35E-08	8.04E-08	8.99E-08	9.51E-08	1.04E-07	9.88E-08	7.36E-08	4.10E-08	2.34E-08	5.32E-08	1.99E-07
2-chloronaphthalene	4.58E-10	2.27E-10	2.48E-10	2.78E-10	2.94E-10	3.21E-10	3.05E-10	2.27E-10	1.27E-10	7.23E-11	1.64E-10	6.14E-10
Coronene	5.23E-09	2.59E-09	2.84E-09	3.17E-09	3.36E-09	3.67E-09	3.49E-09	2.60E-09	1.45E-09	8.26E-10	1.88E-09	7.01E-09
Dibenzo(a,c & a,h)anthracene	1.59E-10	7.89E-11	8.63E-11	9.65E-11	1.02E-10	1.12E-10	1.06E-10	7.90E-11	4.40E-11	2.51E-11	5.71E-11	2.13E-10
Dibenzo(a,j)acridine	7.85E-11	3.89E-11	4.26E-11	4.76E-11	5.04E-11	5.51E-11	5.23E-11	3.89E-11	2.17E-11	1.24E-11	2.82E-11	1.05E-10
7H-dibenzo(c,g)carbazole	1.22E-10	6.05E-11	6.62E-11	7.41E-11	7.83E-11	8.56E-11	8.14E-11	6.06E-11	3.37E-11	1.93E-11	4.38E-11	1.64E-10
Dibenzo(a,e)pyrene	2.18E-11	1.08E-11	1.18E-11	1.32E-11	1.40E-11	1.53E-11	1.45E-11	1.08E-11	6.03E-12	3.44E-12	7.83E-12	2.92E-11
Dibenzo(a,i)pyrene	2.84E-11	1.40E-11	1.54E-11	1.72E-11	1.82E-11	1.99E-11	1.89E-11	1.41E-11	7.83E-12	4.47E-12	1.02E-11	3.80E-11
9,10-dimethylanthracene	1.20E-09	5.94E-10	6.50E-10	7.27E-10	7.69E-10	8.41E-10	7.99E-10	5.95E-10	3.31E-10	1.89E-10	4.31E-10	1.61E-09
7,12-dimethylanthracene	3.71E-10	1.84E-10	2.01E-10	2.25E-10	2.38E-10	2.60E-10	2.47E-10	1.84E-10	1.02E-10	5.85E-11	1.33E-10	4.97E-10
1,2-dimethylnaphthalene	1.85E-09	9.18E-10	1.01E-09	1.12E-09	1.19E-09	1.30E-09	1.24E-09	9.19E-10	5.12E-10	2.92E-10	6.65E-10	2.48E-09
2,6 & 2,7-dimethylnaphthalene	7.20E-09	3.56E-09	3.90E-09	4.36E-09	4.62E-09	5.05E-09	4.80E-09	3.57E-09	1.99E-09	1.14E-09	2.58E-09	9.64E-09
Fluoranthene	3.71E-08	1.84E-08	2.01E-08	2.25E-08	2.38E-08	2.60E-08	2.47E-08	1.84E-08	1.02E-08	5.85E-09	1.33E-08	4.97E-08
Fluorene	4.36E-08	2.16E-08	2.37E-08	2.64E-08	2.80E-08	3.06E-08	2.91E-08	2.16E-08	1.21E-08	6.88E-09	1.57E-08	5.84E-08
Indeno(1,2,3-cd)pyrene	1.50E-09	7.45E-10	8.16E-10	9.12E-10	9.65E-10	1.06E-09	1.00E-09	7.46E-10	4.16E-10	2.37E-10	5.40E-10	2.02E-09
2-methylanthracene	2.40E-09	1.19E-09	1.30E-09	1.45E-09	1.54E-09	1.68E-09	1.60E-09	1.19E-09	6.63E-10	3.79E-10	8.61E-10	3.21E-09
3-methylcholanthrene	6.54E-09	3.24E-09	3.55E-09	3.97E-09	4.20E-09	4.59E-09	4.36E-09	3.25E-09	1.81E-09	1.03E-09	2.35E-09	8.76E-09
1-methylnaphthalene	4.36E-08	2.16E-08	2.37E-08	2.64E-08	2.80E-08	3.06E-08	2.91E-08	2.16E-08	1.21E-08	6.88E-09	1.57E-08	5.84E-08
2-methylnaphthalene	6.54E-08	3.24E-08	3.55E-08	3.97E-08	4.20E-08	4.59E-08	4.36E-08	3.25E-08	1.81E-08	1.03E-08	2.35E-08	8.76E-08
1-methylphenanthrene	1.81E-08	8.97E-09	9.82E-09	1.10E-08	1.16E-08	1.27E-08	1.21E-08	8.98E-09	5.00E-09	2.86E-09	6.50E-09	2.42E-08

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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
9-methylphenanthrene	1.61E-08	7.99E-09	8.75E-09	9.79E-09	1.04E-08	1.13E-08	1.08E-08	8.00E-09	4.46E-09	2.55E-09	5.79E-09	2.16E-08
Naphthalene	1.31E-07	6.48E-08	7.10E-08	7.93E-08	8.39E-08	9.18E-08	8.72E-08	6.49E-08	3.62E-08	2.06E-08	4.70E-08	1.75E-07
Perylene	8.94E-10	4.43E-10	4.85E-10	5.42E-10	5.73E-10	6.27E-10	5.96E-10	4.44E-10	2.47E-10	1.41E-10	3.21E-10	1.20E-09
Phenanthrene	2.40E-07	1.19E-07	1.30E-07	1.45E-07	1.54E-07	1.68E-07	1.60E-07	1.19E-07	6.63E-08	3.79E-08	8.61E-08	3.21E-07
Picene	1.46E-10	7.24E-11	7.92E-11	8.86E-11	9.37E-11	1.02E-10	9.74E-11	7.25E-11	4.04E-11	2.31E-11	5.24E-11	1.96E-10
Pyrene	2.40E-08	1.19E-08	1.30E-08	1.45E-08	1.54E-08	1.68E-08	1.60E-08	1.19E-08	6.63E-09	3.79E-09	8.61E-09	3.21E-08
Quinoline	1.81E-09	8.97E-10	9.82E-10	1.10E-09	1.16E-09	1.27E-09	1.21E-09	8.98E-10	5.00E-10	2.86E-10	6.50E-10	2.42E-09
m-Terphenyl	6.33E-09	3.13E-09	3.43E-09	3.83E-09	4.06E-09	4.43E-09	4.21E-09	3.14E-09	1.75E-09	9.98E-10	2.27E-09	8.47E-09
o-Terphenyl	1.00E-08	4.97E-09	5.44E-09	6.08E-09	6.43E-09	7.03E-09	6.69E-09	4.98E-09	2.77E-09	1.58E-09	3.60E-09	1.34E-08
p-Terphenyl	3.27E-09	1.62E-09	1.77E-09	1.98E-09	2.10E-09	2.29E-09	2.18E-09	1.62E-09	9.04E-10	5.16E-10	1.17E-09	4.38E-09
Tetralin	1.42E-08	7.02E-09	7.69E-09	8.60E-09	9.09E-09	9.94E-09	9.45E-09	7.03E-09	3.92E-09	2.24E-09	5.09E-09	1.90E-08
Triphenylene/chrysene	8.29E-09	4.10E-09	4.49E-09	5.02E-09	5.32E-09	5.81E-09	5.52E-09	4.11E-09	2.29E-09	1.31E-09	2.97E-09	1.11E-08
<b>VOCs</b>												
Acetaldehyde	2.66E-05	1.31E-05	1.43E-05	1.61E-05	1.71E-05	1.86E-05	1.81E-05	1.34E-05	7.38E-06	4.36E-06	9.68E-06	3.54E-05
Acetophenone	6.99E-07	3.46E-07	3.77E-07	4.23E-07	4.49E-07	4.91E-07	4.76E-07	3.52E-07	1.94E-07	1.15E-07	2.55E-07	9.31E-07
Acrolien	1.35E-05	6.69E-06	7.30E-06	8.18E-06	8.69E-06	9.49E-06	9.21E-06	6.81E-06	3.75E-06	2.22E-06	4.93E-06	1.80E-05
Benzene	6.06E-05	3.00E-05	3.27E-05	3.67E-05	3.89E-05	4.25E-05	4.13E-05	3.05E-05	1.68E-05	9.94E-06	2.21E-05	8.07E-05
Benzyl chloride	3.26E-05	1.61E-05	1.76E-05	1.98E-05	2.10E-05	2.29E-05	2.22E-05	1.64E-05	9.06E-06	5.35E-06	1.19E-05	4.35E-05
Bis(2-ethylhexyl)phthalate (DEHP)	3.40E-06	1.68E-06	1.84E-06	2.06E-06	2.19E-06	2.39E-06	2.32E-06	1.71E-06	9.45E-07	5.58E-07	1.24E-06	4.53E-06
Bromoform	1.82E-06	8.99E-07	9.81E-07	1.10E-06	1.17E-06	1.28E-06	1.24E-06	9.15E-07	5.05E-07	2.98E-07	6.63E-07	2.42E-06
Carbon disulphide	6.06E-06	3.00E-06	3.27E-06	3.67E-06	3.89E-06	4.25E-06	4.13E-06	3.05E-06	1.68E-06	9.94E-07	2.21E-06	8.07E-06
2-Chloroacetophenone	3.26E-07	1.61E-07	1.76E-07	1.98E-07	2.10E-07	2.29E-07	2.22E-07	1.64E-07	9.06E-08	5.35E-08	1.19E-07	4.35E-07
Chlorobenzene	1.02E-06	5.07E-07	5.54E-07	6.21E-07	6.59E-07	7.20E-07	6.99E-07	5.16E-07	2.85E-07	1.68E-07	3.74E-07	1.37E-06
Chloroform	2.75E-06	1.36E-06	1.48E-06	1.66E-06	1.77E-06	1.93E-06	1.87E-06	1.38E-06	7.64E-07	4.51E-07	1.00E-06	3.66E-06
Cumene	2.47E-07	1.22E-07	1.33E-07	1.50E-07	1.59E-07	1.73E-07	1.68E-07	1.24E-07	6.86E-08	4.05E-08	9.01E-08	3.29E-07
Cyanide	1.16E-04	5.76E-05	6.29E-05	7.05E-05	7.49E-05	8.18E-05	7.94E-05	5.87E-05	3.24E-05	1.91E-05	4.25E-05	1.55E-04
2,4-Dinitrotoluene	1.30E-08	6.45E-09	7.05E-09	7.90E-09	8.39E-09	9.16E-09	8.89E-09	6.57E-09	3.62E-09	2.14E-09	4.76E-09	1.74E-08
Dimethyl Sulphate	2.24E-06	1.11E-06	1.21E-06	1.35E-06	1.44E-06	1.57E-06	1.52E-06	1.13E-06	6.21E-07	3.67E-07	8.16E-07	2.98E-06

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COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Ethyl benzene	4.38E-06	2.17E-06	2.37E-06	2.65E-06	2.82E-06	3.08E-06	2.99E-06	2.21E-06	1.22E-06	7.19E-07	1.60E-06	5.84E-06
Ethyl chloride	1.96E-06	9.68E-07	1.06E-06	1.19E-06	1.26E-06	1.37E-06	1.33E-06	9.86E-07	5.44E-07	3.21E-07	7.14E-07	2.61E-06
Ethylene dichloride	1.86E-06	9.22E-07	1.01E-06	1.13E-06	1.20E-06	1.31E-06	1.27E-06	9.39E-07	5.18E-07	3.06E-07	6.80E-07	2.48E-06
Ethylene dibromide	5.59E-08	2.77E-08	3.02E-08	3.39E-08	3.59E-08	3.93E-08	3.81E-08	2.82E-08	1.55E-08	9.18E-09	2.04E-08	7.45E-08
Formaldehyde	1.12E-05	5.53E-06	6.04E-06	6.77E-06	7.19E-06	7.85E-06	7.62E-06	5.63E-06	3.11E-06	1.84E-06	4.08E-06	1.49E-05
Hexane	3.12E-06	1.54E-06	1.69E-06	1.89E-06	2.01E-06	2.19E-06	2.13E-06	1.57E-06	8.67E-07	5.12E-07	1.14E-06	4.16E-06
Isophorone	2.70E-05	1.34E-05	1.46E-05	1.64E-05	1.74E-05	1.90E-05	1.84E-05	1.36E-05	7.51E-06	4.44E-06	9.85E-06	3.60E-05
Methylbromide	7.45E-06	3.69E-06	4.03E-06	4.52E-06	4.79E-06	5.23E-06	5.08E-06	3.76E-06	2.07E-06	1.22E-06	2.72E-06	9.93E-06
Methyl chloride	2.47E-05	1.22E-05	1.33E-05	1.50E-05	1.59E-05	1.73E-05	1.68E-05	1.24E-05	6.86E-06	4.05E-06	9.01E-06	3.29E-05
Methyl ethyl ketone	1.82E-05	8.99E-06	9.81E-06	1.10E-05	1.17E-05	1.28E-05	1.24E-05	9.15E-06	5.05E-06	2.98E-06	6.63E-06	2.42E-05
Methyl hydrazine	7.92E-06	3.92E-06	4.28E-06	4.80E-06	5.09E-06	5.56E-06	5.40E-06	3.99E-06	2.20E-06	1.30E-06	2.89E-06	1.06E-05
Methyl methacrylate	9.32E-07	4.61E-07	5.03E-07	5.64E-07	5.99E-07	6.54E-07	6.35E-07	4.69E-07	2.59E-07	1.53E-07	3.40E-07	1.24E-06
Methyl tert-butyl ether	1.63E-06	8.07E-07	8.81E-07	9.88E-07	1.05E-06	1.15E-06	1.11E-06	8.22E-07	4.53E-07	2.68E-07	5.95E-07	2.17E-06
Methylene chloride	1.35E-05	6.69E-06	7.30E-06	8.18E-06	8.69E-06	9.49E-06	9.21E-06	6.81E-06	3.75E-06	2.22E-06	4.93E-06	1.80E-05
Phenol	7.45E-07	3.69E-07	4.03E-07	4.52E-07	4.79E-07	5.23E-07	5.08E-07	3.76E-07	2.07E-07	1.22E-07	2.72E-07	9.93E-07
Propionaldehyde	1.77E-05	8.76E-06	9.56E-06	1.07E-05	1.14E-05	1.24E-05	1.21E-05	8.92E-06	4.92E-06	2.91E-06	6.46E-06	2.36E-05
Tetrachloroethylene	2.00E-06	9.91E-07	1.08E-06	1.21E-06	1.29E-06	1.41E-06	1.37E-06	1.01E-06	5.57E-07	3.29E-07	7.31E-07	2.67E-06
Toluene	1.12E-05	5.53E-06	6.04E-06	6.77E-06	7.19E-06	7.85E-06	7.62E-06	5.63E-06	3.11E-06	1.84E-06	4.08E-06	1.49E-05
1,1,1-Trichloroethane	9.32E-07	4.61E-07	5.03E-07	5.64E-07	5.99E-07	6.54E-07	6.35E-07	4.69E-07	2.59E-07	1.53E-07	3.40E-07	1.24E-06
Styrene	1.16E-06	5.76E-07	6.29E-07	7.05E-07	7.49E-07	8.18E-07	7.94E-07	5.87E-07	3.24E-07	1.91E-07	4.25E-07	1.55E-06
Xylenes	1.72E-06	8.53E-07	9.31E-07	1.04E-06	1.11E-06	1.21E-06	1.18E-06	8.68E-07	4.79E-07	2.83E-07	6.29E-07	2.30E-06
Vinyl acetate	3.54E-07	1.75E-07	1.91E-07	2.14E-07	2.28E-07	2.49E-07	2.41E-07	1.78E-07	9.84E-08	5.81E-08	1.29E-07	4.72E-07

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**Table C.8  
Maximum Predicted Total Annual Average (wet plus dry) COPC Deposition Rates (OS3)**

COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
<b>Common Air Contaminants</b>												
Total PM	3.08E-02	1.53E-02	1.67E-02	1.87E-02	1.97E-02	2.16E-02	2.05E-02	1.53E-02	8.51E-03	4.86E-03	1.11E-02	4.12E-02
PM <sub>10</sub>	2.87E-02	1.42E-02	1.55E-02	1.74E-02	1.84E-02	2.01E-02	1.93E-02	1.44E-02	7.97E-03	4.61E-03	1.04E-02	3.83E-02
PM <sub>2.5</sub>	1.76E-02	8.74E-03	9.55E-03	1.07E-02	1.14E-02	1.24E-02	1.20E-02	8.90E-03	4.91E-03	2.86E-03	6.44E-03	2.35E-02
NO	3.11E-01	1.54E-01	1.68E-01	1.88E-01	2.00E-01	2.18E-01	2.12E-01	1.57E-01	8.63E-02	5.10E-02	1.13E-01	4.14E-01
NO <sub>2</sub>	1.73E-01	8.54E-02	9.33E-02	1.05E-01	1.11E-01	1.21E-01	1.18E-01	8.70E-02	4.80E-02	2.83E-02	6.30E-02	2.30E-01
NO <sub>x</sub>	4.83E-01	2.39E-01	2.61E-01	2.93E-01	3.11E-01	3.39E-01	3.30E-01	2.44E-01	1.34E-01	7.94E-02	1.76E-01	6.44E-01
NO <sub>2</sub> 100% convert	6.49E-01	3.21E-01	3.51E-01	3.93E-01	4.17E-01	4.56E-01	4.43E-01	3.27E-01	1.80E-01	1.07E-01	2.37E-01	8.65E-01
SO <sub>2</sub>	5.36E-01	2.65E-01	2.89E-01	3.25E-01	3.44E-01	3.76E-01	3.65E-01	2.70E-01	1.49E-01	8.80E-02	1.95E-01	7.14E-01
CO	3.86E-02	1.91E-02	2.08E-02	2.34E-02	2.48E-02	2.71E-02	2.63E-02	1.94E-02	1.07E-02	6.33E-03	1.41E-02	5.14E-02
<b>Inorganic Gases</b>												
HCl	3.90E-04	1.93E-04	2.10E-04	2.36E-04	2.50E-04	2.74E-04	2.66E-04	1.96E-04	1.08E-04	6.40E-05	1.42E-04	5.19E-04
HF	3.57E-04	1.77E-04	1.93E-04	2.16E-04	2.30E-04	2.51E-04	2.44E-04	1.80E-04	9.93E-05	5.87E-05	1.30E-04	4.76E-04
<b>Metals</b>												
Aluminum	1.67E-03	8.25E-04	9.03E-04	1.01E-03	1.07E-03	1.17E-03	1.11E-03	8.26E-04	4.60E-04	2.63E-04	5.98E-04	2.23E-03
Antimony	2.91E-07	1.44E-07	1.58E-07	1.76E-07	1.86E-07	2.04E-07	1.94E-07	1.44E-07	8.03E-08	4.59E-08	1.04E-07	3.90E-07
Arsenic	3.46E-06	1.71E-06	1.88E-06	2.10E-06	2.22E-06	2.43E-06	2.31E-06	1.72E-06	9.56E-07	5.46E-07	1.24E-06	4.63E-06
Barium	7.79E-04	3.86E-04	4.22E-04	4.72E-04	4.99E-04	5.46E-04	5.19E-04	3.86E-04	2.15E-04	1.23E-04	2.79E-04	1.04E-03
Beryllium	4.31E-07	2.14E-07	2.34E-07	2.61E-07	2.76E-07	3.02E-07	2.87E-07	2.14E-07	1.19E-07	6.80E-08	1.55E-07	5.77E-07
Boron	1.33E-04	6.59E-05	7.21E-05	8.06E-05	8.53E-05	9.32E-05	8.86E-05	6.59E-05	3.67E-05	2.10E-05	4.77E-05	1.78E-04
Cadmium	3.42E-07	1.69E-07	1.85E-07	2.07E-07	2.19E-07	2.40E-07	2.28E-07	1.69E-07	9.44E-08	5.39E-08	1.23E-07	4.58E-07
Chromium	1.25E-05	6.21E-06	6.80E-06	7.60E-06	8.04E-06	8.79E-06	8.35E-06	6.22E-06	3.46E-06	1.98E-06	4.50E-06	1.68E-05
Cobalt	7.55E-07	3.74E-07	4.09E-07	4.58E-07	4.84E-07	5.29E-07	5.03E-07	3.74E-07	2.08E-07	1.19E-07	2.71E-07	1.01E-06
Copper	1.91E-05	9.47E-06	1.04E-05	1.16E-05	1.23E-05	1.34E-05	1.27E-05	9.48E-06	5.28E-06	3.02E-06	6.86E-06	2.56E-05
Iron	6.14E-04	3.04E-04	3.33E-04	3.72E-04	3.94E-04	4.30E-04	4.09E-04	3.04E-04	1.70E-04	9.69E-05	2.20E-04	8.22E-04
Lithium	1.36E-05	6.72E-06	7.36E-06	8.23E-06	8.70E-06	9.52E-06	9.04E-06	6.73E-06	3.75E-06	2.14E-06	4.87E-06	1.82E-05
Manganese	1.94E-05	9.63E-06	1.05E-05	1.18E-05	1.25E-05	1.36E-05	1.30E-05	9.64E-06	5.37E-06	3.07E-06	6.98E-06	2.60E-05

*Brandon Generating Station Licence Review  
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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Mercury (Total)	3.51E-06	1.74E-06	1.90E-06	2.13E-06	2.25E-06	2.46E-06	2.34E-06	1.74E-06	9.69E-07	5.53E-07	1.26E-06	4.70E-06
Elemental Hg	6.20E-06	3.07E-06	3.35E-06	3.76E-06	3.99E-06	4.36E-06	4.23E-06	3.13E-06	1.72E-06	1.02E-06	2.26E-06	8.27E-06
Oxidized Hg	7.90E-07	3.91E-07	4.27E-07	4.78E-07	5.08E-07	5.54E-07	5.38E-07	3.98E-07	2.19E-07	1.30E-07	2.88E-07	1.05E-06
Particle-bound Hg	7.38E-09	3.65E-09	4.00E-09	4.47E-09	4.73E-09	5.17E-09	4.92E-09	3.66E-09	2.04E-09	1.16E-09	2.65E-09	9.88E-09
Molybdenum	9.86E-06	4.88E-06	5.35E-06	5.98E-06	6.32E-06	6.91E-06	6.57E-06	4.89E-06	2.72E-06	1.56E-06	3.54E-06	1.32E-05
Nickel	1.01E-05	4.99E-06	5.46E-06	6.11E-06	6.46E-06	7.06E-06	6.71E-06	5.00E-06	2.78E-06	1.59E-06	3.61E-06	1.35E-05
Palladium	1.94E-06	9.60E-07	1.05E-06	1.18E-06	1.24E-06	1.36E-06	1.29E-06	9.62E-07	5.36E-07	3.06E-07	6.96E-07	2.60E-06
Lead	3.94E-06	1.95E-06	2.14E-06	2.39E-06	2.53E-06	2.77E-06	2.63E-06	1.96E-06	1.09E-06	6.22E-07	1.42E-06	5.28E-06
Selenium	2.91E-06	1.44E-06	1.58E-06	1.76E-06	1.86E-06	2.04E-06	1.94E-06	1.44E-06	8.03E-07	4.59E-07	1.04E-06	3.89E-06
Silver	8.80E-07	4.36E-07	4.77E-07	5.34E-07	5.65E-07	6.17E-07	5.87E-07	4.37E-07	2.43E-07	1.39E-07	3.16E-07	1.18E-06
Strontium	1.58E-04	7.84E-05	8.58E-05	9.60E-05	1.02E-04	1.11E-04	1.06E-04	7.85E-05	4.37E-05	2.50E-05	5.68E-05	2.12E-04
Thallium	9.00E-06	4.46E-06	4.88E-06	5.46E-06	5.77E-06	6.31E-06	6.00E-06	4.47E-06	2.49E-06	1.42E-06	3.23E-06	1.21E-05
Thorium	3.15E-06	1.56E-06	1.71E-06	1.91E-06	2.02E-06	2.21E-06	2.10E-06	1.56E-06	8.71E-07	4.97E-07	1.13E-06	4.22E-06
Tin	9.44E-05	4.68E-05	5.12E-05	5.72E-05	6.05E-05	6.62E-05	6.29E-05	4.68E-05	2.61E-05	1.49E-05	3.39E-05	1.26E-04
Uranium	4.98E-07	2.46E-07	2.70E-07	3.02E-07	3.19E-07	3.49E-07	3.32E-07	2.47E-07	1.37E-07	7.85E-08	1.79E-07	6.67E-07
Vanadium	1.43E-05	7.07E-06	7.74E-06	8.65E-06	9.15E-06	1.00E-05	9.51E-06	7.08E-06	3.94E-06	2.25E-06	5.12E-06	1.91E-05
Zinc	2.67E-06	1.32E-06	1.45E-06	1.62E-06	1.71E-06	1.87E-06	1.78E-06	1.33E-06	7.39E-07	4.22E-07	9.60E-07	3.58E-06
Tetrachlorodibenzo-p-dioxins	1.08E-13	5.34E-14	5.84E-14	6.53E-14	6.91E-14	7.56E-14	7.18E-14	5.34E-14	2.98E-14	1.70E-14	3.87E-14	1.44E-13
Pentachlorodibenzo-p-dioxins	8.47E-14	4.19E-14	4.59E-14	5.13E-14	5.43E-14	5.94E-14	5.64E-14	4.20E-14	2.34E-14	1.34E-14	3.04E-14	1.13E-13
Hexachlorodibenzo-p-dioxins	4.70E-12	2.33E-12	2.55E-12	2.85E-12	3.01E-12	3.29E-12	3.13E-12	2.33E-12	1.30E-12	7.41E-13	1.69E-12	6.29E-12
Heptachlorodibenzo-p-dioxins	1.25E-11	6.21E-12	6.80E-12	7.61E-12	8.05E-12	8.80E-12	8.36E-12	6.22E-12	3.47E-12	1.98E-12	4.50E-12	1.68E-11
Octachlorodibenzo-p-dioxins	1.76E-11	8.73E-12	9.56E-12	1.07E-11	1.13E-11	1.24E-11	1.17E-11	8.74E-12	4.87E-12	2.78E-12	6.33E-12	2.36E-11
<b>Total Dioxins</b>	3.04E-11	1.51E-11	1.65E-11	1.84E-11	1.95E-11	2.13E-11	2.03E-11	1.51E-11	8.40E-12	4.80E-12	1.09E-11	4.07E-11
Tetrachlorodibenzofurans	1.99E-11	9.87E-12	1.08E-11	1.21E-11	1.28E-11	1.40E-11	1.33E-11	9.89E-12	5.51E-12	3.15E-12	7.16E-12	2.67E-11
Pentachlorodibenzofurans	1.82E-11	9.00E-12	9.85E-12	1.10E-11	1.17E-11	1.27E-11	1.21E-11	9.01E-12	5.02E-12	2.87E-12	6.52E-12	2.43E-11
Hexachlorodibenzofurans	6.70E-12	3.32E-12	3.63E-12	4.06E-12	4.29E-12	4.70E-12	4.46E-12	3.32E-12	1.85E-12	1.06E-12	2.40E-12	8.97E-12
Heptachlorodibenzofurans	3.70E-12	1.83E-12	2.00E-12	2.24E-12	2.37E-12	2.59E-12	2.46E-12	1.83E-12	1.02E-12	5.83E-13	1.33E-12	4.95E-12
Octachlorodibenzofurans	7.93E-11	3.93E-11	4.30E-11	4.81E-11	5.08E-11	5.56E-11	5.28E-11	3.93E-11	2.19E-11	1.25E-11	2.85E-11	1.06E-10
<b>Total Furans</b>	2.69E-12	1.33E-12	1.46E-12	1.63E-12	1.73E-12	1.89E-12	1.80E-12	1.34E-12	7.44E-13	4.25E-13	9.67E-13	3.61E-12
<b>PAHs</b>												
Acenaphthene	3.14E-07	1.56E-07	1.70E-07	1.90E-07	2.01E-07	2.20E-07	2.09E-07	1.56E-07	8.68E-08	4.95E-08	1.13E-07	4.21E-07



*Brandon Generating Station Licence Review  
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COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											Max. POI
	1	2	3	4	5	6	7	8	9	10	11	
Acenaphthylene	2.18E-09	1.08E-09	1.18E-09	1.32E-09	1.40E-09	1.53E-09	1.45E-09	1.08E-09	6.03E-10	3.44E-10	7.83E-10	2.92E-09
Anthracene	1.37E-08	6.81E-09	7.45E-09	8.33E-09	8.81E-09	9.63E-09	9.16E-09	6.81E-09	3.80E-09	2.17E-09	4.93E-09	1.84E-08
Benzo(a)anthracene	1.96E-09	9.72E-10	1.06E-09	1.19E-09	1.26E-09	1.38E-09	1.31E-09	9.74E-10	5.42E-10	3.10E-10	7.04E-10	2.63E-09
Benzo(b)anthracene	3.27E-09	1.62E-09	1.77E-09	1.98E-09	2.10E-09	2.29E-09	2.18E-09	1.62E-09	9.04E-10	5.16E-10	1.17E-09	4.38E-09
Benzo(b)fluoranthene	3.05E-09	1.51E-09	1.66E-09	1.85E-09	1.96E-09	2.14E-09	2.03E-09	1.51E-09	8.44E-10	4.82E-10	1.10E-09	4.09E-09
Benzo(k,j)fluoranthene	3.71E-09	1.84E-09	2.01E-09	2.25E-09	2.38E-09	2.60E-09	2.47E-09	1.84E-09	1.02E-09	5.85E-10	1.33E-09	4.97E-09
Benzo(a)flourene	4.80E-09	2.38E-09	2.60E-09	2.91E-09	3.08E-09	3.36E-09	3.20E-09	2.38E-09	1.33E-09	7.57E-10	1.72E-09	6.43E-09
Benzo(b)flourene	1.09E-09	5.40E-10	5.91E-10	6.61E-10	6.99E-10	7.65E-10	7.27E-10	5.41E-10	3.01E-10	1.72E-10	3.91E-10	1.46E-09
Benzo(g,h,i)perylene	8.72E-09	4.32E-09	4.73E-09	5.29E-09	5.59E-09	6.12E-09	5.81E-09	4.33E-09	2.41E-09	1.38E-09	3.13E-09	1.17E-08
Benzo(a)pyrene	2.84E-09	1.40E-09	1.54E-09	1.72E-09	1.82E-09	1.99E-09	1.89E-09	1.41E-09	7.83E-10	4.47E-10	1.02E-09	3.80E-09
Benzo(e)pyrene	1.27E-08	6.27E-09	6.86E-09	7.67E-09	8.11E-09	8.87E-09	8.43E-09	6.27E-09	3.50E-09	2.00E-09	4.54E-09	1.69E-08
Biphenyl	1.48E-07	7.35E-08	8.04E-08	8.99E-08	9.51E-08	1.04E-07	9.88E-08	7.36E-08	4.10E-08	2.34E-08	5.32E-08	1.99E-07
2-chloronaphthalene	4.58E-10	2.27E-10	2.48E-10	2.78E-10	2.94E-10	3.21E-10	3.05E-10	2.27E-10	1.27E-10	7.23E-11	1.64E-10	6.14E-10
Coronene	5.23E-09	2.59E-09	2.84E-09	3.17E-09	3.36E-09	3.67E-09	3.49E-09	2.60E-09	1.45E-09	8.26E-10	1.88E-09	7.01E-09
Dibenzo(a,c & a,h)anthracene	1.59E-10	7.89E-11	8.63E-11	9.65E-11	1.02E-10	1.12E-10	1.06E-10	7.90E-11	4.40E-11	2.51E-11	5.71E-11	2.13E-10
Dibenzo(a,j)acridine	7.85E-11	3.89E-11	4.26E-11	4.76E-11	5.04E-11	5.51E-11	5.23E-11	3.89E-11	2.17E-11	1.24E-11	2.82E-11	1.05E-10
7H-dibenzo(c,g)carbazole	1.22E-10	6.05E-11	6.62E-11	7.41E-11	7.83E-11	8.56E-11	8.14E-11	6.06E-11	3.37E-11	1.93E-11	4.38E-11	1.64E-10
Dibenzo(a,e)pyrene	2.18E-11	1.08E-11	1.18E-11	1.32E-11	1.40E-11	1.53E-11	1.45E-11	1.08E-11	6.03E-12	3.44E-12	7.83E-12	2.92E-11
Dibenzo(a,i)pyrene	2.84E-11	1.40E-11	1.54E-11	1.72E-11	1.82E-11	1.99E-11	1.89E-11	1.41E-11	7.83E-12	4.47E-12	1.02E-11	3.80E-11
9,10-dimethylanthracene	1.20E-09	5.94E-10	6.50E-10	7.27E-10	7.69E-10	8.41E-10	7.99E-10	5.95E-10	3.31E-10	1.89E-10	4.31E-10	1.61E-09
7,12-dimethylanthracene	3.71E-10	1.84E-10	2.01E-10	2.25E-10	2.38E-10	2.60E-10	2.47E-10	1.84E-10	1.02E-10	5.85E-11	1.33E-10	4.97E-10
1,2-dimethylnaphthalene	1.85E-09	9.18E-10	1.01E-09	1.12E-09	1.19E-09	1.30E-09	1.24E-09	9.19E-10	5.12E-10	2.92E-10	6.65E-10	2.48E-09
2,6 & 2,7-dimethylnaphthalene	7.20E-09	3.56E-09	3.90E-09	4.36E-09	4.62E-09	5.05E-09	4.80E-09	3.57E-09	1.99E-09	1.14E-09	2.58E-09	9.64E-09
Fluoranthene	3.71E-08	1.84E-08	2.01E-08	2.25E-08	2.38E-08	2.60E-08	2.47E-08	1.84E-08	1.02E-08	5.85E-09	1.33E-08	4.97E-08
Fluorene	4.36E-08	2.16E-08	2.37E-08	2.64E-08	2.80E-08	3.06E-08	2.91E-08	2.16E-08	1.21E-08	6.88E-09	1.57E-08	5.84E-08
Indeno(1,2,3-cd)pyrene	1.50E-09	7.45E-10	8.16E-10	9.12E-10	9.65E-10	1.06E-09	1.00E-09	7.46E-10	4.16E-10	2.37E-10	5.40E-10	2.02E-09
2-methylanthracene	2.40E-09	1.19E-09	1.30E-09	1.45E-09	1.54E-09	1.68E-09	1.60E-09	1.19E-09	6.63E-10	3.79E-10	8.61E-10	3.21E-09
3-methylcholanthrene	6.54E-09	3.24E-09	3.55E-09	3.97E-09	4.20E-09	4.59E-09	4.36E-09	3.25E-09	1.81E-09	1.03E-09	2.35E-09	8.76E-09
1-methylnaphthalene	4.36E-08	2.16E-08	2.37E-08	2.64E-08	2.80E-08	3.06E-08	2.91E-08	2.16E-08	1.21E-08	6.88E-09	1.57E-08	5.84E-08
2-methylnaphthalene	6.54E-08	3.24E-08	3.55E-08	3.97E-08	4.20E-08	4.59E-08	4.36E-08	3.25E-08	1.81E-08	1.03E-08	2.35E-08	8.76E-08

*Brandon Generating Station Licence Review  
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COPC	Discrete Receptor Concentration (µg/m <sup>3</sup> )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
1-methylphenanthrene	1.81E-08	8.97E-09	9.82E-09	1.10E-08	1.16E-08	1.27E-08	1.21E-08	8.98E-09	5.00E-09	2.86E-09	6.50E-09	2.42E-08
9-methylphenanthrene	1.61E-08	7.99E-09	8.75E-09	9.79E-09	1.04E-08	1.13E-08	1.08E-08	8.00E-09	4.46E-09	2.55E-09	5.79E-09	2.16E-08
Naphthalene	1.31E-07	6.48E-08	7.10E-08	7.93E-08	8.39E-08	9.18E-08	8.72E-08	6.49E-08	3.62E-08	2.06E-08	4.70E-08	1.75E-07
Perylene	8.94E-10	4.43E-10	4.85E-10	5.42E-10	5.73E-10	6.27E-10	5.96E-10	4.44E-10	2.47E-10	1.41E-10	3.21E-10	1.20E-09
Phenanthrene	2.40E-07	1.19E-07	1.30E-07	1.45E-07	1.54E-07	1.68E-07	1.60E-07	1.19E-07	6.63E-08	3.79E-08	8.61E-08	3.21E-07
Picene	1.46E-10	7.24E-11	7.92E-11	8.86E-11	9.37E-11	1.02E-10	9.74E-11	7.25E-11	4.04E-11	2.31E-11	5.24E-11	1.96E-10
Pyrene	2.40E-08	1.19E-08	1.30E-08	1.45E-08	1.54E-08	1.68E-08	1.60E-08	1.19E-08	6.63E-09	3.79E-09	8.61E-09	3.21E-08
Quinoline	1.81E-09	8.97E-10	9.82E-10	1.10E-09	1.16E-09	1.27E-09	1.21E-09	8.98E-10	5.00E-10	2.86E-10	6.50E-10	2.42E-09
m-Terphenyl	6.33E-09	3.13E-09	3.43E-09	3.83E-09	4.06E-09	4.43E-09	4.21E-09	3.14E-09	1.75E-09	9.98E-10	2.27E-09	8.47E-09
o-Terphenyl	1.00E-08	4.97E-09	5.44E-09	6.08E-09	6.43E-09	7.03E-09	6.69E-09	4.98E-09	2.77E-09	1.58E-09	3.60E-09	1.34E-08
p-Terphenyl	3.27E-09	1.62E-09	1.77E-09	1.98E-09	2.10E-09	2.29E-09	2.18E-09	1.62E-09	9.04E-10	5.16E-10	1.17E-09	4.38E-09
Tetralin	1.42E-08	7.02E-09	7.69E-09	8.60E-09	9.09E-09	9.94E-09	9.45E-09	7.03E-09	3.92E-09	2.24E-09	5.09E-09	1.90E-08
Triphenylene/chrysene	8.29E-09	4.10E-09	4.49E-09	5.02E-09	5.32E-09	5.81E-09	5.52E-09	4.11E-09	2.29E-09	1.31E-09	2.97E-09	1.11E-08
<b>VOCs</b>												
Acetaldehyde	2.66E-05	1.31E-05	1.43E-05	1.61E-05	1.71E-05	1.86E-05	1.81E-05	1.34E-05	7.38E-06	4.36E-06	9.68E-06	3.54E-05
Acetophenone	6.99E-07	3.46E-07	3.77E-07	4.23E-07	4.49E-07	4.91E-07	4.76E-07	3.52E-07	1.94E-07	1.15E-07	2.55E-07	9.31E-07
Acrolien	1.35E-05	6.69E-06	7.30E-06	8.18E-06	8.69E-06	9.49E-06	9.21E-06	6.81E-06	3.75E-06	2.22E-06	4.93E-06	1.80E-05
Benzene	6.06E-05	3.00E-05	3.27E-05	3.67E-05	3.89E-05	4.25E-05	4.13E-05	3.05E-05	1.68E-05	9.94E-06	2.21E-05	8.07E-05
Benzyl chloride	3.26E-05	1.61E-05	1.76E-05	1.98E-05	2.10E-05	2.29E-05	2.22E-05	1.64E-05	9.06E-06	5.35E-06	1.19E-05	4.35E-05
Bis(2-ethylhexyl)phthalate (DEHP)	3.40E-06	1.68E-06	1.84E-06	2.06E-06	2.19E-06	2.39E-06	2.32E-06	1.71E-06	9.45E-07	5.58E-07	1.24E-06	4.53E-06
Bromoform	1.82E-06	8.99E-07	9.81E-07	1.10E-06	1.17E-06	1.28E-06	1.24E-06	9.15E-07	5.05E-07	2.98E-07	6.63E-07	2.42E-06
Carbon disulphide	6.06E-06	3.00E-06	3.27E-06	3.67E-06	3.89E-06	4.25E-06	4.13E-06	3.05E-06	1.68E-06	9.94E-07	2.21E-06	8.07E-06
2-Chloroacetophenone	3.26E-07	1.61E-07	1.76E-07	1.98E-07	2.10E-07	2.29E-07	2.22E-07	1.64E-07	9.06E-08	5.35E-08	1.19E-07	4.35E-07
Chlorobenzene	1.02E-06	5.07E-07	5.54E-07	6.21E-07	6.59E-07	7.20E-07	6.99E-07	5.16E-07	2.85E-07	1.68E-07	3.74E-07	1.37E-06
Chloroform	2.75E-06	1.36E-06	1.48E-06	1.66E-06	1.77E-06	1.93E-06	1.87E-06	1.38E-06	7.64E-07	4.51E-07	1.00E-06	3.66E-06
Cumene	2.47E-07	1.22E-07	1.33E-07	1.50E-07	1.59E-07	1.73E-07	1.68E-07	1.24E-07	6.86E-08	4.05E-08	9.01E-08	3.29E-07
Cyanide	1.16E-04	5.76E-05	6.29E-05	7.05E-05	7.49E-05	8.18E-05	7.94E-05	5.87E-05	3.24E-05	1.91E-05	4.25E-05	1.55E-04
2,4-Dinitrotoluene	1.30E-08	6.45E-09	7.05E-09	7.90E-09	8.39E-09	9.16E-09	8.89E-09	6.57E-09	3.62E-09	2.14E-09	4.76E-09	1.74E-08

*Brandon Generating Station Licence Review  
Air Quality Impact Assessment*

COPC	Discrete Receptor Concentration ( $\mu\text{g}/\text{m}^3$ )											
	1	2	3	4	5	6	7	8	9	10	11	Max. POI
Dimethyl Sulphate	2.24E-06	1.11E-06	1.21E-06	1.35E-06	1.44E-06	1.57E-06	1.52E-06	1.13E-06	6.21E-07	3.67E-07	8.16E-07	2.98E-06
Ethyl benzene	4.38E-06	2.17E-06	2.37E-06	2.65E-06	2.82E-06	3.08E-06	2.99E-06	2.21E-06	1.22E-06	7.19E-07	1.60E-06	5.84E-06
Ethyl chloride	1.96E-06	9.68E-07	1.06E-06	1.19E-06	1.26E-06	1.37E-06	1.33E-06	9.86E-07	5.44E-07	3.21E-07	7.14E-07	2.61E-06
Ethylene dichloride	1.86E-06	9.22E-07	1.01E-06	1.13E-06	1.20E-06	1.31E-06	1.27E-06	9.39E-07	5.18E-07	3.06E-07	6.80E-07	2.48E-06
Ethylene dibromide	5.59E-08	2.77E-08	3.02E-08	3.39E-08	3.59E-08	3.93E-08	3.81E-08	2.82E-08	1.55E-08	9.18E-09	2.04E-08	7.45E-08
Formaldehyde	1.12E-05	5.53E-06	6.04E-06	6.77E-06	7.19E-06	7.85E-06	7.62E-06	5.63E-06	3.11E-06	1.84E-06	4.08E-06	1.49E-05
Hexane	3.12E-06	1.54E-06	1.69E-06	1.89E-06	2.01E-06	2.19E-06	2.13E-06	1.57E-06	8.67E-07	5.12E-07	1.14E-06	4.16E-06
Isophorone	2.70E-05	1.34E-05	1.46E-05	1.64E-05	1.74E-05	1.90E-05	1.84E-05	1.36E-05	7.51E-06	4.44E-06	9.85E-06	3.60E-05
Methylbromide	7.45E-06	3.69E-06	4.03E-06	4.52E-06	4.79E-06	5.23E-06	5.08E-06	3.76E-06	2.07E-06	1.22E-06	2.72E-06	9.93E-06
Methyl chloride	2.47E-05	1.22E-05	1.33E-05	1.50E-05	1.59E-05	1.73E-05	1.68E-05	1.24E-05	6.86E-06	4.05E-06	9.01E-06	3.29E-05
Methyl ethyl ketone	1.82E-05	8.99E-06	9.81E-06	1.10E-05	1.17E-05	1.28E-05	1.24E-05	9.15E-06	5.05E-06	2.98E-06	6.63E-06	2.42E-05
Methyl hydrazine	7.92E-06	3.92E-06	4.28E-06	4.80E-06	5.09E-06	5.56E-06	5.40E-06	3.99E-06	2.20E-06	1.30E-06	2.89E-06	1.06E-05
Methyl methacrylate	9.32E-07	4.61E-07	5.03E-07	5.64E-07	5.99E-07	6.54E-07	6.35E-07	4.69E-07	2.59E-07	1.53E-07	3.40E-07	1.24E-06
Methyl tert-butyl ether	1.63E-06	8.07E-07	8.81E-07	9.88E-07	1.05E-06	1.15E-06	1.11E-06	8.22E-07	4.53E-07	2.68E-07	5.95E-07	2.17E-06
Methylene chloride	1.35E-05	6.69E-06	7.30E-06	8.18E-06	8.69E-06	9.49E-06	9.21E-06	6.81E-06	3.75E-06	2.22E-06	4.93E-06	1.80E-05
Phenol	7.45E-07	3.69E-07	4.03E-07	4.52E-07	4.79E-07	5.23E-07	5.08E-07	3.76E-07	2.07E-07	1.22E-07	2.72E-07	9.93E-07
Propionaldehyde	1.77E-05	8.76E-06	9.56E-06	1.07E-05	1.14E-05	1.24E-05	1.21E-05	8.92E-06	4.92E-06	2.91E-06	6.46E-06	2.36E-05
Tetrachloroethylene	2.00E-06	9.91E-07	1.08E-06	1.21E-06	1.29E-06	1.41E-06	1.37E-06	1.01E-06	5.57E-07	3.29E-07	7.31E-07	2.67E-06
Toluene	1.12E-05	5.53E-06	6.04E-06	6.77E-06	7.19E-06	7.85E-06	7.62E-06	5.63E-06	3.11E-06	1.84E-06	4.08E-06	1.49E-05
1,1,1-Trichloroethane	9.32E-07	4.61E-07	5.03E-07	5.64E-07	5.99E-07	6.54E-07	6.35E-07	4.69E-07	2.59E-07	1.53E-07	3.40E-07	1.24E-06
Styrene	1.16E-06	5.76E-07	6.29E-07	7.05E-07	7.49E-07	8.18E-07	7.94E-07	5.87E-07	3.24E-07	1.91E-07	4.25E-07	1.55E-06
Xylenes	1.72E-06	8.53E-07	9.31E-07	1.04E-06	1.11E-06	1.21E-06	1.18E-06	8.68E-07	4.79E-07	2.83E-07	6.29E-07	2.30E-06
Vinyl acetate	3.54E-07	1.75E-07	1.91E-07	2.14E-07	2.28E-07	2.49E-07	2.41E-07	1.78E-07	9.84E-08	5.81E-08	1.29E-07	4.72E-07